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PhD Dissertation

Immigrant-Native Labour Market Gaps Analysis from Institutional Perspective

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UNIVERSITA DEGLI STUDI DI MILANO

(A DISSERTATION SUBMITTED TO THE DEPARTMENT OF SOCIAL AND POLITICAL
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To

Elham

and My Family

who have always believed in me

and who have always supported me so generously

may I be able to do the same for you in some way.

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Milan, Italy   Bahram Salavati Sarcheshmeh

November 5, 2015

ABSRTACT

While immigration is considered as common solution among receiving countries to address the highly skilled labour force shortages, the evidence from both traditional and new receiving countries indicate that highly skilled migrant workers have less intended performance and markedly lag behind comparable native workers in terms of labour market outcomes. In this sense, the economic integration of highly skilled migrant workers and their inferior labour market outcomes relative to natives seem as serious challenges towards most of host countries. However, the extent of the disparity between immigrants and natives labour market outcomes varies significantly across these countries. Accordingly, the motivating question of this study is how can these differences and immigrant-native gaps variation be explained? There are some explanations from different perspectives (micro and macro-level perspective), but the main focus of this study is on macro-level perspective investigating in particular how institutional factors can affect this cross-country variation. Indeed, this research attempts to expand few existing literature on institutional factors impacts on highly skilled migrant workers incorporation process and their labour market outcomes variation across host countries. Hence, this study breaks new ground by offering a systematic measurement of the role of host countries' institutions on immigrant-native labour market gaps for highly skilled workers. More precisely, this piece of work hypothesizes that the variations in relative highly skilled immigrants inferior labour market outcomes across advanced industrialized economies might be closely related to those countries' specific institutional configurations (institutional specificity hypothesis). Therefore, the core aim of this thesis is to explore how the immigrant-native labour market gaps are associated with institutional settings (skill migration and skill formation regimes) in receiving countries? In this regard, current work contains some significant contributions. Firstly, it tries to test new research hypotheses concerning impacts of skill migration policies and key institutional attributes of the host countries on immigrant-native labour market gaps. This work differs from existing studies in that it attempts to bridge between skill formation regimes literature (VOC literature which offers a systematic typology of socio-economic regimes namely, LMEs, CMEs and MMEs) and skill migration policy debates. Secondly, from comparative migration studies perspective, this research extends empirical evidence on the immigrant-native labour market gaps across selected OECD countries including both traditional (Australia, Canada and United States) and European receiving countries. Most specifically, this analysis expands the cross-country evidence in the highly skilled immigrants' economic integration in receiving countries.

To test main research hypotheses of the study, a secondary data analysis for nineteen selected OECD receiving countries is undertaken by applying two-step multilevel modelling to estimate two major outcome variables, namely the risk of being unemployed and the occupational status difference between highly skilled immigrants and indigenous people. The empirical findings show that in all countries studied, highly skilled immigrants (both male and female) significantly lag behind comparable natives in terms of employment chances and occupational status, in conformity with the disadvantage hypothesis. Furthermore, the results obviously confirm significant variation in immigrant-native labour market gaps of highly skilled workers both within country and cross-nationally. As the two-step multilevel linear regressions results confirm, in LMEs countries with general skill regimes, highly skilled immigrants have better employment entry chances. Hence as expected, immigrant-native unemployment gaps tend to be lower in liberal market economies (LMEs) compared to the CMEs and the MMEs. Also, the findings show that immigrants have, on average, higher occupational status in LMEs than those who settled in countries with specific skill regimes (CMEs) and mixed skill systems (MMEs). Accordingly, the immigrant-native occupational gaps for both highly skilled male and female workers seem to be closer in LMEs. Therefore, the results seem to confirm the institutional specificity hypothesis. Considering skill migration policy regimes, the results are mixed especially when it comes to hybrid migration policy systems. Consistent with the expectation, hybrid systems provide favourable conditions in terms of highly skilled immigrants' labour market access and employment, whereas the immigrants tend to have less desirable job positions in host countries with hybrid systems. Hence, the results suggest that immigrant-native occupational status gaps tend to be larger in countries with hybrid systems compared to those with employment-based systems. One of the remarkable implications obtained from the analysis is that both skill migration policies (conditions of entry to a host country) and the host country's specific institutional arrangements (context of reception) have significant impacts on highly skilled immigrants' economic performance and as a consequence influence immigrant-native gaps. This reflects the fact that, one the one hand, skill migration policies or contextual factors may have positive or negative effects on immigrants' outcomes and therefore can facilitate or impede their integration in the host country's labour market. On the other, it also suggests that immigrant-native gaps may be due to inconsistency between skill regimes and skilled migration policies that leads to labour market inefficiencies in the host countries.

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GLOSSARY OF TERMS AND ACRONYMS

Countries in Empirical Analysis

AUS	Australia	GBR	United Kingdom
AUT	Austria	GRC	Greece
BEL	Belgium	IRL	Ireland
CAN	Canada	ITA	Italy
CHE	Switzerland	NLD	Netherlands
DEU	Germany	NOR	Norway
DNK	Denmark	NZL	New Zealand
ESP	Spain	PRT	Portugal
FIN	Finland	SWE	Sweden
FRA	France	USA	United States

Terms and Acronyms

AUSSA	Australian Survey of Social Attitudes	ILO	International Labour Organization
CMEs	Coordinated Market Economies	ISCED	International Standard Classification of Education designed by UNESCO in 1970's.
DIOC	Database on Immigrants in OECD Countries	ISCO	International Standard Classification of Occupations adopted in 1957 by ILO.
ECHP	European Community Household Panel	ISEI	International Socio-Economic Index of Occupational Status
EAG	Education at a Glance	LMEs	Liberal Market Economies
EFTA	European Free Trade Association	MIPEX	Migrant Integration Policy Index
ESS	European Social Survey	MMEs	Mixed Market Economies
EU	The European Union	OECD	Organization for Economic Cooperation and Development
EU LFS	European Union Labour Force Survey	PSID	Panel Study of Income Dynamics
Eurostat	Statistical Office of the European Union	PUMF	Public Use Micro File
EU SILC	European Union Statistics on Income and Living Conditions	TSCS	Time-Series Cross-Section
GDP	Gross Domestic Product.	VET	Vocational education training

GDP (PPP)	Gross Domestic Product derived from Purchasing Power Parity.	VOC	Varieties of Capitalism

HILDA   Household, Income and Labour
         Dynamics in Australia

ICTWSS   Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and
         Social Pacts between1960 and 2007 in 34 countries[1]

MIPEX   Migrant Integration Policy Index, tool used to measure integration policies in EU Member States,
         Norway, Switzerland, Canada and the USA.

NACE   Statistical classification of economic activities in the European Community (derived from French
         "Nomenclature statistique des activités économiques dans la Communauté européenne").

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[1] Australia, Austria, Belgium, Bulgaria, Canada, Cyprus, the Czech Republic, Denmark, Estonia, Germany, Greece, Finland, France, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, the Netherlands, New Zealand, Malta, Norway, Poland, Portugal, Romania, Spain, Slovenia, Slovakia, Sweden, Switzerland, the United Kingdom, and the United States.

INTRODUCTION

NEED FOR HIGHLY SKILLED WORKERS (SUPPLY-DEMAND GAP)

Shifting from manufacturing economy to knowledge (service) economy with the increasing global demand for highly skilled[2] labour force, all challenge supply side not only to provide sufficiently larger number of highly skilled but also to satisfy efficiently labour market needs. As a result, most of the (developed) countries have implemented different measures to augment their supply of skilled workforce which increasingly demanded by the firms and employers. National skill formation systems together with mobility and migration systems are generally considered as two main mechanisms which the countries often use to coordinate high skilled supply and demand numerically (Reitz 2007; Constant and Tien 2011). Nevertheless, there are so many challenges towards coordination between supply and demand of highly skilled workers particularly in developed countries. On the one hand, increasing demand of highly skilled due to structural changes in world economy and consequent growing shortages of highly skilled endanger countries competitiveness (Shacher, 2006; OECD, 2009; UKCES, 2010). On the other hand, increasing pressure on the supply side to provide enough number of skilled workforces has coincided with demographic changes in the most developed countries. Projections show incoming workforce cohorts are smaller than outgoing ones due to some demographic changes such as "aging" (OECD 2009).

In such circumstances, immigration is viewed as one way of the addressing skilled labour force shortages which can complement national skill formation systems of countries and effectively contribute to them to mitigate skill shortages at least in short term (Bauer et al 2004). This policy option has encouraged many receiving countries to take initiatives to admit more skilled foreign workers specifically in last two decades. The seminal research work by Shacher (2006) reveals how traditional migration countries such as the U.S., Canada, or Australia with prolonged immigration policies, have

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[2] Generally, in discussions about highly skilled migration, a "highly skilled" (HS) is one with a university degree (Chaloff and Lemaitre, 2009). However, a highly skilled migrant (HSM) can be defined from three distinct approaches namely, education/qualification-based, occupation-based and wage-based perspective. From education/qualification-based perspective, as mentioned earlier, a HS is one with a university degree (ISCED 5/6) based on the definition of International Standard Classification of Education (ISCED/ UNESCO 1997) where Primary level: ISCED 0/1/2; Secondary level: ISCED 3/4; Tertiary level 1: ISCED 5B/5A; Tertiary level 2: ISCED 6. From occupation-based perspective, on the basis of International Standard Classification of Occupations (ISCO-88), a HSM is one who holds occupations including managers, professionals and associate professionals. Concerning wage-based perspective, the wage level of the job is usually considered as an indicator of the skill level and hence, there is a wage threshold level for "highly skilled" like in Tier 1 of the United Kingdom migration program (Lemaitre et al 2009). For the purposes of this research project, especially due to considerations for comparability of country cases, "highly skilled" definition from the educational perspective will be considered.

increased their quotas for high skilled immigrants[3]. This approach of traditional immigration countries has stimulated other receiving countries especially in Europe to leave former 'zero-sum migration' policies and to follow new migration possibilities particularly towards high skilled immigrants. For instance as Shacher (2006) states "*the German government, which has long opposed any new initiatives for labour migration, launched with much fanfare its fast-track "green card" scheme that allows up to 20,000 IT specialists from non-European countries to enter the country as skilled migrants*". This general tendency to highly skilled immigration policy has led to a very competitive 'race for talents' particularly among most developed countries (Shacher 2006; OECD 2001, 2008, 2009).

NATIVE-IMMIGRANT GAPS

As outlined above, immigration is considered among receiving countries as common solution to address the highly skilled labour force shortages. Yet, immigration coin has two sides. Indeed, filling the gap between supply of and demand for highly skilled through immigration policy does not always guide host countries to intended aims which subsequently make policymakers concerned about migrant workers labour market outcomes. The evidence from both traditional and new receiving countries (Kogan, 2007; Causa and Jean, 2007; Jean et al., 2010; Cangiano 2012, Guzi et al., 2015) confirm that migrant workers on average have less intended performance in the labour markets and they markedly lag behind comparable native workers in terms of employment or wages, or both. In addition, "brain waste" (Mattoo et al. 2005) or "de-skilling" (Cangiano 2012) are other aspects of problematic integration of skilled migrant workers into host countries' labour market that occur once skilled foreign workers are hired for jobs for which they are overqualified. There are well-known examples of "brain waste" in North American countries large cities where 'Caribbean doctors' or 'Eastern European scientists' are working as taxi drivers (Schiff 2005; Reitz 2007). So, the economic integration of highly skilled migrant workers and their inferior labour market outcomes relative to natives seem as serious challenges towards most of the host countries (Aydemir, 2012).

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[3] Quite similar to "highly skilled" definition, there are different approaches for definition and recognition of ethnic groups, like "immigration-based" and "citizenship-based" approach (Buchel 2005). In this study, the immigration-based approach will be followed again due to some considerations for comparability of country cases, because it seems more robust to cross-country differences in comparative migration studies particularly to prevent some confusions between the status of being foreign-born and that of being a foreigner. Therefore, immigrant status is simply measured by individual's place of birth in the host countries under investigation here. Accordingly, those who were born in the host country are classified as indigenous (native-born), contrarily, those who were not born in the host country are considered to be immigrants (foreign-born). While simple and conventional, applying this approach can lead to a number of problems like children were born overseas to nationals of the country of destination and etc. For more detailed discussions about raised problems, see e.g. Wanner (2011) and Cangiano (2012).

However, the extent of the disparity between immigrants and natives varies significantly across these countries. In this regard, Figure (I.1) compares employment rate differences between migrant and native workers (for both highly and low-educated workers) in several EU countries and some traditional host countries. Generally as it is evident, employment rates of highly skilled immigrants in all studied countries are lower than their native counterparts. The difference is sizeable in most cases, however, the dissimilarity between the two groups varies considerably across different host countries so that the countries which take closer position to the base-line show smaller employment rate differentials. For instance, the immigrant-native employment gap in traditional receiving countries is narrower than in European countries, especially the employment disparity between highly skilled natives and immigrants in the United States is relatively low. Conversely and very interestingly, in some host countries particularly in Italy, United States and Greece, low-skilled migrant workers have higher rate of employment than respective native people.

It is well recognized, as clearly shown in Figure (I.1), that immigrants to host countries in general and highly skilled immigrants in particular have lower employment rates and generally have a weaker position on the labour market than native-born workers. On the other hand, the economic integration into labour market is of key importance not only for the immigrants but also for the receiving countries. Indeed, it affects to the large extent the economic status of immigrants in the host country as well as the social integration of immigrants and their family. Non-integrated immigrants are more affected by the unemployment or lower income and consequently would be more dependent on social benefits relative to the natives. This disadvantaged position of immigrants can propel them to live segregated and consequently they will not be able even to bring up their offspring to integrate in to society completely. In such circumstances, segregated immigrants not only cannot to contribute in the creation of societal values but also they might come into conflict with such society. Hence, poor economic integration and sizeable immigrant-native labour market gaps might lead to serious problems for both the immigrants and the receiving society. In this sense, it is an important task for social scientists as well as policy makers to better understand the determinants of native-immigrant gaps in host countries' labour markets.
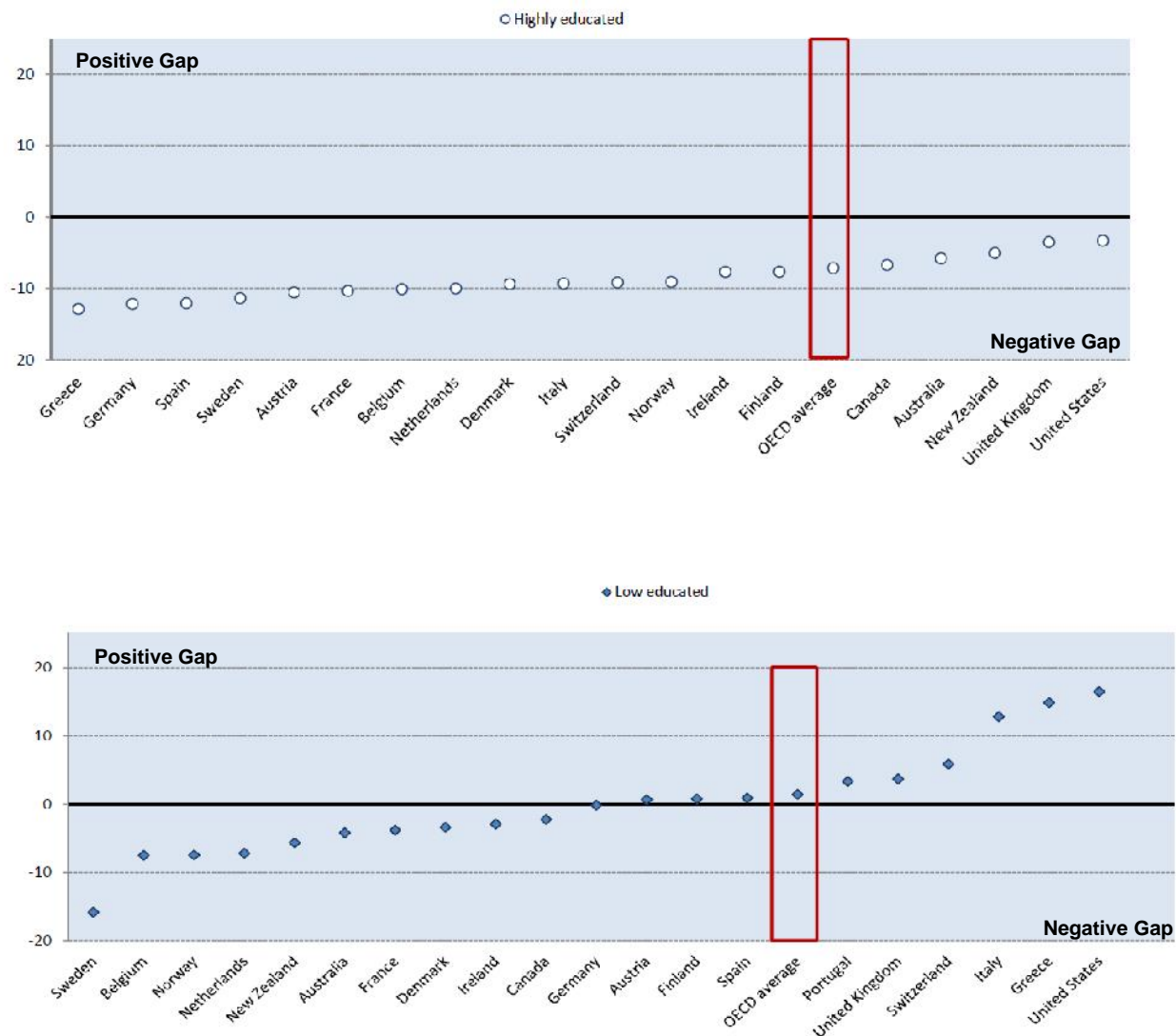
Figure I.1. Difference in employment rate between foreign- and native-born populations aged 15 to 64 by high and low educational level, 2009-10

Source: OECD indicators of Immigrant integration 2012

Accordingly, the 'immigrant-native gaps' topic has increasingly received much scholarly attention. For instance, while economic integration of immigrants has been long-standing challenge for traditional migrant receiving countries like Canada and the Australia which have started to select and recruit highly skilled migrants in the early 1970s, this is rather new emerging challenge for European receiving countries which have recently joined to the highly skilled migrant receiving countries club at the end of the 1990s. Hence, together with increasing the number of receiving countries, the extent and the range of comparative studies considering the integration challenge and labour market outcomes of migrant workers in host countries have been markedly expanded. Based on the existing literature, two different approaches are often followed to address the immigrant-native gaps. The "micro approach" mainly considers individual human capital characteristics (e.g. skills, qualifications and age, etc.) to explain labour market disparities between natives and immigrants whereas "macro approach" refers to institutional characteristics of host countries (e.g. migration policies, labour market structure) to justify these differentials. While numerous theoretical and empirical studies especially from micro perspective have addressed immigrant-native gaps, relatively few macro-level analyses exist that apply institutional perspective. So, there is little direct or systematic evidence of how institutional factors influence the immigrant-native labour market gaps. Moreover, those few studies that particularly consider the role of macro-level factors, have focused mostly on one or two main influencing factors and rarely put forward an integrated analysis design considering a range of potential affecting factors including migration policies as well as key structural features of host countries which pursue the possible interrelations between them. More specifically, cross-country comparative research on the labour market integration of highly skilled immigrants is very rare. All in all, as above briefs (more details in chapter one), it seems that the existing literature offers diverse and contested perspectives in understanding and policy issues concerning immigrant-native labour market outcome gap variations across receiving countries and particularly, there is still much room to expand our understanding of how institutional factors account for these variations.

RESEARCH OBJECTIVES AND CONTRIBUTIONS

This study conceives that in most receiving countries, highly skilled immigrants find it hard to enter the labour market or tend to have a weaker position on the market compared to their native counterparts (disadvantage hypothesis). At the same time, the extent of the disparities between immigrants and natives varies significantly across different receiving countries. Accordingly, the motivating question of this study is how can these differences and immigrant-native gaps variation be explained? There are some explanations from different perspectives, but I will mainly focus on macro-level perspective and how institutional factors can affect this cross country variation. Indeed,

this research attempts to expand few existing literature on institutional factors impacts on highly skilled migrant workers incorporation process and their labour market outcome variations across host countries. So, this study breaks new ground by offering a systematic measurement of the role of host countries' institutions on immigrant-native labour market gaps for highly skilled workers. In this regard, this piece of work hypothesizes that the variations in relative highly skilled immigrants inferior labour market outcomes across advanced industrialized economies might be closely related to their specific institutional configurations (institutional specificity hypothesis). More specifically, the core aim of this thesis is to explore how the immigrant-native labour market gaps are associated with institutional settings (skill migration and skill formation regimes) in receiving countries? To address the main research question, this study also will seek to get answer of the following specific questions: Why are the gaps? Are highly skilled immigrants more disadvantaged in terms of occupational status and risk of unemployment than relative natives? How can the immigrant-native disparity variation be explained by the context of reception and condition of the entry to a host country? What are the impacts of overarching skill migration policy (employment-based versus hybrid systems) in the host country on migrant workers outcomes? Whether host country certain institutional structure such as general or specific skill regime can explain this cross-national variation?

Considering aforementioned research objectives and guiding questions, this piece of work contains some significant contributions. Firstly, it tries to test new hypotheses concerning impacts of skill migration policies and key institutional attributes of the host countries on immigrant-native labour market gaps. This work differs from existing studies in that it attempts to bridge between skill formation regimes literature (Varieties of Capitalism literature) and skill migration policy debates. In this sense, to the best of my knowledge, this is one of the first efforts to link skill structures of the host countries with skill migration policies in favouring the economic integration of highly skilled migrant workers. From comparative studies perspective, this research study extends empirical evidence on the immigrant-native labour market gaps across selected OECD countries including both traditional (Australia, Canada and United States) and European receiving countries. Most specifically, this analysis contributes to the cross-country evidence on the highly skilled immigrants' economic outcomes in the receiving countries.

STRUCTURE OF THE STUDY

In this dissertation, based on the multivariate multilevel analyses across 19 selected OECD receiving countries, I mainly seek to explore how the immigrant-native labour market gaps are associated with institutional settings (skill migration and skill formation regimes) in receiving

countries. Keeping in mind the main research question, the dissertation is divided into four main chapters followed by a conclusion.

The first chapter initially presents a brief discussion of existing (micro and macro) approaches (micro and macro) for understanding and explaining the labour market differences between immigrants and indigenous people. Then, it provides a comprehensive overview of existing literature focused on immigrant-native gaps from macro level (institutional perspective). By reviewing the pertinent literature, this chapter draws the central debates concerning structural factors account for the immigrant-native labour market gap variations across the receiving countries. In this regard, the literature investigates reviewed under this study is organized in two central themes: the first one mainly explicates the migration-related factors (migration and integration policies) which mostly target (in) directly immigrants in order to facilitate their social and economic integration; the second mostly investigates how (non-migration) related institutional factors affect native and migrant workers' outcomes in the host country labour market as well as immigrant-native labour market gaps. Drawing views and insights from the pertinent theoretical and empirical studies, this chapter indicates literature gaps and concludes that despite the increasing research attention to the understanding impacts of host countries' institutional characteristics, there is still little systematic evidence of how institutional factors influence the immigrant-native labour market gaps.

Chapter two primarily provides the conceptual and theoretical groundwork in order to develop the argument and derive the guiding hypotheses. So it basically lays the conceptual and theoretical framework to analyse the potential impacts of the structural factors of interest on immigrant-native gaps and hence, addresses the effects of skill formation regimes as well as skilled migration policy regimes in detail. In this respect, the varieties of capitalism (VOC) framework has been adopted as the main comparative analysis framework of skill regimes in this study. Accordingly the chapter initiates the discussion with the (varieties of) skill migration policy regimes and then focuses on skill formation regimes and how these systems influence immigrant-native gaps. In the following, selected variables from the main pillars of VOC framework namely, employment protection legislation, industrial relations (trade unions density and collective bargaining coverage), skill specificity and labour market structure effects are investigated.

Chapter three mainly deals with research design and methodology of this research work. So, it firstly presents the four main hypotheses under investigation in current research concerning the expectations about institutional factors of interest's (skill formation regimes and skilled migration policies) effects on the labour market outcomes of highly educated immigrants compared to respective native-born people. Then, the main two dependent variables (the likelihood of

unemployment and the occupational status) and several independent variables (at individual and country levels) as well as various data sources utilised for the empirical analyses across 19 selected OECD receiving countries are described in detail. At the final step, a detailed examination of the multilevel modelling and in particular two-step estimation strategy used for data analysis will be discussed.

Chapter four mainly exhibits the empirical findings of this study and then evaluates the hypotheses and discusses the results. This chapter is divided into two subsections. The first subsection provides descriptive results on socio-demographic characteristics and labour market outcomes of immigrants as compared to the native-born as well as main institutional characteristics of the countries under discussion in this study. Then, in the other subsection, the results of the multivariate multilevel analyses carried out in order to evaluate the effects of institutional factors upon the risk of unemployment and occupational status inequalities between highly educated immigrants and natives are described. Due to important gender contrasts in labour market outcome patterns, for both natives and immigrants, all descriptive and analytical statistics are presented separately by each gender. Finally, a handy summary of the empirical findings together with some conclusions corresponding to main hypotheses of the this study related to institutional factors effects on the immigrant-native unemployment risk and occupational status gaps for highly-skilled male and female workers is reported.

At the end, the dissertation provides concluding remarks corresponding to main objective of the study, research questions, hypotheses and arguments raised throughout the course of the study. This chapter also discusses some policy implications for receiving countries on how to tackle the challenge of attracting highly skilled immigrants and their integration to the labour markets, and finally makes recommendations for further research.

CHAPTER 1: LITERATURE OVERVIEW ON IMMIGRANT-NATIVE GAPS

1.1 MICRO APPROACH VS. MACRO APPROACH

The labour market gaps between highly skilled immigrants and natives arise some basic questions: Why are the gaps? Are highly skilled immigrants more disadvantaged in terms of occupational status and risk of unemployment than relative natives? Why do the immigrant-native labour market outcome gaps significantly vary across countries? How can the immigrant-native disparity variation be explained by the context of reception and condition of the entry to a host country? What are the impacts of overarching skill migration policy (employment-based versus hybrid systems) in the host country on migrant workers outcomes? Whether host country certain institutional structure such as general or specific skill regime can explain this cross-national variation?

To address these questions and other similar ones, there is an expanding body of literature investigating the factors account for the immigrant-native gaps in the labour markets. In this regard, two main streams/approaches in the literature can be identified: First one as "**micro approach**" gives more weight to human capital-related mechanisms and focuses primarily on the individual characteristics of immigrants and attempts to justify the immigrant-native differences and variations across countries through human capital and other socio-demographic characteristics differentials. Based on human capital theory (Becker, 1960, 1994; Mincer, 1962; Schultz, 1963) which mainly puts emphasis on acquired capacities of workers through formal and informal education, training, experience and mobility in the labour market, the immigrants' human capital resources play major role in the integration process and have remarkable effects on their labour market outcomes in a host country. Along with this approach, as stressed by several authors (e.g. Chiswick, 1978; Poston, 1994; Borjas, 1985, 1994; Friedberg, 2000; Reitz, 2001; Le Grand et al., 2002; Adsera and Chiswick, 2007; Constant and Zimmermann, 2008; Kahanec and Zaiceva, 2009; Zaiceva and Zimmermann, 2011; Dustmann and Frattini, 2012; Islam and Parasnis, 2014), a number of diverse individual determinants such as ethnicity, age, gender, marital status, skills, qualifications, work experiences, year of arrival or years since migration, and etc. can influence the extent and the speed of immigrants' integration and account for their relative labour market outcome disadvantage in a receiving country. However, as underscored by some authors like Kogan (2007), immigrants' integration in the labour market is influenced not only by the individual characteristics of immigrants themselves, but also by other national features of the host society. In this line, Cangiano (2012) argues that the micro approach in general and individual characteristics in particular, only partly explains labour market outcome differentials between natives and

immigrants and cannot fully address the immigrant-native gaps, therefore observed disparities might be ascribed to some other macro factors such as labour market structure and regulation in the host countries.

So, the **'macro approach'** is another alternative to address above questions which gives more weight to the macro institutional mechanisms and basically takes host countries' national characteristics into account and hence attributes observed differentials to the institutional structure of receiving countries. Indeed, the main idea behind this approach is that integration of immigrants to labour market and integration' outcomes will differ across various host countries, as these vary with respect to institutional arrangements. In other words, a country's institutional arrangements significantly influence the integration process of people (either native or foreign born) in general and particularly affect the decisions made by individual actors, be they migrant job seekers looking for employment in a host country or employers deciding whether to recruit a native or migrant worker (Kogan, 2007). In line with this approach, some authors like Gangl (2000) and Van der Velden et al., (2001) generally address the impact of institutional arrangements such as skill formation (training systems) and labour market structures on integration of skilled/low skilled people into labour markets and empirically show cross-national variations in labour market outcomes. Similarly, other research works (e.g. Büchel and Frick, 2005; Wanner and Dronkers, 2005; Reitz, 2007; Kogan, 2007; Cangiano, 2012, Guzi et al., 2015) theoretically and empirically indicate that employment success of immigrants is mainly determined by various institutional factors including migration systems, labour market structure and related institutions like educational system, government policies and other policies affecting their integration and welfare. As it is completely evident both micro and macro approaches to some extent might address the variations for immigrants' employment disadvantages across host countries. So, the observed labour market differences might be attributed partially to the host countries' contextual circumstances and partially to the human capital characteristics of immigrants.

Hence, without ignoring highly skilled immigrants' individual characteristics (e.g. age, gender, education, years since immigration), this research work mainly focuses on the macro approach and consequently lays emphasis on the institutional determinants of immigrant-native differentials. Form this aspect, it seems relevant by controlling education and qualifications level of migrant workers to a certain extent, to investigate the structural determinants of highly skilled immigrants' success and how host countries' institutional features intervene in the general incorporation process of highly skilled migrants into labour market and society which at the end of the day might lead to different labour market outcomes of skilled migrant workers in comparison to the native counterparts.

Choosing the institutional approach arises another important question: which do structural characteristics of the host countries substantially intervene in the incorporation process of highly skilled migrant workers into the labour market and account for their economic success or failure? Indeed, most of the theoretical and empirical studies that have generally regarded the institutional factors impacts on migrant workers' labour market outcomes (either skilled or unskilled) indicate that several factors are involved. For example Borjas (1993), Cobb-Clark (2006), Constant and Zimmermann (2005), and Cangiano (2012) have mainly pointed to the significance of immigration and integration policies. At the same time, other comparative studies (e.g. Büchel and Frick, 2005; Kogan, 2007; Wanner, 2011; Guzi et al., 2015) showed that not only the immigration policy has effects on immigrants' economic performance but also other factors underpinning migrant unfavourable outcomes in labour markets can be pointed out in the institutional context of the receiving country, including: the skill formation system, the welfare regime; industrial relation; and, most notably, labour market structures and regulations. So there are a number of institutional factors which potentially could affect immigrant-native gaps. Here in the following two broad set of institutional factors namely, migration-related factors (migration and integration policies) and structural features are reviewed. The former include factors which (in) directly target immigrants while the latter consider both native and migrant workers active in the host country labour market.

1.2 MIGRATION AND INTERGRATION POLICIES IMPACTS: AN OVERVIEW

As noted before and some studies indicate immigrant and native populations exhibit disparate labour market outcomes across most of the receiving countries (Kahanec and Zaiceva, 2009; Jean et al., 2010). So host countries implement various specific migration and integration policies which directly and indirectly influence immigrants in order to facilitate their social and economic integration. Nevertheless, it is still under discussion how effective these polices are and how they contribute to close the immigrant-native labour market gaps observed across countries. In Table 1.1, a selective overview of empirical studies investigating migration and integration policies effects on immigrant-native gaps has been presented. As it is evident in Table 1.1, a number of empirical studies specifically consider the immigration policies effects on immigrant-native gaps. In this line, some authors mainly focus on the impacts of mode of admission (Jusko et al., 2013; Cangiano, 2012; Constant and Zimmermann, 2005) and some other studies examine selective-based migration polices effects (Wanner, 2011; Cobb-Clark, 2006). Besides, integration polices' impacts have been investigated by a series of research works (Guzi et al., 2015; Ramos et al., 2013; Buchel and Frick, 2005).

In their analysis on the immigrants' employment and earnings disadvantage in Germany and Denmark, Constant and Zimmermann (2005) study the role of the legal status of the migrants

at the time of entry and investigate the admission channels effects (asylum or refugee; family reunion and employment) on their labour market outcomes. They argue that economic migrants are more active than non-economic migrants in the labour market and they experience lower earnings disadvantage. So they suggest that because of long-lasting impacts of the entry' legal status on labour market outcomes of immigrants especially on their earnings, selective immigration policy might have determinant impacts on immigrant-native gaps.

Cangiano (2012) in his empirical study across 6 major European immigration countries shows that the immigrant's labour market access and outcomes appertain under the mode of admission and entry. He indicates that immigrant-native gaps significantly vary by immigration categories and specifically migrants who are admitted via labour migration channels have better employment rates than the domestic workforce, humanitarian and family-based migrants. Nevertheless, the author claims that the gaps among different immigration categories particularly between labour migrants and other categories (family or humanitarian) tend to narrow with the passage of time as a result of language and skill acquisition in the host country. The study concludes that the immigration policies might generally affect the quantities and qualities of migrant workers (for instance selecting skilled workers on the basis of point-based systems or selecting low-skilled workers with the quota systems). At the same time, he warns that much higher education levels and higher language proficiency among immigrant workers would necessarily translate into more favourable outcomes.

Jusko et al. (2013) have investigated that how immigration eligibility criteria contribute to migrants' labour market outcomes in receiving communities. They try to address some basic questions considering the economic integration of immigrant workers like whether immigrants selected by employers have better long-term labour market outcomes than those selected by the government through points systems. They find that immigrant entry criteria have important effects on immigrants' labour market outcomes and consistent with previous studies economic-based migrants fare better than family-based migrants. Their empirical findings indicate that low-skilled immigrants have a higher income ratio in comparison to natives than higher-skilled immigrants. They suggest that in addition to admission criteria, host countries' characteristics are important in determining immigrant-native labour market outcome gaps.

Cobb-Clark (2006) analyses the effects of skill-based migration polices on labour market participation and unemployment rate of immigrants, focusing on Australia labour market. He investigates whether immigrants selected based on their skills do better and provide greater economic benefits than immigrants admitted on the basis of their family and particularly how selection policy adjustment can facilitate migrants' integration into the Australian labour market.

His study indicates that there is a great potential for selection-based migration policy to shape immigration labour market outcomes not only just immediately after arrival, but also over the medium run. He argues that due to skill-based migration policy which basically emphasizes on productive skills, recent immigrants entering Australia have higher education, better language skills, and more experienced than those immigrants entering five years earlier. Cobb-Clark (2006) finds that income-support policy in the Australia together with the overall state of labour market had a hand to narrow immigrant-native labour market position gaps.

Researching inter-country variations in selecting migration policies effects on the immigrants' economic outcomes across 20 European countries, Wanner (2011) in his comparative study hypothesizes that the more selective a host country's immigration policy, the higher the household incomes and occupational status of immigrants to that country. He finds significant policy effects for receipt of welfare benefits, particularly for presence of a skill selection policy and the proportion of refugees in a country's immigrant stream. But, surprisingly, little evidence was found for expected policy effects for the economic outcomes.

Buchel and Frick (2005) test the integration policy effects on labour market outcomes of immigrant groups in 8 countries across Europe. They presume that applying successful and integrative migration policy might lead to non-significant economic outcome differences between natives and immigrant people in the host countries. However, their findings indicate to the substantial cross-country variation and differences in immigrant-native economic performance gaps which persist even after controlling for the social structure and level of integration of immigrants. They conclude that not only the admission conditions, but also country-specific institutional arrangements such as restrictions on access to the labour market and the social security system have a great deal of influence over immigrant-native economic outcome gaps.

Ramos et al (2013) analyse (UN) favourable integration policies effects on immigrant-native wage gaps for newly arrived immigrants by the MIPEX index across 22 European countries, taking into account formal education and age. They identify three groups of countries namely, EU15 countries with more favourable policies, EU15 countries with less favourable policies and new EU12 countries with non-favourable policies. Their results show that immigrant-native wage gaps are lower in those countries with more favourable policies. Emphasizing on integration polices effects on immigrants' labour market integration, however, they conclude that it is hard to disentangle which part of these effects related to the studied particular measure, to other migration policies or even to 'non-migration policies'.

Guzi et al (2015) also used the MIPEX index to examine the impact of migration and integration policies on immigrant-native labour market gaps through focusing on labour force participation, unemployment rate, low-skilled employment and temporary employment of immigrants across 15 European countries. They show that migration and integration policies have some significant effects on the immigrant-native labour market gaps even controlling for immigrant-native differences in individual characteristics. They identify some integration polices like anti-discrimination or family reunification integration policies which seem to improve immigrants' prospects of having permanent employment. Their analysis also suggests that the labour market access policies may enable migrants to find jobs that better match their skills.

Table 1.1 Migration and integration policies impacts on immigrant-native gaps: an overview of selected empirical studies

	Author(s)	Key Questions/ Arguments	Dependent Variables	Controls	Country/Data	Main Results
Mode of admission	Jusko et al. (2013)	-How immigration eligibility criteria contribute to labour market outcomes in immigrant communities? -Do more stringent criteria facilitate the economic integration of immigrant workers? -Do immigrants selected by employers have better long-term labour market outcomes than those selected by the government through points systems?	-Earnings of immigrants -Ratio of immigrant-to-citizen earnings	Immigration three categories: -Economic immigrants (employer oriented (demand-based) and government based entry (supply-based)) -Family-based immigrants -Refugees & asylum seekers	Belgium, Denmark, Sweden, Luxembourg, Canada and USA (Luxembourg Income Study-LIS: 2000)	-"Immigrant entry criteria have important effects on immigrants' labour market outcomes. -Economic-based immigrants fare better (higher income) than family-based migrants. -Low-skilled immigrants have a higher income ratio in comparison to similarly skilled natives than higher-skilled immigrants. -Suggests that in addition to entry criteria, receiving country characteristics are important in determining labour market outcomes".
	Cangiano (2012)	What is the impact of migration policies on migrants' access to and performance within the labour market since their arrival in the EU? i) The impact of different migration regimes on the composition of the migrant workforce by category of admission ii) The patterns of labour market incorporation of migrants admitted to the EU in different immigration categories.	-LABM. participation -Access to employment - Sector of employment -Index of relative de-skilling	Immigrants status on entry: 1) Ancestry-based ; 2) EU-15 / EFTA ; 3) Post-Enlargement EU-12; 4) Employment, job found before migrating; 5) Employment, no job found before migrating; 6) Study ; 7) Asylum; 8) Family 9) Other.	6 major EU immigration countries (CHE, FRA, DEU, ITA, SPA, and the UK). EU-LFS 2008 Ad-Hoc Module)	-"Access to and outcomes within the labour market significantly vary by immigration category. -Migrants entering via labour migration channels have systematically higher employment rates than the domestic workforce, humanitarian and family-based migrants. - No strong evidence of an inverted relation between the education level of immigrants and risk of being out of employment. -Suggests that migration policies should not rely on the sole presumption that a high education level is a sufficient condition to access the most qualifying jobs".
	Constant & Zimmermann (2005)	-Study the role of the legal status of the migrant at the time of entry in the host country on work participation and earnings. -How do three specific channels (asylum or refugee; family reunion and employment) influence economic outcomes of immigrants?	-Employment rates -Employment status (paid or self-employed) -Gross weekly earnings	-Individual characteristics upon arrival (age, education and work experience) -Migrants' entry channel (work permit, refugee, and kinship)	Germany (RFMS-G 2002) & Denmark (RFMS-D 2001) (Rockwool Foundation Migration Survey)	-Non-economic migrants are less active in the labour market and exhibit lower earnings (even after controlling for skill-level). -Suggests that there are long-lasting effects of the legal status at entry in country on the earnings potential of immigrants. Hence, a selective immigration policy might be helpful.

	Author(s)	Key Questions/ Arguments	Dependent Variables	Controls	Country/Data	Main Results
Selection-based migration polices	Wanner (2011)	How inter-country variations in immigration policies affect the immigrants' economic outcomes? (Hypothesizes that the more selective a host country's immigration policy, the higher the household incomes and occupational status of immigrants to that country, and the lower the likelihood that they will be unemployed and depend on welfare benefits).	-Household income -Occupational status -Receipt of welfare benefits -Unemployment	- Individual socio-demographic characteristics -Immigration policies in the host countries (skill selection, annual quotas, family reunification, and admission of refugees) -Country of origin predictors (a former colony or not, gross national income, cultural distance from destination countries) -Country of destination predictors(the GNI per capita, social expenses as a percentage of GDP, and the degree of full access to the social security system)	-20 European countries (ESS; 2002, 04, 06) -United States (Labour Force Survey 2002) -Canada (PUMF 2001) -Australia (AuSSA 2005)	-"Little evidence for predicted policy effects for the economic outcomes (income, occupational status and unemployment). -Several significant policy effects were found for receipt of welfare benefits, particularly for presence of a skill selection policy and the proportion of refugees in a country's immigrant stream. -Of the destination country predictors, none had consistent effects on the economic outcomes. -Of the origin country predictors, the only characteristic that uniformly influenced the outcomes is gross national income per capita".
	Cobb-Clark (2006)	-Investigates whether skill-based immigrants do better and provide greater economic benefits than immigrants admitted on the basis of their family? -To what extent were the changes in selection policy helpful in facilitating entry into the Australian labour market?	-Labour market participation; -Unemployment -Employment-to population ratio.	-Human capital characteristics (education, English ability, English language background) -Demographic characteristics (age, marital status, children) -Geographic (state of residence) -Pre-migration occupation and employment status. -Visa category, primary applicant status, and the number of weeks since migration.	Australia (Longitudinal Survey of Immigrants to Australia (LSIA) in two periods 1995 & 1999-2000)	-"The results indicate that there is a large potential for selection policy to shape immigration outcomes not just immediately after migration, but also over the medium run. -Increased emphasis on productive skills in the selection process led individuals entering Australia to have more education, better language skills, and more recent labour market experience than those individuals entering five years earlier. -Finds that income-support policy and the overall state of the Australian labour market had a hand in the improved labour market position of those arriving between 1999 and 2000".

	Author(s)	Key Questions/ Arguments	Dependent Variables	Controls	Country/Data	Main Results
Integration policies	Guzi et al. (2015)	How migration policies and immigrant integration policies affect immigrant integration in host labour markets (immigrant-native labour market gaps as functions of the quality of immigration and integration legislation measured by the MIPEX index).	-Labour force participation -Unemployment -Low-skilled employment - Temporary employment	-Individual socio-demographic characteristics (Education, gender, age and region of residence). -Integration policies are measured using the MIPEX index (Labour mobility, family reunion, residence, citizenship, anti-discrimination).	15 European countries (EU-LFS:2004-2011) (MIPEX:2004,07,10)	-Their analysis confirms destination country policies have some significant effects on the immigrant-native labour market gaps that go beyond the immigrant-native differences in individual characteristics. -They show that immigration policies have the potential to reduce such immigrant-native labour market gaps. -"Anti-discrimination policies improve immigrants' employment prospects. -Family reunification integration policies seem to improve immigrants' prospects of having permanent employment. -The labour market access policies enable migrants to find jobs that better match their skills".
	Ramos et al. 2013	Investigating the impact of favourable or unfavourable policies (by the MIPEX) supporting the labour market integration of recently arrived immigrants on immigrant-native wage gaps through the human capital transferability in the European Union countries.	-Monthly wage (wage gaps between native and immigrants)	-Formal education (also control for potential experience including age and the squared of age) -3 groups of countries: i) EU15 countries with more favourable policies (DEU, DNK, ESP, FIN, FRA, NLD, PRT and SWE) ii) EU15 countries with less favourable policies (AUT, BEL, GRC, IRE, ITA, LUX and the UK) iii) New EU12 countries with non-favourable policies	22 EU countries (EU-SILC: 2004-10) (MIPEX: 2007-2010)	-"Results show that wage differentials between immigrants and natives are lower in those countries with more favourable policies. -This is the result of a better relative situation of medium-skilled workers and not of highly-qualified ones. -The wage gap for immigrants in EU-15 countries is clearly lower than for those arriving at EU-12 countries. -The results suggest that the policies do have some effects on immigrants' labour market integration, however it is not possible to disentangle which part of the effect is due to studied particular measure, to other migration policy or even to 'non-migration policies'.
	Buchel & Frick (2005)	Main premise is that a successful and integrative immigration policy might result in a non-significant differential between the economic performance of immigrants and that of the indigenous population.	-Pre-government ("market") household income -Post-government ("non-market") household income	- Household socio-economic characteristics -Redistribution processes within the respective tax and social security systems	Great Britain, West Germany, Denmark, Luxembourg, Ireland, Italy, Spain & Austria (ECHP, BHPS and GSOEP: 1994-2001)	-Find that the substantial cross-country differences in the immigrant-native performance gaps persist, even controlling for the social structure and level of integration of immigrants. -"Not only the conditions of entry to a country, but also country-specific institutional aspects such as restrictions on access to the labour market and the social security system have impacts on immigrants' economic performance".

1.3 NON-MIGRATION INSTITUTIONAL FACTORS IMPACTS: AN OVERVIEW

Another body of literature regards non-migration related institutional factors which have effects on immigrant-native labour market gaps. These studies not only consider more various institutional factors (even including migration and integration policy factors) but also imply to an integrated evaluation of the institutional embeddedness of immigration. So, this institutional embeddedness indicates that the contextual factors themselves are both autonomous and interdependent. Table 1.2 provides a brief overview of empirical evidence on various institutional factors' impacts on immigrant-native economic differentials.

Using ESS in her comparative study across 21 European countries, Garrett (2011) investigates the skill regimes effects on immigrant-native gaps. She expects because of general skills which make initial entry into the labour market more flexible, immigrants seem to fare better in general skill regimes (LMEs) than in specific skill regimes (CMEs). Her findings show that immigrant-native gap is closer in countries with less skill specificity such as UK and in countries with high skill specificity (CMEs) the immigrant-native disparities tend to increase.

Guzi et al (2015) in their comparative work adopt the Varieties of Capitalism (VOC) framework to study the institutional determinants of immigrant-native gaps in host labour markets. Their findings confirm that institutional contexts particularly VOC dummies play a significant role in immigrant-native gaps. They argue that liberal and emerging market economies tend to provide much more favourable conditions to integrate immigrants into the labour market than coordinated market economies.

Markaki (2014) considers host country national context's impacts on immigrant-native disparities and investigates how and to which extent the immigrants stock, employment regulatory, wage-setting flexibility and union density influence immigrant-native differences in the labour market. He shows that generally immigrant-native gaps are larger in countries with more immigrants. His study also indicates that the strict employment regulation seems to increase immigrants' risk of unemployment, underemployment and chances of holding temporary contracts. Markaki (2014) claims that different roles taken by immigrants and natives in the job market might partially drive immigrant-native disparities.

In his empirical study on the immigrants' labour market disadvantages variation across 28 OECD countries, Bergh (2014) has investigated different institutional factors' effects. Controlling for xenophobia, employment protection laws, collective bargaining, welfare state, share of immigrants, asylum applications, immigrants' education level, integration policies and Gini index,

he argues the bigger immigrant-native employment gaps in the host countries with higher collective bargaining coverage and also in countries with more generous social safety nets. He finds that employment protection laws, social expenditure, asylum applications, and the share of immigrants in the population have explanatory value in some specifications, while somewhat surprisingly migrant integration policies and immigrants' educational attainments have no explanatory value for immigrant-native gaps.

Dustmann and Frattini (2012) try to explain immigrant-native labour market gaps through specific feature of host countries' institutions among 15 Western European countries. They find that immigrants are disproportionately overrepresented in the bottom deciles of the national earnings distributions and have less employment probabilities or less favourable occupational status. Controlling for EU immigrants and non EU immigrants, their results show that the disadvantage is much more pronounced for non-EU immigrants particularly in terms of occupational distribution in in countries with stricter employment protection legislation. They show that immigrant-native gaps are broader in more recent receiving countries. Their analysis claims that immigrants and natives differences in education and demographic characteristics do not explain wage gaps. Dustmann and Frattini (2012) conclude that European institutions are not sufficiently ready to accommodate immigrants and still have long way to go.

Bisin et al (2011) examine labour market policies and conditions, integration policies and ethnic identity impacts on first and second generation migrants' employment probability compared to the natives in 25 European countries. Their study predicts employment penalty for immigrants with a strong identity in Europe. Interestingly, they find higher probability of employment for second-generation immigrants than their parents and equal probability compared to their native counterparts. At the same time, when they present a strong identity, their chance of being employed decreases. Bisin et al (2011) argue that countries with flexible labour markets particularly those with have a low trade union density like the United Kingdom or Ireland tend to provide more favourable employment conditions for immigrants than countries with more rigid labour markets. They indicate, however, this effect is no longer the case for immigrants with a strong ethnic identity.

Taking into account different macro level variables including labour market structure and regulation, welfare state regime, GINI coefficient, integration policies and net migration, Fleischman and Dronkers (2010) analyse immigrant-native unemployment gaps across 13 European countries. They argue that differences between destination and origin countries have an impact on the unemployment rates of immigrants. Based on their study, unemployment rates of both male and female immigrants are influenced by the political freedom and stability as well as GDP per capita in the countries of origin. Also, they show that immigrants coming from Western

European countries are more likely to be employed than non-European immigrants. Interestingly, their analysis indicate welfare regimes have no explanatory value for the immigrants' unemployment. They also express that immigrants originating from a Muslim majority country might experience higher employment discrimination in the European countries' labour markets.

In her seminal comparative study in European context, Kogan (2007) tries to explain cross-national differences in immigrant-native labour market outcome gaps through migration policies, labour market structure and regulation, and welfare regimes in the host countries. She finds better employment prospects for immigrants in countries with a tradition of migration from their former colonies. Kogan (2007) examines the effects of EPL on the basis of immigrants' positioning in primary or secondary markets. Accordingly, her findings indicate that non-European immigrants tend to be overrepresented in low-skilled occupations and segmented into the secondary labour markets. At the same time, non-European immigrants seem to face more favourable economic outcomes within more flexible labour markets. Very interestingly, she shows welfare state generosity might account for larger penalties for non-European immigrants and especially for recent immigrants.

Causa and Jean (2007) study the role of some particular labour market policies (EPL, unemployment benefits, the tax wedge and the minimum wage influence) in shaping cross-country variation in immigrant-native gaps across 12 European countries. Their findings indicate to the overrepresentation of immigrants among outsiders in segmented labour markets. They show that immigrants' employment opportunities might be influenced disproportionately by higher level of tax wedge and replacement rate of unemployment benefits compared to the native people. Causa and Jean (2007) argue that strict labour market regulation might narrow immigrant-native unemployment gaps, however, it may broaden wage gaps and lead to the overrepresentation of immigrants among holders of precarious contracts. They predict immigrant-native gaps particularly as regards wage tend to narrow with the passage of time.

In their comparative study across 21 European countries, Wanner and Dronkers (2005) consider the impacts of labour market structure, immigration and settlement policies in destination countries on immigrant-native income gaps. They also take into account to what extent sending country's degree of development can affect immigrant-native income gaps. Accordingly, they argue that migrants coming from second and third world countries tend to have lower incomes than the native-born people. On average, the returns to education for these immigrants are lower than for comparable natives. Their findings imply that the higher the level of immigrants' participation in the labour market, the higher the overall average income in a country. They conclude that cross-national variability in immigrant income is very small.

Table 1.2 Structural factors impacts on immigrant-native gaps: an overview of selected empirical studies

Author(s)	Key Argument/Question	Dependent Variable	Controls	Country/Data	Main Results
Guzi et al. (2015)	Adopting the Varieties of Capitalism (VOC) framework, examine the institutional determinants of immigrant-native differences in host labour markets.	-Labour force participation -Unemployment -Low-skilled employment -Temporary employment	-Individual characteristics (educational attainment, gender or age composition, geographic distribution) Institutional variables: - VOC country types dummies -EPL (regular and temporary contracts) -Industrial relations (union density, collective bargaining) -Education and training (VET share), -GDP per capita -Unemployment rate in the analysis.	19 European countries (EU-LFS:2004-2012)	- The significant role of institutional context in immigrant-native gaps (VoC types and the individual variables underpinning the VoC typologies account for immigrant-native labour market gaps). - Liberal and emerging market economies tend to attract and keep immigrants better equipped to succeed in the labour market than coordinated market economies, - Immigrants seem to have favourable conditions in terms of labour force participation and permanent employment in mixed market economies but with mixed results in terms of unemployment and low-skilled employment.
Markaki (2014)	-How the national context in the host country interacts with immigrants' and natives' characteristics to shape immigrant-native labour market gaps?	-Monthly earnings -Risk of being unemployed -Underemployment -Working on a fixed-term or no contract	-Individual level variables (Origin, age, education, household type and marital status) -Country-level measures, including: -the percentage of immigrant population -Strictness of EPL -Union density -GDP per inhabitant -Economic growth.	19 European countries (EU-SILC: 2005-2010)	-The immigrant-native gaps are larger in countries with more immigrants. -A stricter regulation of regular contracts might augment the immigrant-native earnings gap and also immigrants' chances of holding temporary contracts. -The stricter regulation of temporary contracts, the higher risk of unemployment and underemployment for immigrants. - Wage differences across some immigrant groups are suppressed by a high union density in host country, rather than in comparison to natives. - Immigrant-native differences are partly influenced by their different roles in the job market.
Bergh (2014)	How well different institutional factors explain the cross country differences in the labour market gap between immigrants and natives in the OECD-countries?	-Employment -Unemployment	-Xenophobia -Employment protection laws -Collective bargaining coverage -Welfare state generosity & social expenditure -Asylum applications -Share of immigrants in the population -The education of immigrants -Integration policies (MIPEX index) -Gini inequality index	21–28 OECD countries (2009,2010) (Mipex: 2007; SWIID: 2008; OECD Taxes and Wages database; OECD-data)	-The unemployment gap is bigger in countries where collective bargaining agreements cover a larger share of the labour market. -The more generous social safety nets, the bigger immigrant-native employment gap in host countries. -Welfare state generosity correlates with lower immigrant employment. -No explanatory value was found for education of immigrants and migrant integration policies.
Dustmann & Frattini (2012)	Study host countries' institutional features to explain immigrants' labour market disadvantages in EU countries (claim that barriers through institutions and non-meritocratic access conditions to certain occupations and labour market segments could explain immigrant-native labour market outcomes disparities)	-Occupational distribution (Duncan dissimilarity index) -Occupational status (ISEI) - Wage distributions -Educational distribution	-Individual socio-demographic characteristics - 3 main comparison groups (natives, EU immigrants and non EU immigrants) -Strictness of employment protection legislation index	15 Western European countries (14 European Union members in 1995 and Norway) (EU-LFS: 2007-2009)	-Immigrants (particularly non-EU immigrants) are disadvantaged compared to natives in terms of employment probabilities, occupational distribution, and earnings. -Immigrant-native occupational differences (especially for non-EU immigrants) are larger in countries with stricter employment protection legislation. - The more recent countries are in hosting immigrants, the broader gap between natives and immigrants. - Immigrants and natives differences in education and demographic characteristics have not explanatory value for wage differences. - Institutions in European countries are not well adapted to integrate immigrants.
Bisin et al., (2011)	-How integration policies, labour market policies and conditions as well as ethnic identity in Europe can affect first and second generation migrants' labour	Probability of being employed	-3 indicators of ethnic identity (attachment to religion; importance of following traditions and customs; language most often spoken at home).	25 European countries (ESS: 1-3 rounds)	- An employment penalty for immigrants with a strong identity in Europe. -A higher employment probability of second-generation immigrants compared to their parents, equal chance with natives. - A lower chance of finding a job when they have a strong identity.

Author(s)	Key Argument/Question	Dependent Variable	Controls	Country/Data	Main Results
	market outcomes compared to the natives?		- MIPEX(labour market access; family reunion; long-term residence; political participation; access to nationality; antidiscrimination) -The minimum wage, -Strictness of employment protection legislations -Trade union density	Migrant Integration Policy Index (MIPEX)	- Speaking a language at home different than that of the majority and strong attachment to religion have negative impact on employment. - Flexible labour markets seem to be more favourable to immigrants. - More favourable employment chances for immigrants in countries with flexible labour markets and also with a low trade union density than those with more rigid labour markets like Scandinavian countries. -This effect is no longer the case if immigrants have a strong ethnic identity.
Garrett (2011)	Do immigrants tend to fare better in some political economies than in others? Main hypothesis: Immigrants may fare better in LMEs than in CMEs.	-Unemployment rate -Vertical Segregation (Occupational Hierarchy) -Horizontal Segregation (Concentration in Immigrant Jobs) -Union Membership	-Skill specificity	21 European countries (ESS rounds 1 & 2 plus individual-level skill specificity (Cusack, Iversen, Rehm 2005)	Immigrant-native parity is greater in countries where skill specificity is lower (like the U.K) and higher disparity in firm-specific and industry-specific CMEs.
Fleischman & Dronkers (2010)	Hypotheses: -higher unemployment rate for immigrants in countries with high unemployment rates; -lower unemployment rate for immigrants in countries with more flexible labour markets and larger size of the low-status job segment; -lower unemployment rates for immigrants from countries in which differ only slightly from the destination country.	Unemployment	-Individual socio-demographic characteristics (Gender: female/male dummy; first and second immigrant generation; minority language at home; the citizenship of the country of destination, and immigrant parents). -Macro level variables including: mean unemployment rate of natives in the destination, Immigrant integration policies, type of welfare state regime, The size of the low-status job segment, GDP per capita, The GINI coefficient, The net migration rate, EPL.	13 old European Union member states (EU15) minus Italy and Finland (ESS-2005) the European Civic Citizenship and Inclusion Index (Geddes et al, 2004)	-Differences at the macro-level (both destination and origin countries), have an impact on the unemployment rates of immigrants. -Sending countries' political freedom and stability as well as their GDP per capita seem to close unemployment gaps of both male and female immigrants. -Immigrants coming from Western European countries are less likely to be unemployed than those originating in other regions of the world. -Welfare regimes have no significant role in explaining the immigrants' unemployment. -Migrants coming from a Muslim majority country might more likely face employment discrimination in the studied countries' labour markets.
Kogan (2007)	How cross-national differences in migration policies, labour market structure and regulation, and welfare regimes influence immigrant-native labour market attainments gaps.	-Risk of Being unemployed -Occupational status	-Individual socio-demographic characteristics -The size of the bottom of occupational hierarchy - Welfare regime types -Migrants inflow from former colonies - New immigration countries vs. traditional ones - EPL Strictness -Immigrant selectivity - GDP change	14 European countries (EU-LFS:1992-2000)	-Migration policy: better employment of immigrants in countries with a tradition of migration from former colonies. -LABM structure & regulation: non-EU immigrants seem to be overrepresented in low-skilled employment and segmented into economic sectors associated with the secondary LABMs. They have more favourable outcomes within flexible labour markets. -Welfare regime: the more generous welfare system, the higher penalty for non-EU immigrants and recent newcomers.
Causa and Jean (2007)	Investigates the potential role of labour market policies in shaping cross-country differences in immigrant-native gaps (how differences in labour market policies, in particular unemployment benefits, the tax wedge and the minimum wage	-Probability of being active or employed -Hourly wage rate	-Individual socioeconomic characteristics(educational attainment, experience, and marital status, country of origin, length of stay) -Labour market policy indicators (EPL on regular contracts, EPL on temporary contracts, average replacement rate, minimum wage, and tax wedge).	12 OECD countries including: -9 EU countries: AUT, BEL, DNK, DEU, FIN, FRA, , ITA, ESP and PRT (ECHP: 2003)	- Immigrants significantly lag behind natives in terms of wages and/or employment (also strong cross-country differences in immigrant-to-native gaps). -The immigrant-native differences narrow as years since settlement elapse, especially wage gaps. - The overrepresentation of immigrants among outsiders, when labour market dualism prevails. - A high tax wedge and a high replacement rate of unemployment benefits may disproportionately affect immigrants' employment.

Author(s)	Key Argument/Question	Dependent Variable	Controls	Country/Data	Main Results
	influence immigrant-native gaps?)			-US (PSID :1997, 1999, 2001 and 2003) -Australia (HILDA:2001-2003); -Canada (SLID: 1996-2001)	-Stricter EPL is also associated with a lower risk of unemployment among immigrants. -Stricter EPL is also associated with a larger immigrant-native wage gap and increasing overrepresentation of immigrants among holders of temporary contracts.
Wanner and Dronkers (2005)	-How do destination countries' labour market structure, immigration and settlement policies contribute to economic integration of immigrants? -To what extent immigrants coming from developed/less developed countries have lower incomes compared to the native born?	-Household income	-Individual socioeconomic factors (country of origin, age, education, marital status, place of residence, ISEI). -Immigration policy indicators (% of foreigners in total population, net migration rate, inflow of asylum seekers, % of immigrants with a recognized status, degree of naturalization of foreigners, membership in the Schengen agreement, immigration regulated via annual quota system, skill-selective immigration policy, family reunification) -labour market structure indicators (Stock of the foreign labour force, overall unemployment rate, unemployment rate of foreigners, unemployment rate difference between foreigners & nationals, self-employment rate of foreigners, labour market participation of nationals and foreigners, % foreigners with a third level education) -GNI per capita, -Social expenses as a % of GDP	21 European countries (ESS : 2002, 2004) United States (Labour Force Survey: 2002) Canada (Public Use Microdata File 1996)	- Migrants from Second and Third World countries have lower incomes than the native-born. -The returns to education are lower on average for Second and Third World immigrants than for comparable natives. -The higher the level of immigrant labour market participation in a country, the higher the overall average income. - Immigrant-native income gaps do not vary significantly across countries.

1.4 LITERATURE GAP

As briefly shown above, the economic integration of immigrants in general and the labour market outcome differences between immigrants and native people in particular have been studied from various aspects in the literature. Nevertheless, there is little direct or systematic evidence of how institutional factors influence the immigrant-native labour market gaps. Moreover, those few studies that particularly consider the role of macro-level factors in the immigrant-native gaps, have focused mostly on one or two main influencing factors (see Table 1.1 and Table 1.2). Where some studies mainly focus on immigration and/or integration polices, other comparative studies (e.g. Büchel and Frick, 2005; Kogan, 2007; Wanner, 2011; Guzi et al., 2015) emphasize the key structural features of host countries such as welfare regime. In fact, such studies rarely put forward an integrated analysis design considering a range of potential affecting factors including migration policies as well as key structural features of host countries which pursue the possible interrelations between them. Along with this, Reitz (2007) by enumerating set of various factors which influence economic integration of immigrants, emphasizes the importance of their interrelations. Hence, he argues that employment success of immigrants is determined not only by immigration policies but also by the institutional context such as pre-existing patterns of inter-ethnic relations within the host society; labour markets and related institutions.

On the other hand, despite the increasing research attention to the understanding impacts of host countries' institutional characteristics on the integration of immigrants, a great deal of such research has been devoted to the institutional influences either in the context of traditional immigrant receiving societies or recent European receiving countries context. As matter of fact, cross-country comparative research on immigrant-native gaps has been limited to the specific geographical contexts (traditional or European migration countries context) or to a small number of host countries, and so researchers have not been able to model explicitly the cross-national differences in both traditional and recent receiving countries. The partial exception is some recent comparative research looking at labour market outcome disadvantage of migrants and emphasizing the extent to which macro level factors affect their socio-economic outcomes in both traditional and European countries context (Causa and Jean 2007; Wanner 2011; Bergh 2014). This evidence gap can be ascribed, to a large extent, to the dearth of comparable data across the various receiving countries especially on the migrant workforce in these countries. The lack of such comparable data has also been indicated as a main reason for limited quantitative research comparing the labour market outcomes of migrants with different educational level status vis-à-vis their respective native counterparts. Consequently, a scarce direct evidence of the effects of institutional factors on

immigrant-native gaps across various host countries context exists which restricts the generalizability of findings (Wanner 2011).

Finally, cross-country comparative research on the labour market integration of highly skilled immigrants is very rare. In fact, today so many of developed countries are increasingly competing for high-skilled immigrants and understanding why they are unproductive is arguably one of the most important questions facing these countries. In other words, while large parts of the population of migrants to receiving countries particularly highly skilled immigrants have not been successfully integrated into domestic labour markets and they are not productively employed (OECD 2006; Reitz 2007 b; Nannestad 2009; Jean et al. 2010), surprisingly very little research has been devoted to examining available cross-country variations to find patterns and explanations for the differences between skilled immigrants and their native counterparts.

Considering aforementioned literature gaps, this piece of work has numerous contributions. The first contribution of this study is to test new hypotheses by focusing on how the skill migration policies as well as key institutional attributes of the host countries may condition the immigrant-native gaps in the labour market. More specifically, this study hypothesizes that the variations in relative highly skilled immigrants inferior labour market outcomes compared to the natives across selected OECD economies might be closely related to the institutional differences associated with skill migration policies and skill regimes. This work also contributes to narrow the gap in skill regimes literature linkage with skill migration policy debates. In this sense, to the best of my knowledge, this is one of the first attempts to bridge between skill migration policies and skill structures of the host countries in favouring the economic integration of highly skilled migrant workers. To do so, I 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. The second contribution of this study is to extend empirical evidence on the immigrant-native labour market gaps across selected OECD countries including both traditional (Australia, Canada and United States) and European receiving countries. In this regard, huge effort devoted to collect comparable cross-national data particularly large-scale comparative information in micro (individual) level with sufficient numbers of immigrants which allows us to analyse the native-immigrant labour market disparities across different institutional contexts. The third contribution of this analysis is to extend evidence on the highly skilled immigrants' economic integration variation across several host countries, often ignored in previous cross-country research.

1.5 SUMMARY

To address immigrant-native labour market outcome gaps variations across countries, without ignoring the importance of individual characteristics, this research project mainly focuses on the macro approach and consequently lays emphasis greatly on the institutional determinants of immigrant-native labour market differentials for highly skilled workers. The former theoretical and empirical studies point to the various institutional factors affecting migrant workers' labour market outcomes (either skilled or unskilled) such as migration and integration policies, skill formation system, welfare regime, industrial relation, and labour market structures and regulations. In current chapter, two broad set of institutional factors were reviewed namely, migration-related factors (migration and integration policies) which (in) directly target immigrants and structural features that influence both native and migrant workers active in the host country labour market.

A brief review of the pertinent literature reveals that a number of empirical studies specifically consider the impacts of admission mode and selective-based migration polices on immigrants' labour market outcomes and some other studies examine integration polices' impacts. For instance, Constant and Zimmermann (2005) show that economic migrants are more active than non-economic migrants in the labour market and they experience lower earnings disadvantage. In this line, Cangiano (2012) indicates that immigrant-native gaps significantly vary by immigration categories and specifically migrants who are admitted via labour migration channels have better employment rates than the domestic workforce, humanitarian and family-based migrants. Consistent with previous studies, also Jusko et al. (2013) find that immigrant entry criteria have important effects on immigrants' labour market outcomes and economic-based migrants fare better than family-based migrants. Concerning skill-based migration polices effects, Cobb-Clark (2006) argues that there is a great potential for selection-based migration policy to shape immigration labour market outcomes not only just immediately after arrival, but also over the medium run. Similarly, Wanner (2011) finds the more selective a host country's immigration policy, the higher the household incomes and occupational status of immigrants to that country.

Another part of the literature mostly explores non-migration related institutional factors effects on immigrant-native labour market gaps. For instance, Garrett (2011) shows that immigrant-native gap is closer in countries with less skill specificity than in countries with high skill specificity. Along with this line, Guzi et al (2015) findings confirm that institutional contexts particularly VOC dummies play a significant role in immigrant-native gaps. They argue liberal and emerging market economies tend to provide much more favourable conditions to integrate immigrants into the labour market than coordinated market economies. Regarding national contexts impacts on immigrant-native disparities, Markaki (2014) indicates that the strict employment

regulation seems to increase immigrants' risk of unemployment, underemployment and chances of holding temporary contracts. He expects the bigger immigrant-native employment gaps in the host countries with higher collective bargaining coverage and also in countries with more generous social safety nets. Likewise, Bisin et al (2011) argue that countries with flexible labour markets particularly those with have a low trade union density provide more favourable employment conditions for immigrants within more flexible labour markets. Very interestingly, she shows welfare state generosity might account for larger penalties for non-European immigrants and especially for recent immigrants.

Despite the increasing research attention to the understanding impacts of host countries' institutional characteristics, there is still little direct or systematic evidence of how institutional factors influence the immigrant-native labour market gaps. Indeed, few existing studies have focused mostly on one or two main influencing factors and rarely put forward an integrated analysis design considering a range of potential affecting factors including migration policies as well as key structural features of host countries which pursue the possible interrelations between them. Moreover, cross-country comparative research on immigrant-native gaps has been limited to the specific geographical contexts (traditional or European migration countries context) or to a small number of host countries. Consequently, a scarce direct evidence of the effects of institutional factors on immigrant-native gaps across various host countries context exists which restricts the generalizability of findings. Finally, cross-country comparative research on the labour market integration of highly skilled immigrants is very rare. Considering aforementioned literature gaps, this piece of work has numerous contributions. The first contribution of this study is to test new hypotheses by investigating the variations in relative highly skilled immigrants inferior labour market outcomes compared to the natives across selected OECD economies might be closely related to the institutional differences associated with skill migration policies and skill regimes. Indeed, this work contributes to narrow the gap in skill formation regimes literature linkage with skill-based migration policy debates. The second contribution of this study is to extend empirical evidence on the immigrant-native labour market gaps across selected OECD countries including both traditional (Australia, Canada and United States) and European receiving countries. The third contribution of this analysis is to extend evidence on the highly skilled immigrants' economic integration variation across several host countries, often ignored in previous cross-country research.

In the next chapter, the probable influence of each institutional factor of interest in this study including: skill migration regimes, skill formation regimes, industrial relations institutions, employment protection legislation (EPL) and labour market structure and most importantly how

they might explain immigrant-native labour market gaps will be discussed in more detail, based on the existing knowledge.

CHAPTER 2: THEORETICAL FRAMEWORK

The previous chapter reviewed the pertinent literature that provided some clues to address the relationship between institutional characteristics of receiving countries and immigrant-native gaps. However, the following part of this thesis lays the conceptual and theoretical groundwork not only to analyse the structural factors impacts on immigrant-native gaps much more carefully, but also to disentangle the complicated interrelations among these institutional factors in more detail. To craft and connect the different concepts in my argument, I adopt the varieties of capitalism (VOC) framework, which originated in the field of comparative political economy studies and is often associated with the seminal work of Hall and Soskice (2001), as the main comparative analysis framework of skill regimes in this study. In this regard, I initially open the discussion with the (varieties of) skill migration policy regimes and then skill formation regimes and how these systems influence immigrant-native gaps will be argued.

2.1 SKILL-MIGRATION POLICY REGIMES

Generally, skill-based (selecting) migration policies have been developed from 1960's and therefore rather broad theoretical and practical background related to these systems exists. Optimal formulation of migration policies for the regulation of skilled foreign immigrants has been arisen as a hot debate in all host countries over this period. Actually the common economic motivation and rationale among all receiving countries is to fill gaps in the labour market as a result of insufficient domestic labour supply (Wanner 2011). Hence, host countries try to maximize the advantages of economic (mostly skilled) workers immigration and at the same time minimizing the negative social and economic effects on their own nations (Papademetriou et al., 2008). In this regard, almost all host countries tend to select and accept desired immigrants who have the right and valuable skills for employers and economy and consequently have good prospects for social and economic integration (Papademetriou and Sumption 2011). Cangiano (2012) claims that the potential impact of migration policies is twofold: firstly, they regulate the number and qualities of immigrant workers (through selecting systems at arrival) and secondly they influence the position and condition of immigrants in the labour market (through labour market access regulations by different types of permits for residence and employment).

A quick general overview on skill migration policy literature reveals that it can be divided into two main parts. The first mostly contains countries' policies for selecting or recruiting skilled immigrants from abroad and the second one is more related to the outcomes of these policies and the economic integration of immigrants. The former has richer and longer background than the latter. Actually the economic integration of immigrants in general and assessing the labour market

outcomes of skill-based selecting policies in particular have recently aroused policymakers' attention and the literature is still in its infancy in this area. Considering few systematic research works and practical measures have been implemented in this line so far, in this section, firstly basic dimensions of (skill) migration policy framework are briefly explained and then an overview of main skill migration policies typologies in major host countries is presented. Thirdly, the focus will be on how these migration policies shape highly skilled migrant workers patterns of labour market incorporation across the host countries and influence immigrant-native gaps.

2.1.1 DIMENSIONS OF SKILL MIGRATION POLICY FRAMEWORK

Besides the intricacies of the skill migration policy implementation in countries, there are some key and crucial decisions which must be made beforehand by any receiving country. Actually each country which decides to accept (economic/skilled) migrants should primarily answer to some main questions: how they are admitted, whether or not they will be screened and on what basis, the number to be admitted, under what conditions they may be granted access to the labour market or be granted citizenship, and how they are economically and socially integrated to the labour markets and society (Papademetriou and Sumption 2011; Wanner 2011, Aydemir 2012; Cangino 2012). As a consequence, (skill) migration policies generally revolve around who gets in or what sorts of skills they bring with them, and how they assimilate to the host country's labour market. Accordingly, there are two determinant dimensions in any migration regime followed by the countries namely, "admission/selectivity" and "access/integration". So in this respect, (skill) migration policies can be generally regarded as a "**regulatory framework** governing the admission of (skilled) foreign workers as well as their access to the labour market" (Cangiano, 2012:3).

The "admission/selectivity" dimension primarily defines the use of systems of preferences (skills or employment), the prevalence of skill migration and admission rates (Wanner 2011). For instance, some traditional migration countries like Australia, Canada, and New Zealand have been applying the most formalized systems of preferences which are based on a points system that select potential economic immigrants who possess high levels of education, official language skills, and occupational skills which are in request. Some other receiving countries particularly European countries prefer employment-based systems to recruit economic immigrants who have job offer from employers.

An in-depth study undertaken by McLaughlan and Salt (2002) analyses a wide range of "admission policies for highly skilled immigration" in ten developed countries (Australia, Canada, Denmark, France, Germany, Ireland, Netherlands, Norway UK and USA). They discuss and compare different migration philosophies and experiences in traditional migration countries with

long standing immigration policies such as the USA, Canada and Australia with new emerging ones like Ireland. They evaluate admission policies applied in these countries in terms of permits, procedures, marketing, and collection of statistics[4]. Their main conclusion implies that most of the European countries have mainly relied on their traditional work permit systems to recruit immigrants and hence have not designed particular measures to admit highly skilled workers except for in some specific sectors like IT and health. At the same time they distinguish some innovative initiatives for permitting highly skilled immigrants in countries like Australia, Canada and UK.

In his comparative work, Lowell (2005) studies "openness of highly skilled migration polices" across 12 receiving countries including the traditional countries of immigration (Australia, Canada, New Zealand and the United States), the major European receiving countries (France, Germany, Italy, Norway, Spain, and United Kingdom), South Africa and Japan. Using an migration policy option continuum with two admission extremes (controlled/open) with a middle camp, he identifies three main admission policies types namely, highly controlled/restrictive admission policies (like in Spain and S. Africa), well managed /controlled admission policies (such as New Zealand) and Streamlined / competitive admission policies (like in Australia) and then rank the studied countries for their temporary and permanent admission policies. He evaluates admission policies outcomes on the basis of skilled immigrant competitiveness index and foreign workers employability index (data for year 2001). The former captures the success of admission policy at selecting migrants who are better educated than those of the other countries competing for skilled workers. In this regard, there are some countries with high competitiveness like Australia and Norway and some other countries with low competitiveness such as France and Portugal. The foreign workers employability index captures some aspect of immigrants' integration into the host society. Accordingly, he ranked countries in terms of labour market incorporation / productivity of skilled migrants relative to that for nationals. Surprisingly he found Portugal with high foreign workers employability considering it is the least selective/attractive country for skilled migrants and on the contrary some other countries with low foreign workers employability like Belgium.

Cangiano (2012) underlines the importance and impacts of the mode of admission/entry on immigrants' labour market outcomes. He indicates that the migrants who are admitted via labour migration channels have better employment rates than the immigrants accepted through

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[4] McLaughlan and Salt (2002) identify five main migration policy options including: 'comprehensive schemes' specifically for highly skilled migrants such as the 'Green Card' system in Germany and "H-1B visas" in the USA; 'facilitating programs' which streamline the existing work permit system for highly skilled personnel, like the fast-track work visas for IT specialists in the Netherlands and the work authorization system in Ireland; 'exempting measures' to relax some regulations and restrictions for recruiting skilled workers such as intra-company transfers in Ireland which are exempt from work permit regulations; 'tax incentives' policies are used to reduce the tax burden particularly in Nordic countries for high earning foreign workers and 'encouraging return policies' to encourage return migration of highly skilled, notably in Ireland.

humanitarian or family-based channels. His study stresses on the migration policies effects on the number, composition and qualities of migrant workers, for instance selecting skilled workers on the basis of point-based systems or selecting low-skilled workers with the quota systems. Cangiano (2012) also points out the role of governments on the admission of immigrants. He argues that in most host countries governments tend to retain their authority on the entry/access of foreign-born people to their territory. For instance, receiving EU Member States countries are not so inclined to transfer their policy decisions regarding labour migration to the EU level and hence they quite often follow their own priorities and demands on selecting and attracting different types of migrants. As a result, there is a great variety of policies on the admission of immigrants across EU countries. For example, Germany and France apply restrictive admission policies for economic immigrants while access to the labour markets for those who immigrated for family or humanitarian reasons is less restrictive. On the contrary, Italy and Spain practice more open migration policy framework or the UK has switched from restrictive migration policies to attracting highly skilled migrant workers through a point-based system in 2008.

On the other side, the "access/integration" dimension mainly deals with the existence of policies assisting the integration of immigrants into the host country's labour market and facilitating the process with which immigrants become economically and socially naturalized citizens (Wanner 2011). There is a large variation in the extent of access/integration support especially economic access provided by the host countries to facilitate immigrants' assimilation. Some countries like Germany provide a wide range of assisting programs such as job training, language training, housing assistance, and social welfare benefits with newcomers for accelerate economic integration. On the contrary, there are other receiving countries like the USA with the minimum assisting programs for recent immigrants.

Regarding the roles of policies facilitating access to the labour market, Ramos et al (2013) study (UN) favourable integration policies effects on immigrant-native wage gaps for newly arrived immigrants by the MIPEX index across three groups of countries namely, EU15 countries with more favourable policies, EU15 countries with less favourable policies and new EU12 countries with non-favourable policies. Their results show that immigrant-native wage gaps are lower in those countries with more favourable policies. They also indicate to the education's positive effect on the wages for both natives and migrants in all countries studied but at the same time argue that immigrants' specific skills are not fully used in countries with restricted access policies. They conclude that immigrants have better access to the labour market in countries with well-established favourable immigration policy.

Anderson and Ruhs (2008) consider access restrictions in high income receiving countries. They show that migration policies with some entry/access restrictions such as work permits or other regulatory norms in these countries may influence migrations labour market segments and outcomes. As result of such restrictive policies, migrants' mobility across occupational segments might be confined or they would be locked in unattractive jobs with low wages or in remote geographical regions. They argue that such access restrictions might explain immigrants' poorer labour market outcomes compared to the natives in the host countries. The temporary seasonal agricultural worker scheme in the UK is stated as an example of such migration policy which restricts access to the labour market.

Likewise, Cangiano (2012) points to the impacts of labour market access regulations and restrictions on the different types of immigrants through residence permits and employment channels which can hamper the employment mobility and career advancement of immigrants. As he indicates, for instance, non-European migrants confront so many difficulties in getting access to the labour market, switching jobs, renewing or obtaining (permanent) residence permit and reuniting with their families, while usually there are no serious restrictions towards highly skilled workers in terms of gaining access or full citizenship rights. These kinds of access restrictions may also apply to other types of foreign-born people like asylum seekers or international students. Besides, Cangiano (2012) refers to some labour market restrictions against immigrants coming from the new EU member states due to the transitional arrangements in some EU15 countries. Thus, he suggest that because of state's crucial roles in the process of admission/selection of immigrants, determining migrant inflow composition, regulating access to the labour market, recruiting migrant workers, and influencing migrants' labour market outcomes either in the short run or in long-term, state should be considered as a key player in the migration policy framework.

All in all, regarding the main dimensions of migration policies particularly "admission/selectivity" dimension and moreover the key actors in skill migration policy framework, three main types of skill migration systems can be identified which be briefly described in following.

2.1.2 SKILL MIGRATION POLICY TYPOLOGY

Based on the literature, 'point-based' and 'employer-based' systems are two principle migration policy frameworks which are usually used by receiving countries to select highly skilled workforce from abroad and to grant them access to the labour market (Straubhaar et al., 2004; Shachar 2006, Chaloff and Lemaitre 2009, Papademetriou et al., 2004, 2008, 2011; Jones, 2012).

"Point-based regimes" (also labelled sometimes as supply-driven or government-led systems) are characterized with skill-based selecting mechanism which admit skilled immigrants on the basis of some predefined certain characteristics most notably educational attainments, professional skills, work experience, language proficiency and age. In these regimes, the immigrants who have got points more than a passing threshold level are then allowed to immigrate and/or settle in host country (Papademetriou et al., 2004, 2008; Chaloff and Lemaitre, 2009; Jones, 2012). The main idea behind this migration regime which is essentially considered as a "human-capital accumulation" formula (Papademetriou and Sumption 2011) is that an increased supply of skilled workers can contribute to host country's economy through positive impacts on innovation, productivity and growth (Boswell et al., 2004). So by this approach immigrants' skills are not linked directly to a specific job offer or the context of a specific occupation. In other words, skilled immigration is related to the labour market needs by focusing on high value human capital rather than linkages to specific job offers. In this sense, it is generally presumed that high skill level of immigrants can guarantee and lead to their short/long-term employability and integration.

In the purest version of the point-based systems which was invented firstly by the Canada in the late 1960s, government is regarded as the key agent who tries to coordinate skill market by central planning of supply side (Chaloff and Lemaitre, 2009). Governments usually devise a characteristics list including the main attributes which conceive important for prospective skilled immigrants to have and then prospective immigrants can apply directly to the relevant government agency and eventually work visas are granted to those who gain sufficient points. Furthermore, point systems seem so appealing in the eyes of policy makers because of those systems' flexibility, adjustability and transparency. Point systems' flexibility provides this possibility with the governments to meet evolving and changing needs of the labour markets specifically and economy generally by adjusting the admitting criteria. Governments can also set clear and transparent standards for the human-capital level of incoming immigrants. So, all these advantages of point-based systems can improve immigrants' integration into labour markets (Papademetriou and Sumption 2011). Nevertheless, point-based systems convey some remarkable problems and drawbacks that should be noticed carefully. The main concern indeed originates from this issue that point system basically does not engage directly employers in the selection process. Hence, when skilled immigrants are admitted without any specific job offers from employers they usually encounter serious problems in finding job positions corresponding with their skill levels. Another problem arises from this issue is that employers might discount skills or credentials of immigrants or may value and reward to some soft attributes which are less taken into account by point systems. Therefore, all these challenges can undermine not only initial integration but also medium or long-

term economic benefits of those skilled immigrants admitted through point-based system (Papademetriou et al., 2008, 2011; Chaloff and Lemaitre, 2009; Cobb-Clark 2006).

In contrast, in the "employment-based regimes" (demand-driven or employer-led systems) foreign workers with specified skills or experienced in specified occupations are selected and recruited directly by the employers subject to government regulations. So the core aims of these regimes are to satisfy immediate labour market demands or firms' actual skills shortages immediately and to authorize employers to define which skills or qualifications are most valuable in the market (Boswell et al., 2004; Papademetriou and Sumption 2011). In this respect, employers are regarded as the anchor agents who do substantial investments in screening job applicants and ensuring that prospective applicants possess right and intended skills. Although in employment-based approach employers can directly select prospective migrant workers, governments may put some standards and constraints such as minimum levels of education, language proficiency, or earnings to ensure that workers qualify as highly skilled. Also under some circumstances, more interfering conditions can be imposed by the government with the purpose of protecting local workers against risk of displacement or wage underbid by migrant workers. In this respect, some immigration regulations may specify numerical quotas for migrant workers, minimum levels of the wages they must earn or required preliminary conditions which must be met by employers to identify or employ local workers before hiring migrant workers (Papademetriou and Sumption 2011). The employer-based migration regimes possess numerous advantages. For instance, since immigrants are recruited on the basis of explicit job offers from employers so they can ensure a level of initial integration especially when immigrants arrive to a host country, while it seems a major challenge for point-based systems. Direct involvement of the employers in the selection process also makes immigration sensitive to immediate and real labour market needs. Moreover, not only can employers directly assess immigrants' skills and credentials, but also take into account those soft skills and small differences in qualifications that might often make large differences in immigrant's long-term success. Hence, such a direct interaction between employers and migrant employee may reduce bureaucracy, cost and other common problems such as immigrants' skill devaluation. Yet, there are some concerns about employment-based migration systems. The main concern is that employers as major player might manipulate the system or process in order to recruit cheaper labour force. Furthermore, since migrant workers are recruited on the basis of a specific job offer, so they would be too dependent on their employers and hence vulnerable to exploitation (Papademetriou et al. 2008; Papademetriou and Sumption 2011).

Recently "hybrid migration regimes" have emerged as a consequence of converging two main competing migration systems (point-based and employer-based system). Indeed, the main

idea behind the hybrid systems is to combine the advantages of both prominent skill migration systems and to establish an intermediate model which is more efficient (Papademetriou et al. 2008; Papademetriou and Sumption 2011; Jones, 2012). In other words, the policy makers in some immigrant-receiving countries have experimentally noticed that neither of two main selection systems in their pure form can meet all needs of those countries. So, countries whose migration policies were mostly based on the point-based system like Canada and the Australia have come to take into account the incomparable advantages of the employer-based systems particularly in terms of immigrants' initial integration and firms' competitiveness. On the other side, employment-based countries like UK and the Netherlands have noticed the importance of decreasing migrant workers' dependence on their employers, and also the value of augmenting "quality" of immigrants selected by the employers using a flexible set of criteria such as a points test (Papademetriou and Sumption 2011). Hence, the resulting hybrid system would have much of the flexibility of the points systems and also giving more autonomy to the migrant workers to be less dependent on a specific employer and to move between several employers. As Papademetriou and Sumption (2011a) argue there are several approaches to develop hybrid systems which the most common approaches are "using both employer and point based systems concurrently", "granting points for job offers within point systems" and "relying on temporary-to-permanent pathways". Generally, the structure of a hybrid system is so that prioritizes the employer's demand and consequently market dynamics are at the core of selection process while a points test or other set of the criteria are used to make difference between potential applicants with different qualities. Such a flexible structure provides this possibility for the receiving countries to meet their skill needs especially high skill through combining employer selected immigration with rewarded points for job offers not necessarily for the first job offers at entry. This is the rationale of some skilled-immigrant receiving countries rely on "temporary-to-permanent visa pathways". Actually, these countries prefer to admit the skilled workers initially on the basis of temporary work permits and afterwards they grant the permanent residency to those immigrants with good integration prospects (Papademetriou and Sumption 2011; Jones 2012).

2.1.3 SKILL MIGRATION POLICY EFFECTS ON IMMIGRANT-NATIVE GAPS

Although the literature investigating the linkage between (skill-based) migration policies and immigrants' labour market outcomes in host countries has been growing, it still remains unclear how migration and integration policies directly relate to the immigrant-native labour market gaps. In this subsection, a review on our existing knowledge about immigrant-native labour market differentials focusing in particular on the role of skill-based migration policies on bridging these gaps is provided. As noted before, there are two key dimensions of the migration policy framework

namely, "admission/selectivity" and "access/integration" which have determinant influences on the scale of migration, the composition of immigrant inflows, and patterns of assimilation among immigrants. However, a large body of migration policy literature considers the "admission/selectivity" aspects' effects on immigrant-native gaps particularly how point-based (supply-driven) versus employment-based (demand-driven) policy frameworks influence immigrants composition and their labour market outcomes compared to the native population (Papademetriou et al., 2008; Zimmermann et al., 2008; Papademetriou and Sumption, 2011; Aydemir, 2012; Cangiano, 2012; Guzi et al., 2015). Hence, little attention has been paid to the other dimensions of migration policy.

Contrasting countries with a long tradition of immigration and new receiving countries, Zimmermann, Bauer and Lofstrom (2000) in their study investigate migration policies in four types of immigration regimes: "traditional immigration countries" (like Australia, Canada or the USA); "postcolonial immigration countries" (such as France and the UK); "temporary economic immigrants (guest workers) receiving countries" (like Austria and Germany) and "recent immigration countries" (such as Ireland, Italy and Spain). They argue that there are significant differences among migration policy frameworks of these four types and hence one may see a great deal of variation on the quantity, quality and composition of immigrant population across them. For example, the authors find that both traditional and new immigration countries embrace more economic immigrants than the two other receiving-countries groups, but at the same time, immigrants in the traditional receiving countries have more satisfactory labour market outcomes than the other countries. In this line, Dustmann and Frattini (2012) discuss the immigrant-native labour market gaps in recent immigration countries. They find that employment gap and occupational differences between migrant workers and natives are larger in recent immigration countries than traditional immigration countries.

Zimmermann et al. (2008) in their study about the social and labour market integration of ethnic minorities emphasize on migration policy differences across receiving countries which lead to different types and compositions of immigrants. For instance, they point to the Nordic countries which previously had focused on attracting economic immigrants, and now have switched their migration policy to prioritize humanitarian and refugee-type immigration. On the contrary, countries applying skill-based migration policies such point-based systems in Canada focus mainly on attracting skilled and younger workers and thus accommodate very different migrant groups compared to the former countries. Accordingly, they conclude that the migration policy differences can explain at least partially immigrant-native labour market outcome gap variations across host countries.

Papademetriou et al. (2008) argue that using point-based systems explicitly and hybrid systems implicitly produce a more educated immigrant intake. They point to the Australia and Canada as two main cases which principally use point-based system, and therefore these countries could have reached to much more educated stock of immigrants. Based on Australian evidence, Papademetriou et al. (2008) indicate that immigrants who arrived with a job offer have much better labour-market integration in the short and medium term than those immigrants who admitted through points systems without specific job offer. Yet, these differences narrow significantly by the medium and long run. On the basis of Canadian case, some studies indicate that the higher earnings of immigrants admitted through points-based system in comparison to non-points-tested immigrants (family or humanitarian) diminish over time (Wanner, 2005; Papademetriou et al; 2008). Similarly, Green and Green (1995) in their study on point-based systems show that such skill-selective entry systems which initially introduced in Canada in 1967, can significantly affect the occupational composition of immigrants. But at the same time, they argue that the point-based systems effects are temporary which may fade with time. Other studies (Duleep & Regets, 1992; Borjas, 1993; Antecol et al., 2003) provide some empirical evidence which all emphasize that applying skill-based immigration policies produces a more educated and language proficient immigrant pool in receiving countries and significantly keep immigrant away from low skill occupations. In this respect, point-based systems play a major role in selecting skilled applicants and creating a higher skill level of admitted immigrants in host countries (Aydemir 2012).

Nevertheless, based on empirical evidence presented by Lemaitre & Chaloff (2009), it is evident that highly educated immigrants arriving without a specific prior job offer from an employer irrespective to their visa type (labour, family or humanitarian migrants) have such labour market outcomes that are not as favourable as they used to be. In such circumstances, significant proportions of skilled immigrants are not holding jobs commensurate with their qualifications and suffer from de-skilling (Cangiano, 2012). DeVoretz (2006) in his study on highly skilled immigrants in Canadian context, finds that those immigrants who arrived in Canada since the early 1990s do not attain highly paying jobs since their prior skills and credentials are not fully recognized by the Canadian employers or do not match labour market standards. Accordingly, the highly skilled immigrants cannot experience full economic integration in the Canadian labour market. In other study by Kahanec and Zimmermann (2011) on high-skilled immigration policies in receiving countries, the different migration policy frameworks favouring high-skilled migrants in Europe have been investigated. They point out to the migration policy changes in some European countries like the UK, Netherlands and Denmark which switched from restrictive migration policies to attracting skilled workers through a point-based system. Despite the increasing implementation of selective migration policies among several EU countries, they argue that there

is no conclusive evidence showing that skill based policies have brought the expected results in meeting labour market needs particularly in improving immigrants' integration.

As a result of inferior labour market outcomes of skilled migrant workers in countries which have favoured point system in the past, they now shift towards a more demand-driven system (Reitz 1998, 2007). These countries now tend to favour candidates with job offers or already working in the country on a temporary status or with domestic educational qualifications, as well as by a strengthening of language requirements (Aydemir 2012). Zimmermann et al (2000) in their analysis on migration policies across EU member states show that immigrants in the countries with favourable migration policies aligned with labour market demand tend to have much more satisfactory labour market outcomes than other types of immigrants (non-economic immigrants for instance). They indicate that demand oriented immigrants not only perform well on the labour market compared to their native counterparts, but also have rather quick assimilation and integration. They argue that in other types migration policy frameworks which are not explicitly aligned with labour market demand, successful economic integration is not usually as quickly achieved, due to inflow of immigrants with less transferable skills and the immigrant-native gap might be therefore larger. Likewise, Desjardins and Cornelson (2011) argue that Canada's points system has been devised mainly to select immigrants with high general skill levels. Nevertheless, the point-based selecting system has not accounted for whether economic immigrants' specific skills and occupations are currently in demand or at least to what extent are being used in Canada. Accordingly, the authors claim that the inferior labour market outcomes of immigrants and their difficulties in the labour market could be explained by the mismatch between immigrants' skills and the needs of the Canadian economy.

All in all, as Lemaitre and Chaloff (2009), Aydemir (2012) and Cangiano (2012) argue much higher schooling levels and higher language proficiency among skilled workers do not necessarily translate into more favourable outcomes. One significant reason for this is the fact that employers attribute less value to qualifications and experience obtained abroad and in particular from a non-OECD country. Therefore, skill transferability is stated as a big challenge towards highly skilled immigrants receiving countries. Failures in the recognition of skills and qualifications have led to major skill underutilization almost in host countries. The type of degree (general versus vocational) and where it was earned (in the origin country or destination country) are key predictors of economic success (Papademetriou et al., 2008). In this line, Portes and Rumbaut (1996) argue that the ways and the extent to which immigrants would be able to convert their human capital into economic resources extensively depend on "the context of reception". They point out to several dimensions of the context of reception which interact with immigrants'

individual resources thus leading to different outcomes. Besides the host country's migration policy and the social climate toward immigrants, Portes and Rumbaut (1996) emphasize on the country-specific labour market structure (i.e. demand for specific occupations and specific skills) which immigrants' skills and any other type of their human capital is valued in that context. Hence, the economic opportunities like employment chances and ultimately the socioeconomic successes of immigrants is highly dependent on the structural arrangements of contexts of reception. In the following section, immigrants' skill transferability and labour market experiences in the host country's context would be discussed from this aspect.

2.2 SKILL FORMATION REGIMES

As outlined in previous section, besides the migration-related institutional factors like admission policies, the economic opportunities of immigrants such as their employment chances and positions in the labour market are greatly dependent on the non-migration institutions particularly structural arrangements of contexts of reception. Accordingly, the core aim of this section is to elaborate potential effects of the structural arrangements especially skill regimes on highly skilled migrant workers' labour market outcomes in host countries. In other words, it is attempted to find some explanations for variation of migrants' outcomes across countries through focusing on different skill regimes' capacities in terms of skill specificity and skill transferability. In this regard, comparative capitalism literature is adopted which differentiates diverse types of market economies and identifies systematic differences across the economies in their socio-economic regimes covering skill regime (education and training systems), industrial relations and employment protection regulation as well as their labour market structure. The categorization of countries into different market economies characterized by the institutional complementarities can fruitfully help us to proxy non-migration institutions and their configurations in the host countries particularly to test their role in explaining immigrant-native labour market outcome gaps.

2.2.1 SKILL REGIMES TYPOLOGY

First of all, before discussing potential influences of the skill regimes on immigrant-native gaps, the major characteristics of different skill regimes in general and the extent of their skill specificity and skill transferability in particular will be very briefly reviewed, building primarily on Hall & Soskice's (2001) typology. Hall and Soskice (2001) in their seminal work on varieties of capitalism (VOC), categorize market economies in to two typical models namely, liberal market economies (LMEs) and coordinated market economies (CMEs). In their well-known typology, skill formation systems and the specificity of skills these systems provide either general or specific is regarded as a crucial dimension (Busemeyer, 2011). The "institutional complementarities" as another underlying notion of the VOC, regards skill formation systems within a broader context as a constellation of economic and political institutions like firms, financial systems, labour markets, industrial relations and so on. These institutions have mutual and beneficial interactions and complement each other to produce nations' institutional comparative advantages. Forms of coordination between firms and institutions in addition to their interrelations with skill formation systems provide the institutional core of two aforementioned ideal models of market economies in the VOC (Hall and Soskice, 2001; Estévez-Abe et al., 2001; Iversen and Soskice, 2001; Thelen, 2004, 2008; Iversen, 2005, 2006; Iversen and Stephens, 2008; Busemeyer, 2009, 2011).

Based on Hall and Soskice (2001), "Liberal Market Economies" (LMEs) are principally characterized by general skills largely provided through general education systems which are complemented with on-the job training like United States and United Kingdom[5]. In such economies, an abundance of general skills enhances the labour market's flexibility and skill portability. This reduces the costs of hiring and firing labour force during economic upturns and downturns respectively. So this extent of flexibility encourages the firms to act mostly on the basis of formal contracts and market dynamics. Coordination through market mechanism enables firms to compete on the basis of the price and radical innovation strategies and to engage in fast moving technology sectors and services. To attract investment for radical innovation strategies through venture capital and stock markets firms need to have good short term indicators and consequently focus on short term interests. Concentrating on short term interests and price comparability impel the firms to acquire new technologies through buying other companies and also to poach their employees. The high rate of technology transferability, labour turnover, personnel poaching imply that both employers and employees not to be so interested in long term investment. These all on the one hand prevent firms from high rate of investment in the training of their employees. On the other, lead to employees to acquire broadly transferable general skills which facilitates moving from one job position to another and alleviates the risk of being unemployed. Hence, there is an orientation towards general and highly transferable skills through general skill formation systems in LMEs.

Conversely, "Coordinated Market Economies" (CMEs) like Germany[6] are characterized by highly specialized skills provided through dual vocational training systems which combine workplace-based training in the firms with theoretical education in vocational schools. Firms' investments in firm-specific skills and focusing on long term competitiveness, allow firms to engage in incremental innovation and compete on the basis of quality rather than price. Pursuing long term strategies provides incentives with firms to have long-term relationship and cooperation with other firms. So "to resolve the coordination problems, firms rely more heavily on forms of non-market coordination that entail collaboration and strategic interaction" (Hall and Soskice, 2001, 27).

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[5] Although there are variations among them, the USA, the UK, Ireland, Canada, Australia and New Zealand are generally recognized by the literature as liberal market economies.

[6] Austria, Belgium, Denmark, Finland, Germany, Netherlands, Norway, Sweden and Switzerland are identified as coordinated market economies (Hall and Thelen 2009)

Cooperation between firms paves the road for establishment of strong employers' associations which facilitates occupational training standard setting, quality of apprenticeship monitoring and acquired skills certification. Standardized industry-specific skills play important role for inter-firm cooperation in developing and transferring technologies. Strong employers' associations also provide the institutional infrastructure for coordinated wage bargaining which results in standard wage levels across firms and help to avoid poaching of employees. This protects firms' investments in firm-specific or industry-specific skills of the employees. In coordinated market economies, the financial system allows firms to endure short term fluctuations during economic downturns which increase the job security. These all increase the mutual incentives and interests for long-term cooperation and investment between firms and their employees. On the one hand, this cooperation lets employers follow their long-term competitive strategies based on their employees' specific skills. On the other, safeguards employees' employment during short-term shocks and strengthens their position in case of industrial conflicts or collective bargaining. Therefore, in CMEs, specific skill regimes which provide specific and non-transferable skills are playing major role (Hall & Soskice, 2001).

Besides the liberal market economies and coordinated market economies as two pure ideal-typical models in the VOC literature, there is a third type of economy involving a combination of market forces and central planning known as "mixed market economies" (Hancké et al. 2007; Molina and Rhodes 2007), which are also called "Mediterranean statist/conservative economies[7] (Devitt, 2011). Mixed market economies might be regarded as member of the family of coordinated market economies, in the sense that in both CMEs and MMEs, the collective actors play a major role and business organizations with trade unions have rather similar organizational features in contrast to the liberal market economies, in which market mechanisms prevail and collective actors play a minor role (Hassel 2014). At the same time, while firms and unions in MMEs are stronger than in LMEs, they are less well articulated and more fragmented than in CMEs. Consequently, firms and trade unions in mixed market economies cannot deliver collective goods or create strong autonomous forms of coordination in the same way as they do in coordinated market economies. Rather, they have veto power over the state and can demand compensation for state intervention (Molina and Rhodes, 2007). Hence, despite some similarities in their institutional complementarities set-ups, mixed market economies (MMEs) lie somewhere in between the LMEs and CMEs and since MMEs lack autonomous self-organization among economic actors, state has the central role in facilitating coordination (Molina and Rhodes 2008; Hassel 2014). As Amable (2003) points out, due to the dearth of pre-conditions of beneficial complementarities in MMEs,

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[7] Mixed market economies can be found in France and Southern Europe, particularly in Greece, Italy, Portugal and Spain.

there are strong levels of employment protection and low levels of social protection that lead to underinvestment in specific skills, hence preventing the development of high value-added activities. All these institutional arrangements result in an industrial specialization layout based on small firms competing largely on price in MMEs and make it hard to move on towards a higher-wage/higher-skills development path (Hassel 2014).

As briefly explained above, divergent skill regimes are embedded in LMEs and CMEs with different type of institutional complementarities and coordination mechanisms. Specific skill regimes in CMEs provide highly specialized and less transferable skills which encourage firms to have long term cooperation with their employees and other firms. In contrast, general and transferable skills provided by general skill regimes in LMEs, increase skill transferability and labour market flexibility and impel firms to compete on the basis of price and short-terms interests.

In the remainder of this chapter, the skill regimes effects on immigrant-native labour market outcomes are described.

2.2.2 SKILL REGIMES EFFECTS ON IMMIGRANT-NATIVE GAPS

The literature considering skill regimes effects on immigrant-native gaps is still in its infancy and hence the empirical evidence is rare except for some studies in European context.

Garrett (2011) applies varieties of capitalism (VOC) framework to explain immigrants' disadvantages relative to natives across 21 European countries with different skill regimes. She expects because of general skills which make initial entry into the labour market more flexible, immigrants seem to fare better in general skill regimes (LMEs) than in specific skill regimes (CMEs). So, she assumes that relative labour market outcome disadvantages of immigrants would be more likely intensified in the host countries with such institutional settings rely heavily on specific rather than general skills. To explain this, she takes different aspects into consideration within the VOC context namely, labour market mobility, labour demand and skill portability. Using European Social Survey (ESS) round 1 and 2 data, Garrett (2011) provides some preliminary descriptive evidence to test her hypothesis. Accordingly, she attempts to compare graphically the relative levels of unemployment rate between natives and foreign-born workers in studied European countries. As she anticipates, unemployment inequality between natives and immigrants empirically are more pronounced in CMEs than in LMEs[8]. The study indicates that in CMEs

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[8] Although due to serious data limitations, Garrett's work cannot strongly confirm or reject the existence of straightforward relationship between immigrants' employment inequalities and VOC in general or skill profiles of countries in particular, it clearly provides some useful insights into pertinent literature.

countries like Germany, Netherlands and Nordic countries relative unemployed proportion is explicitly much more pronounced for immigrants and so immigrant-native employment gaps are quite considerable, while in the LMEs countries like the UK, the unemployed proportion of natives is rather close or almost identical to that of immigrants. Investigating the skill structure impacts on the ease and speed of immigrants' initial integration into labour market, Garrett's research work opens new avenues to explain variation of immigrant-native disparities across countries. It tentatively demonstrates that "immigrant-native parity is grater in countries where skill specificity is lower (i.e. the UK) and higher in firm-specific and industry-specific CMEs [Like Germany]" (Garrett, 2011:32).

Similarly, Guzi et al (2015) apply the varieties of capitalism (VOC) framework to study the institutional determinants of immigrant-native gaps in host labour markets. Besides individual characteristics, they mainly control for VOC country types (skill formation systems) dummies and also some other VOC related institutional variables such as EPL, union density, collective bargaining and skill specificity (VET share) across 19 European countries. Their findings confirm that institutional contexts particularly VOC dummies play a significant role in immigrant-native gaps. They argue that the liberal and emerging market economies tend to provide much more favourable conditions to integrate immigrants into the labour market than coordinated market economies. Their quantitative analyses indicate that immigrant-native gaps particularly in terms of participation and permanent employment seem to shrink in mixed market economies, but considering unemployment and low-skilled employment, these economies show mixed results.

In the following, I investigate how particular variables from the main pillars of VOC framework namely, employment protection legislation, industrial relations (trade unions density and collective bargaining coverage), skill specificity and labour market structure interact with migration flows, structures and skill composition and their effects on immigrant-native disparities.

2.2.3 EMPLOYMENT PROTECTION LEGISLATION (EPL) EFFECTS

The varieties of capitalism (VOC) framework has established that various economies vary according to their level and coverage of employment regulation and labour market legislation. For stance, labour markets in coordinated market economies are strictly regulated, while liberal regimes have lightly regulated labour markets (Hall and Soskice 2001). So it stipulates how labour relations are organized and regulated in different socio-economic regimes with some implications for the labour market flexibility, and here as the main focus of this study, for immigrant-native inequalities. In this line, one might ask how flexible/rigid labour markets in general and employment protection legislation (EPL) in particular might affect migrants' labour market outcomes. To address this

question, we need first to have some definition and know more about potential effects of flexible/rigid labour markets on whole workers either native or foreigners.

Broadly speaking, the labour market flexibility is a multidimensional phenomenon and so can be viewed and be defined from different aspects as Regini (2000) identifies different forms of flexibility namely, external, internal, temporal and wage in which regulation of entry into/ exit from labour market, job allocation and of career paths, working time and regulation of wage bargaining are considered respectively. Since immigrants at the time of arrival are more likely to be "outsiders" in the host country's labour market with the high intention of immediate integration to that market (Lindbeck and Snower, 1988, 2001; Kogan 2007), so here the external aspect of flexibility (i.e., rules for hiring and firing) seems more related to our argument.

As Antecol et al. (2003) argue a country's institutional framework characterizes the rights and mutual responsibilities of employers and employees involved in the labour market, mainly by regulating the hiring and firing procedures through regular and temporary contracts with employment protection legislation (EPL). In this respect, the employment protection could be defined as any set of regulations, either legislated or written in labour contracts that not only put some conditions on hiring (e.g. using temporary or fixed-term contracts) but also concern firing circumstances (e.g. redundancy procedures or special requirements for collective dismissals) so that restrict the employment relationships particularly dismissals without delay or cost (Pissarides, 2001). Accordingly, employment protection legislation (EPL) plays an important role in labour market regulation which aims at stabilizing employment relationships between employers and employees (OECD, 1999; Esping-Andersen, 2000).

The potential advantages and disadvantages of strict employment protection legislation (EPL) should be carefully noted. A labour regime which characterized with high strictness of employment protection legislation (EPL) and long-term relationships between workers and firms might seem favourable in eyes of employers and of employees because of high level of productivity for employers and protected employment condition for employees. Nevertheless, such regime can also result in raising the risk of unemployment for all workers through increasing hiring and firing workers' monetary and procedural costs, consequently they decrease labour mobility in the labour market (Antecol et al. 2003; Kogan 2007; Chiswick et al. 2008). OECD (1999) provides some empirical evidence for the negative effect of strict EPL on labour turnover as a result of the higher labour costs. As shown by the OECD (1999), in a labour regime with stricter EPL employers are more reluctant to hire during upturns or to fire during downturns because of high level of firing costs. When firms are not so keen to hire, hired workers would be more hesitant to quite.

Consequently, the job finding for those workers who are unemployed or become unemployed probably be harder or takes more time. Furthermore, as Vindigni (2008) argues strict EPL might also not only reduce job creation rate but also lower exit rate from unemployment which could intensify disadvantages for unemployed workers. Another major impact of tight employment protection is on the size of the informal sector. A large number of studies indicate the correlation between employment protection and informality (Todaro, 1969; Harris and Todaro, 1970; Lindbeck and Snower, 1988, 2001; Kogan, 2007). Indeed, when tight employment protection regulations strengthen division between insiders and outsiders in the labour market (Lindbeck and Snower, 1988, 2001), unemployed or disadvantaged workers mostly as outsiders would naturally shift from the primary market (formal sector) to the secondary market (informal sector).

As it is evident, the employment protection legislation (EPL) may have mixed effects on outcomes of workers as a whole and especially of immigrants in the labour market. In fact, existing theories and evidence find it hard to come up with concrete predictions when it tries to anticipate how immigrant-native labour market gaps are likely to be influenced by labour market flexibility or rigidity.

When in a given host country the employment protection legislation (EPL) is strict, as Kogan (2007) argues, employers are more concerned about hiring immigrants relative to natives. These concerns mostly originate from skill translation and transferability problems of immigrants which can lead to high probable mismatching costs for employers. Under these circumstances, those immigrants who obviously signal high productivity either through their educational or other characteristics to employers have more chances to be hired rather than other risky immigrants. While in countries with low job security the costs of such 'skill bad matching or mismatching' might be much less than former countries. Since, in latter countries employers can easily test employees' characteristics on the job and firing cost is not so high then there are fewer concerns about immigrants hiring (Kogan, 2007). Moreover, she regards the EPL impacts on immigrants' positioning in primary or secondary markets. She argues that since EPL predominantly regulates the primary labour market, so high strictness of EPL not only slows down immigrants' finding job but also hampers their chances of achieving high-status job positions. The latter is likely more pronounced for highly skilled immigrants. Whereas in the secondary market, strict EPL has less, if any, impact on immigrants' finding low-status job positions. Nevertheless, positioning in secondary market has its own potential risks and disadvantages for migrant workers. Actually in the absence of employment protection, immigrants might face higher risk of losing their employment in secondary markets because of temporary or seasonal nature of unskilled or low-skilled jobs that are highly vulnerable to business cycle fluctuations or economy ups and downs.

Kogan (2007) also considers the situation in which immigrants intentionally prefer to take position in the secondary labour market because of their temporary settlement plan or high cost of job searching. Hence, under such circumstance, she states that positioning in secondary labour market may seem ideal for this type of immigrants and consequently no practical effect of EPL strictness on immigrants' chances of gaining employment should be anticipated (Kogan, 2007).

Besides, using the data of EPL index developed by OECD in 1999, Kogan (2007) provides some descriptive evidence on variation of EPL strictness across European countries. Based on the degree of EPL strictness, she distinguishes three main categories of European countries. The first group including Southern European countries is characterized with highest overall EPL strictness and high level of protection both in regular and temporary employment. In contrast, there are the most flexible labour markets in the countries like Denmark, Ireland and UK with low employment protection particularly for temporary workers. Third group composed of the continental Europe plus Sweden and Finland takes position somewhere in the middle of former groups and represents labour markets with rather high employment protection. Kogan (2007) investigates immigrants' labour market outcomes within these three groups by adding the EULFS data (1992-2000) to her analysis plus controlling for other institutions effects like labour market structure. She indicates that immigrants have more promising employment chances in second group of countries with more flexible labour markets. Conversely, she expects more employment difficulties for migrants in more rigid labour markets in Southern and Western European countries. Nevertheless, it is stated that immigrants' employment difficulties in latter countries would be mitigated once there is high demand for unskilled and low-skilled jobs and immigrants are likely involved in law-status job positions in secondary market. Finally, Kogan (2007) comes to this conclusion that the stricter EPL might lead to the larger employment disadvantages for immigrants especially for more recent third-country migrant workers.

Likewise, Bisin et al (2011) study the linkage between EPL indicators of OECD (1999) and immigrants' employment. They argue that since the rate of labour mobility is higher in a flexible labour market as well as the chances of finding a job are greater, so such contexts seem more favourable to the immigrants. At the same time, the authors find evidence that shows a rigid labour market with the stricter EPL might eliminate employment penalties for migrants with strong identity. Accordingly, they suggest that countries with more flexible labour markets may provide better labour market access with immigrants, but do not favour those migrants with a strong ethnic identity who are quite often affected by discrimination. Taking into account the difficulties against especially recent immigrants to establish their first employment due to adjustment costs, discrimination or prejudice, Bisin et al (2011) conclude that immigrants enjoy more favourable

labour market outcomes particularly in finding their first job in countries with more flexible and less regulated labour markets, lower levels of regulation, lower minimum wages and lower trade union densities such as the UK and Ireland.

Bazillier and Moulaan (2012) find negative relation between employment protection and immigrants' probability of finding job. They argue that since immigrants are primarily newcomers on the labour market and so are regarded as outsiders, the effect of EPL on immigrants' employment is negative. They show that this negative effect is stronger for high-skilled immigrants than low-skilled workers. Moreover, Bazillier and Moulaan (2012) state that social distance in general and labour market regulation in particular between origin and destination country might influence destination choice of migrants. If there is high distance between them, they are more likely to take outsider position in host country's labour market. Hence, they suggest that migrants are probably more inclined to settle in countries where labour market regulations are not so different from those in their country of origin.

Controlling for EU immigrants and non EU immigrants, Dustmann and Frattini (2012) in their study on the European experience of migration show that immigrant-native employment gaps are larger in countries stricter employment protection regulations particularly these gaps are more pronounced for recent migrants and those originate from non-EU countries. Moreover, they find that immigrants face more difficulties in access to certain occupational sectors in countries with stricter employment protection legislation. Nevertheless, the authors conclude that the immigrant-native employment gaps do not seem to correlate significantly with the level of EPL.

Markaki (2014) in his analysis across 19 European countries finds that the strict employment regulation seems to increase immigrants' risk of unemployment, underemployment and chances of holding temporary contracts. His study indicates a stricter regulation of regular contracts might augment the immigrant-native earnings gap and also immigrants' chances of holding temporary contracts. He also shows that the stricter regulation of temporary contracts, the higher risk of unemployment and underemployment for immigrants.

Analysing the effect of EPL on immigrant-native gaps across 12 European countries, Causa and Jean (2007) find that more flexible labour markets are likely to increase immigrant-native wage disparities while close the immigrant-native gap in unemployment. They argue that stronger EPL dualism, i.e. the relative level of EPL for permanent vs. temporary contracts seems to decrease the bargaining power of immigrants when they tend more frequently to hold temporary contracts. Hence, they conclude that stricter labour market regulation (stronger EPL dualism) might narrow

immigrant-native unemployment gaps, however, it may broaden wage gaps and lead to the overrepresentation of immigrants among holders of precarious contracts.

Angrist and Kugler (2003) argue that the institutions do not protect native and immigrant workers equally and immigrants are often less protected than their native counterparts. Consequently they suggest that stricter EPL in countries with higher hiring and firing costs for native workers, allows employers to take advantage of the lower employment costs related with limited institutional protection by employing immigrants over natives.

2.2.4 INDUSTRIAL RELATIONS EFFECTS

In their study on industrial relations systems association with migration, Kahancová and Szabo (2012) provide a comprehensive theoretical and empirical overview of the impact of industrial relations on migration through case studies on particular countries as proxies of LMEs (the UK), CMEs (the Nordic countries and Germany) and MMEs (Spain). They put emphasis on the associational power through social partners (especially trade unions) and bargaining systems as the most important pillars of industrial relations from the migration perspective. Accordingly, they try to investigate how bargaining systems and trade unions interact either directly or indirectly with migration flows, structures and skill composition. They argue that bargaining systems are connected to the levels of immigration as well as to the cost and benefits of immigration through influencing the demand for precarious (flexible) employment. Since migrants are mostly concentrated in the precarious segments of the market, bargaining systems play a prominent role in shaping the way in which precarious employment forms are accepted and dealt with in specific institutional contexts, also play an important role in managing the externalities related to insecure working conditions. About trade unions effects in the authors' own terms, "strong trade unions have the potential to influence costs and benefits of migration either directly through their action targeting migrant population, or through institutional arrangements, e.g., bargaining for an extended coverage of collective agreements, monitoring compliance with relevant legal regulation, negotiating particular collective agreement provisions for migrant workers, or protecting the interests of migrants and raising their awareness on entitlements related to work and welfare system provisions in the receiving countries" (Kahancová and Szabo, 2012:5).

Based on their case-study based evidence, Kahancová and Szabo (2012) indicate that coordinated market economies (CMEs) of the Nordic countries and Germany are associated with lower levels of precarious employment and also lower levels of economic migration than the LMEs and the MMEs. At the same time, there are some differences among CMEs' cases in terms of bargaining systems and trade unions. Hence, migration's costs and benefits for both immigrants

and host country differ remarkably across these systems. On one hand, encompassing collective bargaining in the Nordic countries secures more stable working conditions and better chances of upward mobility for migrants[9], and contributes to the survival of a solidaristic welfare state. Consequently, such favourable conditions (relatively low intensity and a non-segregated form of migration) enable Scandinavian unions to be rather active and successful in organizing non-national workers. On the other hand, migrant workers in the dualized bargaining system of Germany are positioned as outsiders in the labour market, which comes at a price of precariousness and lower levels of social protection, and a redistributive struggle between insiders and outsiders about welfare services. So, trade unions are caught up in a divide. Partly due to the divisions of trade unions and partly as result of the institutional embeddedness they enjoy, they were not forced to see immigrants as a possible source of organizational revitalization. In consequence, German trade unions in attracting immigrant workforce lags behind both Scandinavian and British trade unions (Kahancová and Szabo, 2012:27).

On the contrary, in liberal market economies such as the UK and the Mediterranean-statist model of Spain with high levels of economic migration and no clear separation between insiders and outsiders as in the case of Germany, employers tend to take advantage of the flexible labour force of migrants. While in both cases, migrants are concentrated in the low-skilled, low-paid segments of the labour market, putting some downward pressure on wages, again there are some differences in bargaining systems and trade unions of these systems. Kahancová and Szabo (2012) argue that despite the fragmented bargaining system of the UK, trade unions were quite successful in organizing immigrants as part of their revitalization strategy and since the whole labour market was quite flexible, hence negative shocks such as the 2008 crisis affected immigrants and nationals equally. Whereas in Spain, framed by informality and periodical state intervention, migrant workers were more severely affected by unemployment than Spanish nationals during crisis, and due to problems of informality and sectoral divides, unions could achieve only partial results in organizing immigrant labour.

Along the same line, Meardi et al. (2012) in their analysis on the construction sector in the UK and Spain (as two typical examples with flexible labour markets and volatile construction sectors) examine the relationship between industrial relations and migration. Their construction sector analysis shows a convergence between the British and the Spanish models towards a similar use of 'hyperflexible' migrant labour and also as a buffer use against ups and downs in labour

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[9] Kahancová and Szabo (2012) argue that, however, finding an entry point to Scandinavian labour markets is rather difficult, once it is accomplished, equal wages and upward mobility for migrants in this model is more likely than in the other models.

demand. At the same time, they argue that such extent of flexibility seems very hard to organise for the trade unions and might lead to different outcomes especially due to national differences in union structures. They indicate in the fragmented bargaining systems of the UK, unions with much weaker representation and collective bargaining rights, have more interest in linguistic diversity and community organising, but do not contest the free movement of workers (as from the new member states in 2004) and neither do they complain against restrictions on migrant workers (like on Bulgarians and Romanians in 2007). In the mixed bargaining system of Spain with certain elements of the dualized and the fragmented models, unionism combines low membership levels with political involvement and informality. Consequently, stronger state union relations result in more inclusive political action and servicing towards immigrants by unions such as relative easy access to Spanish construction, agriculture sector and personal service job positions in the early 2000s flourishing economy. Lastly, Meardi et al. (2012) conclude that in both cases, unions emerge as crucial bridges to avoid migrant segregation, although they still seem very unsteady bridges to resist the torrent of flexibility.

Turner et al (2013) investigate theoretically and empirically unions impacts on migrant workers in Irish labour market context. Besides gathering the literature to indicate how collective bargaining can increase the market power of workers to negotiate wage raises and therefore majority of workers join unions in order to improve their pay and working conditions, they refer to the large body of the literature to clarify the benefits of unions for immigrants and also the difficulties of immigrant workers to join unions. Based on the authors, unions not only provide immediate instrumental and material benefits for migrant workers (like higher wages and better working conditions), but also being a member of a trade union appear to increase immigrants' social networks and can strengthen the role of the workplace as a mechanism for the economic and social integration of immigrants into the host country. Despite the instrumental and social advantages of union representation and collective bargaining for immigrants, there are a number of obstacles faced by migrant workers in union availability and/or union joining for which either render union joining difficult or make immigrant reluctant to it. Turner et al (2013) point to the market position and individual characteristics of migrant workers, trade union attitudes and policies with regard to migrants as some important hindering factors. Considering marginalised market position of migrant workers, they point to the limited access of immigrants to the highly unionised public sector jobs[10], not being aware of union existence because of language difficulties or limited social contacts in the workplace, and being under employers' pressure not to join unions. From

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[10] The migrant workers are more likely tend to take employment position in low skilled jobs in the services sector and in smaller firms in the retail and construction sectors or even in secondary labour markets which are less (non)unionised.

individual characteristics perspective, immigrants are more likely to be young or to stay temporarily in the host countries, so these immigrants are usually perceived to be less likely to join unions. Moreover, having little sense of solidarity with native workers or of ideological affinity with national trade unions, are regarded as other immigrants' individual attributes in this view. Turner et al (2013) also bring together some evidence from the literature about union policies on migration expressing trade unions' improper response to migrant workers' membership, a restrictive approach of unions against labour migration, or their bargaining coverage for specific type of immigrants (like EU/EEA immigrant workers).

In this line, Turner et al (2013) present some empirical evidence for union membership and instrumental benefits for migrant workers in the Irish labour market context. Their findings highlight that migrant workers have lower unionisation rates than native workers, indicating less focus of trade unions on recruiting immigrant workers in Ireland. At the same time, over a third of those unionised immigrants are not covered by a collective agreement due to the lack of negotiation with unions. They show that unionisation provides moderate instrumental benefits for immigrant workers compared to non-union immigrants, however, their earnings and benefits lag behind native workers (even non-union Irish-national workers).

In his empirical study on the immigrants' labour market disadvantages variation across 28 OECD countries, Bergh (2014) shows that the bigger immigrant-native employment gaps in the host countries with higher collective bargaining coverage and also in countries with more generous social safety nets. Since immigrants quite often tend to compete for jobs by offering to work for lower wages, by working less convenient hours or by doing other tasks than native workers, he argues that in countries where a large part of the labour market is covered by collective bargaining agreements, trade unions have more power to protect their members (which are more likely to be employed native workers than to be unemployed immigrants) against such competition which result in immigrant unemployment. More interestingly, Bergh's (2014) findings indicate that countries with high coverage of collective bargaining agreements and also with higher welfare state generosity, tend to have lower inequality although exhibit higher labour market segregation. Accordingly, he suggests if trade unions apply collective agreements to protect native workers (insiders) from competing with immigrants (outsiders) for job positions, the unemployed immigrants still enjoy a relatively high income standard thanks to the generous welfare state in these countries.

2.2.5 LABOUR MARKET STRUCTURE EFFECTS

It is widely argued that the structure of the labour market exerts a significant influence on all workers' employment chances either native or immigrant. Hence, it is plausible that certain characteristics of a country's labour market can impact immigrants' positions in labour market (Kogan 2006, 2007; Markaki 2014). Here, the main argument is that how the labour market orientation towards high or low skill jobs determines the extent and success of immigrant incorporation to high or low skill job positions and their disadvantages relative to natives. Accordingly, one might hypothesize that the higher demand for skilled labour in a given country, the lower employment disadvantage for skilled immigrants. Kogan (2007) on the basis of dual labour market theory (Doeringer and Piore, 1970) and also the form and the size of occupational hierarchy in the labour market, develops this argument and puts forward some theoretical and empirical support for that. Due to the data limitation and particularly practical problems with operationalizing the demand for high-skilled workers at the upper end of the occupational hierarchy, Kogan (2007) focuses on the low skilled immigrant workers and chooses the relative weight of the bottom of the occupational structure as a proxy which determines low skilled immigrants' labour market chances. So in this sense, she hypothesizes "in the countries with a stronger demand for unskilled or low skilled labour are expected to more readily absorb [low-skilled] immigrants into the labour market, so that underprivileged immigrants have on average fewer problems finding employment. And in these countries the gap between immigrants and the native-born in acquiring jobs should therefore be narrower" (ibid, 53-54). She provides some empirical evidence in European countries context and shows that, for instance, in the Southern European countries such as Spain and Greece the bottom of the occupational hierarchy is quite large and as a result there are so many low skilled jobs positions for both natives and immigrants. In contrast, in the Northern European countries, like Sweden and Netherland, the need for low skilled workers is much less smaller. This proportionately applies to the labour market outcome of low skilled immigrants in particular for the third countries immigrants (immigrants out of EU). In other words, low skilled third-country immigrants have less employment disadvantages relative to natives in countries with a bottom-heavy occupational hierarchy. Furthermore, labour market structure has some effects on migration policies and the nature of immigrants' inflow. It means a country's migration policy orientation will be naturally towards attracting immigrants whose characteristics are more consistent with its labour market structure. For example in Southern European countries like Spain and Italy where the job positions at the lower end of the occupational structure abound, they seem more oriented towards low skilled and labour-intensive migrants in contrast to more highly skilled oriented labour markets in countries like UK (Kogan, 2007).

Along with Kogan's (2007) argument, Reyneri and Fullin (2011) point to the labour market structure variation across countries and find some empirical evidence in their comparative work in European countries context. As they indicate, there are high skilled structures characterized with manufacturing industry, business services and also with public and private personal services so that there is a real need for workers with highly qualified skills and a limited need of unskilled labour. Indeed, labour market demand in these countries such as the United Kingdom, the Netherlands and Denmark is biased towards high-skilled job positions where the proportion of highly skilled or skilled job positions like managers and professionals is over 20 percent versus less than 30 percent of manual workers (ibid, 49). On the other hand, there are low-skilled structures characterized by low-tech and unskilled labour-intensive production processes with a great need for low skilled labour. The labour market structure in Sothern European countries such as the Italy and Spain is biased towards unskilled job positions and there is an increasing need for domestic and elderly care-providers by families because of inadequate supply of public care services. Hence, in the Italy and Spain the proportion of manual workers on average amounts 40–45 percent, while for managers and professionals it stands around 12–15 percent (ibid, 49). Hence, there is a marked difference in labour need of these two opposite categories of countries. In latter category, Italy and Spain, the demand for labour need is highly geared towards low-skilled jobs and hardly oriented towards highly-skilled occupations. While in the former countries (United Kingdom, the Netherlands and Denmark) a different trend of labour need applies. This kind of divergence can also be seen in countries' immigration policies. For instance, highly-skilled oriented countries apply more specific policies and measures like point-based systems to attract more skilled migrant workers and consequently these immigrants would take more high-status job positions. Accordingly, Reyneri and Fullin (2011) conclude that the persistent disparities observed in the labour market between immigrants and natives, among other reasons, can be partly attributed to labour market structure and immigrants' position in the market like their status in the labour market as outsiders. As DIOC (2008) reports, some countries most notably, UK, Canada, New Zealand, Australia and the Netherlands which are more high skill oriented apply point-based systems. Hence, in these countries in which more than 25 percent of natives' job positions are highly skilled, immigrants proportionately, even more than natives, occupy high skilled job positions. Conversely, in countries like Italy, Spain and Finland where the more than 50 percent of natives have low skilled job positions, immigrants are intensively geared towards low skilled job positions. In these countries, 60 percent and further of immigrants are employed in low-skilled job positions. Yet, there are some cases like Germany and Austria in which natives are not so populated in low skilled job positions while migrant workers disproportionately have taken position in low-skilled jobs.

2.2.6 SKILL SPECIFICITY

As discussed before, the VOC framework developed by Hall and Soskice (2001) puts a great deal of emphasis on the relevance of different types of skill regimes namely, general skill regimes and specific skill regimes. Accordingly, the interrelations between different types of skills in distinct skill formation systems and production regimes have resulted in the 'skill specificity' becomes underlying feature in the VOC framework literature and the focal point of subsequent discussions (Busemeyer, 2009). For instance, firms' tendency to investment in specific skills in coordinated market economies (CMEs) besides the other forms of non-market-based coordination such as firms' long-term relationships with finance actors allows them to pursue diversified quality production strategy. Consequently, firms in CMEs are more likely to invest in specific skills than companies in liberal market economies which are less willing to invest in specific skills and may be more inclined to the transferable skills. Therefore, 'portability' of skills can be regarded as another aspect of skill specificity concept which defines applicability of typical forms of skills (either general or specific) found in the VOC literature[11]. Considering skill specificity and portability, Iversen (2005) argue that 'Specific skills are valuable only to a single firm or a group of firms (whether an industry or a sector), whereas general skills are portable across all firms' (ibid, 78). All in all, as one could argue that skill specificity is indirectly defined by looking at the portability of skills and hence, higher portability implies lower specificity of skills and contrarily, the lower portability of more specific skills (Busemeyer, 2009).

Some authors in the VOC School, like Cusack et al. (2006) and Iversen and Soskice (2001), have pointed to the skill specificity on the country level. In this regard, Cusack et al. (2006) recognize specific skill formation regimes in countries with well-developed vocational training system producing more specific skills vis-à-vis general skill regimes in countries without such vocational training system and hence producing more general skills. Iversen and Soskice (2001) use vocational training intensity (the share of students in vocational training) to measure institutional vocational specificity of the national skill formation system[12]. From the country-level perspective, Busemeyer (2009) argues that skill regimes might be conceptualized as an interconnected set of different institutions in a given economy like vocational education and

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[11] Besides general and specific skills, some authors have tried to extend skill dichotomy (like Estevez-Abe et al., 2001; Cusack et al., 2006). In this line, Estevez-Abe et al. (2001) recognize three distinct types of skills namely, firm-specific, industry- or occupation specific and general skills on the basis of skill specificity and portability. For instance, firm-specific skills are least portable and usually provided through on-the-job training, while industry-specific skills are mostly acquired through vocational schools and apprenticeship trainings identified by any employer in a given trade. Contrary to the former types which are more employable in a specific occupation, firm or industry, general skills can be easily recognized in the market with a high degree of portability and employability in a wide range of firms or industries.

[12] Different approaches to measure skill specificity have been shown in Annex 16 in more detail.

training system, industrial relation, and labour market that motivate both firms and workers to invest in different kinds of skills and consequently shape the overall skill profile of that country (ibid, 387). Accordingly, the extent of skill specificity of countries' skill formation regimes and their configurations in the provision of different kinds of general and vocational skills can help us to understand why some countries' skill regimes fare better than others in terms of labour market outcomes.

Depending on the intensity of skill specificity, the skill regimes might have different effects on native and migrant workers labour market outcomes. From the native workers perspective, specific skill systems providing specific skills through vocational education training (VET) may have positive influence not only on the employment opportunities of school leavers, but also on the speed of the school to work transition process. For instance, the more transparent the skills provided by VET programs either school-based or workplace-based to the employers, the easier they can evaluate the productivity of young school leavers. Under such circumstances, matching process in the labour market will face less information problems because the employers can recognize more easily VET qualifications holding by job seekers. Consequently, job seekers can be employed as a productive worker right after labour market entry without the need for much additional training which leads to less training costs for employers (Blossfeld, 1992). Besides, specific skill systems with high degree of firms' involvement in VET through dual systems or apprenticeships (Busemeyer 2009) provide the additional advantage of decreasing the hiring costs because they allows employers to select desired employees among the apprentices and hence train them in a way that best fits the firm's needs. All in all, not only youth unemployment is lower in specific skill systems, but also the quality of the initial labour market entry is higher as compared to countries that offer mainly general skills particularly at the upper secondary level (Gangl, 2003; Wolbers, 2003, 2007). As outlined above, in contrast to specific skill regimes and in particular to the VET systems, general skills are weakly tied to the workplaces and this condition might translates into higher training costs for employers due to need for on-the-job trainings after job entry. Additionally, since the general skills acquired in school and especially the potential productivity of school leavers are not so much transparent to employers, matching process will encounter much more information problem and as a result, hiring costs for employers would be higher (Andersen & Van de Werfhorst, 2010).

From the migrant workers perspective, initial labour market entry and economic integration seems to be the least difficult in general skill regimes where less emphasis is given to formal education and skill certification, while highly formalized skill licensing in specific skill formation regimes makes access to adequate employment is most complicated (Guzi et al., 2015). Indeed, the

early entry into labour market in general skill regimes helps migrant workers to develop their human capital and accelerates acquiring language skills. Hence, migrant workers in such systems might suffer fewer disadvantages in terms of delayed entry than those migrants in the specific skill regimes. Moreover, skill portability, as an underlying feature of skill regimes, has great consequences on immigrants' employment prospects. In this respect, the extent of the skill portability is largely determined by "the context in which the skills were certified (i.e. on-the job or at school) and the degree to which that certification is objectively recognized" (Garrett, 2011; 15). So, transferability of immigrants' prior skills in general skill regimes will be more likely higher and easier than in specific skill regimes. Because firm-based or specific skills are mostly recognized within the context of the firm or collection of firms in host country, so immigrants prior credentials obtained in their origin countries are more likely in risk of devaluation or underutilization. Skill discounting in specific skill regimes hinders migrant workers initial integration and not only can slow down their upward occupational mobility but also might block them in low skilled job positions. Conversely in general skill regimes, immigrants' prior skills are more likely to be valued by the market and a large range of firms and employers because skill certification is more objectively recognized by objective institutions. So, this higher skill transferability of migrants might ease initial integration to labour market and makes occupational advancement more feasible in general skill regimes (Garrett 2011).

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 HYPOTHESES

As background literature and theoretical framework were discussed in the previous two chapters (chapter 1 and 2), this chapter mainly deals with research design and methodology of current research work.

Based on the literature review and theoretical framework and also considering the main research question of this project implies how institutional settings of host countries affect native-immigrant labour market gaps, the four main hypotheses as to the effects of these institutional factors on the likelihood of unemployment and the occupational status of highly educated immigrants (as compared to the native-born) have been developed as below in Table 3.1.

Table 3.1. Hypotheses regarding the role of institutions in the highly educated native-immigrant labour market gaps

	Unemployment risk	Occupational Status
Skill Regimes - LMEs - CMEs - MMEs	(H1) Unemployment propensity of highly-educated immigrants might be higher in countries with more specific skill regimes (the smaller educated immigrant-native unemployment gap in LMEs than CMEs & MMEs).	(H2) In general skill regimes (LMEs), the immigrant-native occupational status gap might be smaller than countries with more specific skill regimes (CMEs & MMEs).
Migration Regimes - Hybrid regimes - Employment-based regimes	(H3) It is expected that in hybrid migration regimes (as compared to countries with employment-based regimes) the unemployment gap between highly educated natives and immigrants will be smaller.	(H4) Hybrid migration regimes might allow highly educated immigrants to enjoy a higher occupational status (smaller immigrant-native occupational status gap).

3.2 VARIABLES

3.2.1 DEPENDENT VARIABLES

The unemployment risk and occupational status, as two common labour market outcome variables in comparative migration literature, are investigated in this study as the core dependent variables. Here to define the unemployment risk, high comparability definition of the International Labour Organisation (ILO) is referred. So based on ILO definition (ILO, 1990), the unemployed workers are "those who are currently not working but are willing and able to work for pay, currently available to work, and have actively searched for work". Accordingly, unemployment risk is considered as a dichotomous variable to differentiate employed and unemployed persons in the labour market. Hence all other persons who are not classified as employed or unemployed- those inactive unemployed workers, persons still in school, home keepers, and retired/disabled persons- are excluded.

For the occupational status, as the other core dependent variable, the International Socio-Economic Index of Occupational Status (ISEI) derived from the International Standard Classification of Occupation (ISCO) is mainly regarded in this study. In this regard, each active person in labour market according to her/him occupational status, is assigned a score ranging from 16 to 85 on the basis of an interval scale which introduced by Ganzeboom and Treiman (1992, 1996). There are some points that should be noted. First, here ISEI scores are only assigned to those who are active in the civil labour market (i.e., non-military). Second, the ISEI scores for ISCO-88 and ISCO-08 calculated by Ganzeboom et al. (1996, 2010) are referred to derive ISEI scores for other job classifications used in the analysis like Canada national occupational classification for statistics (NOC-S) or Australian Standard Classification of Occupations (ASCO) (see the Annex 9-12 in the Appendix for details).

3.2.1 INDEPENDENT VARIABLES

To estimate dependent variables, two set of individual (micro-level) and country (macro-level) independent variables are controlled in this study. On the micro-level, five dummy variables representing main individual socio-demographic characteristics are considered as follows:

(1) Country of birth: a dummy variable which distinguishes native-born workers (as the reference group) from foreign-born migrant workers originating either from industrialized countries or from the rest of the world[13].

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[13] Throughout this analysis, immigrants are assumed to be those individuals born abroad. But since EU-LFS lacks the information about country of birth for the case of Germany, immigrants are considered as the foreigners in that case.

(2) Gender: dichotomous variable contrasting male and female workers.

(3) Age: considering labour force population (generally defined as all men and women aged 15–64), a categorical variable including three age categories: 15–25, 26–45 (as the reference group), and 46–64.

(4) Level of education/skill: regarding International Standard Classification of Education (ISCED), dummy-coded variables with three education/skill levels: low-educated (unskilled) persons with basic compulsory education up to lower secondary education (ISCED 0–2); semi-educated (semi-skilled) those with vocational, upper secondary or post-secondary non-tertiary education (ISCED 3–4); highly-educated (highly-skilled) those who have any kind of tertiary education (ISCED 5–6).

(5) Year since migration: a binary variable which differentiates recent migrants (established less than 10 years in host country) from other migrants (settled more than 10 years in host country).

On the macro level, some dummy and continuous country variables are included in the estimation of native-immigrant labour market gaps:

(1) Skill regime: based on VOC literature (Hall & Soskice, 2001; Hancké, Rhodes and Thatcher, 2007), dummy-coded variables classifying countries under study into three skill regime types: general systems in liberal market economies (LMEs), specific systems in the coordinated market economies (CMEs) and mixed systems in the mixed market economies (as the reference category).

(2) Union density: a continuous indicator that represents the extent of unionization, as the share of workers who are members of a trade union, and also an indicator of trade union strength (Hayter and Stroevska, 2011).

(3) Collective bargaining: a continuous variable indicates 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 (Hayter and Stroevska, 2011).

(4) Employment protection legislation (EPL): elaborated by the OECD (1999) to measure the strictness of the EPL in each country. It is consist of three main subcomponents namely, strictness of regulation for regular contracts, temporary contracts, and collective dismissals which all these subcomponents are included in the analyses. They range from 0 to 6 where higher scores representing stricter regulation in the use of flexible forms of work agreements.

(5) Skill specificity: a commonly used indicator also called "vocational orientation index" which represents a country's vocational orientation and the skill-specificity of its skill system (Van de

Werfhorst, 2011; Busemeyer and Thelen, 2013; Guzi et al., 2015). It specifically considers the share of students within upper secondary education enrolled in vocational training as the proxy of the skill specificity.

(6) Labour market structure: the relative size of the bottom or top of the occupational hierarchy can proxy a country's labour market orientation towards high, medium and low educated (skilled) workers. In this sense, the size of the bottom, middle and top of the occupational hierarchy as percentage of the total labour force employed in low-skilled job positions (16–33 on the ISEI scale), semi-skilled occupations (34-55 on the ISEI scale) and highly skilled occupations (56-85) are respectively regarded (Kogan, 2007).

(7) Migration regime: A dummy variable contrasting countries that apply employment-based migration system (as reference category) for recruiting skilled migrant workers vs. the hybrid migration system (Papademetriou et al., 2008; Chaloff and Lemaître, 2009; Jones, 2012).

(8) Migrant selectivity: an indicator pertains to the composition of a country's immigrant inflow– particularly with respect to educational selectivity – to examine the proportion of low, semi and highly-educated (skilled) immigrants.

Annual growth in GDP: to control for a country's overall economic performance and to examine how the economic climate can affect native-immigrant labour market inequalities, GDP percentage change on a year ago is taken into account as confounding factor in the analyses. Indeed, it is argued by some authors that workers have more employment chances in the countries with larger and growing economies and such economies attract larger immigration inflows (Kogan 2006; Fleischmann and Dronkers 2010).

3.3 DATA

As stated before this study extends the former comparative migration literature by providing some empirical evidence of both traditional receiving countries and recent European receiving countries. Hence, to model native-immigrant labour market gaps in terms of risk of unemployment and occupational status, I have used micro and macro data of 19 countries in three main country groups based on VOC literature (Hall and Soskice, 2001; Hancké et al. 2007; Molina and Rhodes 2007). These country groups are:

(1) Liberal market economies (LMEs) group consisting of five Anglophone countries (Australia, Canada, Ireland, United Kingdom and United States)[14],

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[14] Due to micro-level data unavailability, New Zealand, as a member of LME countries club, has been excluded from the analysis.

(2) Coordinated market economies (CMEs) group including nine European countries (Austria, Belgium, Denmark, Finland, Germany, Netherlands, Norway, Sweden and Switzerland),

(3) Mixed market economies (MMEs) group which mainly composed of four Mediterranean countries (France, Greece, Italy, Spain) and Portugal.

These three groups of countries are characterized by considerable differences in institutional structures of their skill migration policies, skill regimes, industrial relations and labour market structure and regulation. In this regard, such composition of country cases can be very fruitful to examine host countries' institutional factors effects on the labour market outcomes of migrant workers compared to their native counterparts.

Various data sources have been utilised for the empirical analyses in the micro and macro levels. At the micro (individual) level, cross-sectional data of 19 countries included in the study covering both native and immigrants over the period 2000-2010 are used. The major data source for the European receiving countries, is the European Union Labour Force Survey (EU-LFS) data set. The EU-LFS as one of the key micro-data sources for the labour market indicators, is conducted in the 28 Member States of the European Union and three countries (Iceland, Norway and Switzerland) of the European Free Trade Association (EFTA). Actually, the EULFS offers a rich series of cross-sectional labour market data ideal for comparative research deign in this study. The standardised sets of questions and systems of classification adopted for the collection of EU-LFS, covering core demographic/educational background and migration information, large sample sizes ensuring sufficient coverage of the immigrant population are some of the main advantages of EU-LFS. So it provides large-scale comparative cross-national information on labour force employment, unemployment and occupational patterns which allows us to analyse the native-immigrant labour market disparities across different institutional contexts. Accordingly, I have used 2000-2010 waves of the EU-LFS to construct dependent variables to assess the position of migrants in the labour market compared to the natives. Due either to missing data on immigration background or to the inconsistencies, some country-year observations of EU-LFS over period 2000-2010 have been excluded from the analyses[15].

Another main data source for individual level is the "Public Use Micro data Series (PUMS)" which chiefly has been used for the traditional migration countries studied in this study, namely Canada and United Sates. PUMS is the world's largest individual-level population database composed of micro-data samples from United States and other international census records. It

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[15] Country-year observations of Germany (2000-2001), Italy (2000-2005), and Ireland (2006-2007) have been excluded.

includes information on a broad range of population characteristics, immigration, internal migration, labour-force participation, occupational structure, education and ethnicity composition which highly suited to this study design. The PUMS used here for the United States consists of a series of individual-level representative samples of the American Community Surveys over 2000-2010 (Ruggles et al., 2015). These samples constitute a rich source of individual quantitative information on the American labour force population. Moreover, three waves (2001, 2006 and 2011) of the Canadian "Public Use Microdata Files (PUMF)" on individuals have been included in the study (Statistics Canada 2006, 2010, 2014). Based on a 2.7% sample of the Canada's population, each wave represents information about the Canadian population's demographic, social and economic characteristics and contains anonymous individual responses on a large number of variables including labour market outcomes[16].

The micro data of "Luxembourg Income Study" (LIS) database[17] complements above individual-level data sources. Although LIS is mostly well-known as the largest available income database of harmonised microdata collected from multiple countries over a period of decades, it also contains rich comparable cross national data on household- and person-level characteristics including native and migrant workers labour market outcomes. In this regard, micro data for Australia and Canada have been extracted from LIS data base.

All above various micro-level data sources, having large samples for countries under discussion with sufficient numbers of immigrants[18], provide needed information of all variables included in the analyses, though in some cases with less detail. For more details on individual-level data sources (included country-years, used databases and sources) see the Annex 13 in the Appendix.

At the macro level, the main data source for indicators of trade union density and bargaining coverage is the latest version of the ICTWSS database[19] (Visser, 2015). The ICTWSS is the unique available source of comparative data on institutional and structural characteristics of industrial relations systems covering all OECD and EU member states. Annual information in the database comes from different references including national surveys, international sources like ILO and

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[16] The Canadian Public Use Microdata Files (PUMF) included in the analyses are:

-2011 National Household Survey [Canada] Public Use Microdata File (PUMF): Individuals File (99M0001X)
-2006 Census of Population [Canada] Public Use Microdata File (PUMF): Individuals File (version 2) (95M0028XVB)
-2001 Census of Population [Canada] Public Use Microdata File (PUMF): Individuals File (revision 2) (95M0016XCB)

[17] For more details go to http://www.lisdatacenter.org/our-data/lis-database/

[18] Migrant Status is based on country of birth except for Germany, where I use information on nationality for this purpose.

[19] Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (version 4.0, 2013)

OECD, the European Social Surveys, and administrative data obtained from the unions and other national sources.

The data related to the strictness of employment protection legislation (EPL) including strictness of regulation for regular contracts, temporary contracts, and collective dismissals is extracted from the employment protection annual series data (1985-2013) from the OECD Employment database (OECD, 2015)[20]. To measure the skill specificity (the share of students within upper secondary education enrolled in vocational training) across studied countries s, I have collected the data from the OECD's annual publication Education at a Glance (EAG) [21] series (OECD 1998-2014). Moreover, the GDP growth change's data is based on the World Bank national accounts data, and OECD national accounts data files[22] (World Bank 2015).

The data for the skill migration systems in studied countries are for the most part based on secondary sources. As main references, I have used recent works on the typologies of skill migration systems across the traditional migration countries and also European countries (OECD 2001, 2007; Holzmann et al.,2011; CESifo, 2011; Chaloff et al.,2009; Papademetriou et al, 2008; Salt et al.,2002; Jones, 2012).

3.4 METHOD

3.4.1 MULTILEVEL MODELS

There are many types of empirical approaches used in cross-national comparative studies to find explanation for differences in socio-economic outcomes across countries and to investigate how different institutional factors affect outcomes. In this regard, multilevel models which also known as "random effects" or "mixed models" (Mohring 2012) are generally regarded as the best method to examine the effects of macro-level characteristics on individual's socio-economic outcomes (Snijders & Bosker, 1999; Hox, 2002). Since, there are often observations at the micro level (individual) nested within a macro level (countries), so there is a natural hierarchy within the data (Snijders and Bosker 1999; Steenbergen and Jones 2002). Accordingly, multilevel models not

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[20] For more information and full methodology see:
http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm

[21] Every year, the OECD publishes Education at a Glance (EAG) report, a set of indicators that compares the education systems of its member countries, and participating partner countries. It looks at who participates in education, what is spent on it, how education systems operate and the results achieved. For more details go to (http://www.oecd-ilibrary.org/education/education-at-a-glance_19991487)

[22] Available at: http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG

only combine individual and contextual indicators but also take the nested structure of the micro and macro data into account (Buchel 2005; Mohring 2012; Bryan and Jenkins 2015). The main advantage of applying multilevel models is that it enables researchers to investigate which macro factors account for the variation between countries, with respect to a specific individual-level outcome. Through disentangling of the variance into the individual and the country level, multilevel modeling would help us to discover whether cross-country disparities in outcomes exist with respect to the level (intercept) and/or the strength and direction (slope) of an effect (Mohring 2012). In other words, these models seem attractive to researchers because they provide a means of quantifying the way in which countries' specific attributes matter for outcomes. Indeed, they indicate the extent to which variations in outcomes reflect distinctions in the effects of institutional configurations of a country such as labour market structure, skill regime, immigration policy and other socio-economic institutions that are different from the variations in outcomes related to the individuals' characteristics. In a nutshell, they can potentially provide us with more information about 'country effects' as well as 'individual effects', and also about 'cross-level effects' (interactions between micro and macro level) (Snijders and Bosker 1999; Bryan and Jenkins 2015). Besides numerous advantages of multilevel models, applying these models particularly in social sciences faces some problems. The main problems which are quite common in analyses with international survey data-sets include "small N at the upper level", "no random sample at the upper level" and "omitted variable bias" (Mohring 2012:2). Actually, such problems mostly originate from the some restrictions of international survey data-sets which are applied in sociological and political context analyses. While most of the commonly used international datasets cover around 25-30 countries or even less, very rare available surveys include more than 50 countries (Mohring 2012; Bryan and Jenkins 2015). Hence, once the number of countries is small even with large number of individuals nested within countries, as a quite common situation, models would be estimated on few national units and consequently estimations would have a low number of degrees of freedom on the country level. Such circumstances are not consistent with desirable properties of regression model parameter estimates particularly when a large number of groups (countries) is required in order to estimate country effects reliably[23]. When the number of countries is small, it seems difficult to meet random sample condition. In fact, due to limited number of countries included in international surveys, the selection of countries is not random and therefore a predefined convenient available sample of countries is usually referred. Moreover, in case of small number of countries at the upper level, even if the estimation models are correctly specified, we

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[23] As recommended by most of multilevel modelling text books, the minimum acceptable number of higher-level cases (countries), as a rule of thumb, range from about 10 to 50 to get good variance estimates (Bryan and Jenkins 2015). For more detailed discussions about number of countries required for reliable estimates of country effects, see e.g. Raudenbush and Bryk (2002), Maas and Hox's (2004) and Hox (2010).

can only control for a limited number of macro-level indicators. So, the country-level estimators of multilevel models are presumably to suffer from "omitted variable bias" in small N at the upper level (Mohring 2012).

All in all, the small number of groups (countries), as is the case in most of international datasets, severely curbs the ability of regression models, especially multilevel models based on such data sources would have a low number of degrees of freedom on the country level. As a result, not having the large number of upper-level units substantially limits the possibilities to exploit the full potentials of multilevel models and due to statistical reasons, can fail to take full advantage of applying them such as random slopes and cross-level interaction effects. To mitigate above problems and also to provide robust conclusions about the effects of country-level characteristics on outcomes with multilevel models, particularly based on whether interest is focused on the coefficients on the fixed regression predictors or the parameters describing the distribution of the random effects, different regression approaches and estimation strategies have been introduced in the multilevel modelling literature[24].

3.4.2 ESTIMATION STRATEGY (TWO-STEP MULTILEVEL ANALYSIS)

Among existing estimation strategies in multilevel modelling literature[25], two-step strategies that draw heavily on the statistical foundations of hierarchical linear models (Raudenbush and Bryk1992) are well suited to the analysis of cross-national variations and enable researchers to link individual-level outcomes to institutional settings (Lewis 2000; Achen 2005; Jusko and shively 2005; Gelman 2005; Bryan and Jenkins 2015). As pointed out by Bryan and Jenkins (2015), the history of applying two-step strategy goes back to at least Hanushek (1974) and Saxonhouse (1976) which has been rediscovered periodically by various authors through increasingly ''large-N'' analyses in their comparative studies until recently[26].

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[24] To review a summary of several multilevel approaches, including various formulas and notations for different models, which I do not indicate here to keep matters simple, see Bryan and Jenkins (2015) and Bell and Jones (2015).

[25] Jusko and shively (2005) provide an overview of different estimation strategies such as partitioning and pooling strategies.

[26] Kedar and Shively (2005) have gathered a set of articles in a special issue of Political Analysis, elaborating the effectiveness of two-step regressions, the procedure of fitting several separate regression models to survey data from each of several countries, and then regressing the coefficient estimates on country-level predictors through several different examples in comparative politics context.

The two-level regression can be viewed as a special case of multilevel (hierarchical) modelling (Gelman 2005) consists of one regression at the individual level and another regression at the country level[27]. Accordingly it has several advantages:

- Simplicity: the "two-step" is an efficient estimation strategy for multilevel regression that makes careful data analysis, at the same time is easy to grasp with no difficulties compared to sophisticated single-stage estimation formulations (Achen 2005);

- Flexibility: unlike the standard hierarchical linear models, this estimation strategy provides greater flexibility in model specification particularly when we aim to incorporate confounding variables at different levels of analysis. Accordingly, applying different right-hand-side models for different clusters would be possible without losing efficiency compared to the other strategies like pooling strategy (Jusko and shively 2005);

- Discovery of the influential points: doing estimation of individual and country effects in terms of a two-step strategy is very helpful to detect nonlinearities, identification of outliers, and investigation of influential points particularly with small sample sizes in second level. In this regard, it clearly illustrates why a small number of countries might affect the reliability of estimates. Hence, discovery of the sources of the problems and particularly influential points[28] in the two-step strategy, as an inclusive attractive aspect of it, is much more easier than in any other single stage estimation strategy (Achen 2005; Bryan and Jenkins 2015)

All above advantages (simplicity, flexibility and discovery of the influential points) together with unbiased estimates (with correct standard errors) have led to the increased use of the two-step estimation strategy and also it be applied as benchmark for the other methods (Bryan and Jenkins 2015). The two-step strategy, therefore, seems to be especially well suited to the cross-country comparative study which highlights the sources of variation in the data (both in micro and macro level) and facilitates cross-national generalization.

As stated before, the two-step approach proceeds in two regressions: one at the micro (individual) level and another at the macro (country) level. Based on the Achen (2005), each unit (usually country) at the micro level contains quite large numbers of individual observations (usually in thousands) on one or more dependent variables of interest and then dependent variables' variations are to be described by individual-level explanatory factors. For instance, labour market

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[27] For the statistical properties of the two-step estimation strategy in more detail see Lewis (2000), Jusko and shively (2005), Donald and Lang (2007).

[28] Indeed, the identification of influential points is so crucial in the two-step estimation strategy. Besides the common concerns raised from regression analysis with influential points, if any parameter of the stage-two parameters is heavily influenced by one or two observations, then consistency can fail. Therefore, influential points require special attention especially at the second stage (Achen 2005).

outcomes variation within a country might be justified by differences in education and skills across its population, with the influences of education and skills represented by regression coefficients. Consequently, the parameters of first step (individual-level) across countries are the quantities to be accounted for by macro-level attributes of the countries in the second step. For example, the coefficient on educations or skills might differ across countries, and those differences might be explained by national differences in skill regimes that influence labour market outcomes. Accordingly, general linear two-step model to predict a metric outcome variable using the explanatory variables X (at individual level) and W (at the country level) is formulated as follows[29]:

Individual level (Step-1): $Y_{ic} = \beta_{0c} + \beta_{1c} X_{ic} + \varepsilon_{ic}$ with $i = 1, \ldots, Nc$ (regression with large # individual obs)

Country level (Step-2)[30]: $\beta_{1c\,(Slope)} = \gamma_{10} + \gamma_{11}W_c + u_{1c}$ with $c = 1, \ldots, C$ (regression with small # country obs)

Where:

Y_{ic}: is the outcome variable of the interest for each person i in country c which is assumed to depend on both observed and unobserved factors;

X_{ic}: is the vector of observable individual characteristics for each person i in country c such as age, education or migration status;

W_c: is the vector of observable country-level features such as socio-economic institutions or labour markets;

β_{0c}, β_{1c}: are the intercept and slope of individual level regression respectively;

γ_{10}, γ_{11}: are the intercept and the slope of country level regression respectively for β_{1c};

ε_{ic}, u_c: are the error terms corresponding to individual level (unobserved individual effects) and country level (unobserved individual effects) respectively that are each assumed to be normally distributed and uncorrelated with X_{ic} and W_c.

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[29] Different authors (see Lewis 2000; Jusko and shively 2005; Donald and Lang 2007; Hox 2010; Bryan and Jenkins 2013) may use different systems of notations.

[30] The notation for intercept is formulated as: $\beta_{0c\,(intercept)} = \gamma_{00} + \gamma_{01}W_c + u_{0c}$ with $c = 1, \ldots, C$ (regression with small # country obs)

3.4.3 ESTIMATION MODEL

So far as shown above, multi-level modeling or, more precisely two-step estimation strategy seems best suited for research design of this thesis in the context of my analysis. In current research project, hence, two-step multilevel estimation strategy has been used for explaining the cross-national variations in immigrant-native gaps in terms of unemployment likelihood and occupational status among highly-skilled workers. Accordingly, estimating of the model is undertaken in two stages. At the first stage, it contrasts the unemployment risk and occupational status of highly skilled natives and recent immigrants (up to ten years in the host country) in 19 selected OECD countries using OLS estimator[31]:

Stage (1) $Y_{ic} = \beta_{0c} + \beta_{1c}$ (Foreign-born immigrants) $+ \beta_{ic} X + \varepsilon_{ic}$ with $i = 1, …, Nc;$ c $= 1, …, 19$;

Where:

Y_{ic}: labour market outcomes (risk of being unemployed and occupational status) for each person (i) in country (c).

X: is the vector of observable individual characteristics incorporated in the analysis (age, gender and education level)

β_{0c}: is the intercept (risk of being unemployed /job status for the natives, aged 26–45 with tertiary education levels in country c);

β_{1c}: is the slope for country of birth dummy variable (difference in risk of being unemployed or occupational status between natives and foreign-born immigrants in country c);

β_{ic}: are the slopes for i control individual-level variables X which include age and education levels,

ε_{ic}: is the individual error term in country c.

In the second stage, β_{1c} as the immigrant-native gap ( ) in terms of unemployment propensity and occupational status enter as dependent variables in OLS estimation:

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[31] The logit estimation model for the unemployment propensity as a binary outcome that is analogous to equation for metric outcomes (occupational status), is of the following form:

Ln [P_{ic} unemployed / P_{ic} employed] $= \beta_{0c} + \beta_{1c}$ (Foreign-born immigrants) $+ \beta_{ic} X + \varepsilon_{ic}$ with $i = 1, …, Nc;$ c $= 1, …, 19$;

But as Mood (2010) argues, due to some conceptual issues and statistical problems in the comparison of log-odds ratios or odds ratios of logit models across samples, across groups within samples, or over time, here in the analyses I apply linear probability models (LPM).

Stage (2): $\beta_{1c} = \beta_{10} + VOC\ \beta_{11} + Z\ \gamma_{12} + V\ \gamma_{13} + u_{1c}$

Where:

VOC: is a set of dummies representing the three VOC types (LMEs, CMEs and MMEs as the reference category)

Z: is the vector of observable institutional characteristics that represents key explanatory variables identified in the VOC literature (union density, collective bargaining coverage, EPL indicators, skill specificity, labor market structure);

V: is the vector of migration and contextual variables which includes the employment based system (as the reference category), hybrid system, high-skilled immigrant selectivity and GDP change;

β_{10}, β_{11}, γ_{12} and γ_{13}: are the intercept, the slope for VOC dummies, the slope for VOC explanatory variables and the slope for migration and contextual variables respectively.

u_{1c}: is the error term at country level.

Actually in the second stage, it assesses how the effects of immigrant status with regard to unemployment risk and occupational prestige vary across countries under discussion, and also how immigrant inequalities are influenced by pertinent institutional characteristics in the host countries. Moreover, the analytic strategy in the second stage is to combine countries and observation years into a country–year dataset. The main rationale behind this choice is the relatively small number of macro-level units (19 OECD countries) that makes the estimation of the significance of macro-level variables in accounting for cross-national variation potentially less accurate. So, to mitigate this problem several years of observation were pooled into a single dataset in order to obtain a sufficient number of cases of country-years. Accordingly, this pooling procedure performed for the parameters of first step regressions of each country (c) within each year (t) which yields Time-Series Cross-Section (TSCS) (Beck 2008) design of estimated coefficients on the country-level.[32] The TSCS dataset, containing estimated measures of native-immigrant labour market gaps in stage one as well as institutional characteristics for 19 selected OECD countries in the period 2000-2010,

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[32] However, the problem with running regressions on time-series data, like TSCS, is that the country-years are not independent and one encounters several statistical challenges such as heteroscedasticity and autocorrelation which need attention. To deal with such problems, one option is the clustering (clustered standard errors), as I applied here with STATA software package (version 14), which it corrects the standard errors and test statistics to allow these features (Wooldridge 2002, 2003). Hence, the resulting standard errors are completely robust to any kind of serial correlation and/or heteroscedasticity. Another option would be using GLS which I did not follow that approach here. For other discussions and solutions about potential problems of heteroscedasticity in the second stage, see e.g. Drukker (2003), Hornstein and Greene (2012). Despite these problems, the advantages of TSCS analysis often outweigh the disadvantages particularly once it increases the number of observations.

is then used to evaluate the role of institutional factors for immigrant-native labour market gaps in terms of unemployment propensity and occupational status.

Furthermore, the analysis in the second stage proceeds with a stepwise construction[33] of various linear models (see 4.2). First, I fit a baseline model which is primarily intended for assessing the labour market outcome differences between the immigrants and the native-born workers when none of the macro level variables are included. As a second step, the three national-level key dummies identifying the various VOC regimes (LMEs, CMEs and MMEs) are added, revealing their overall effects without controlling for any other variables to test the effect of country clusters with similar institutional characteristics (Model 2). Then, I run the estimation model with selected key independent variables that underpin the VOC framework (union density, collective bargaining coverage, EPL indicators, skill specificity, and labour market structure) to assess their effects on immigrant-native gaps (Model 3). At the third step, I complement the previous model with re-entering VOC dummies to see how the estimated effects of these key variables (Model 2) change, before adding all other control variables as well (Model 4). With these fully specified models on the skill regimes at hand the impact of migration regimes and contextual covariates can be assessed in the next step. So, I add all other control variables on this level at once (Model 5). With this information, we can evaluate the general association of country-level variables with immigrant-native gaps as the final step.

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[33] As argued by Möhring (2012: 4) about applying stepwise procedure in his own words: ".. Omitted variable bias regarding the country-level estimators is likely to occur in multilevel models because of a small country-level sample size. The basic assumption of multilevel (random effects) models is that the country-level error term is uncorrelated with all other variables in the model and the individual-level error term (Hox 2010: 13). If not all relevant variables are controlled for, the country-level estimators are likely to be faulty due to omitted variable bias (Allison 2009). As described, because of the small number of upper-level units, only few variables on the country level can be included. Therefore, it is virtually impossible to control for all relevant variables on the country level, and the existence of omitted variable bias is very likely. As a consequence, researchers may find seemingly significant country-level effects that, in fact, are triggered by (an) unobserved factor(s) (Snijders 2005).This problem is even intensified by the fact that the common data-sets for comparative studies in social sciences mostly include highly connected (Western) developed countries, and thus, country characteristics are likely to be dependent on each other. One prevalent solution for this problem is to 'test' stepwise the macro indicators in separate models before estimating the final model with the most significant macro indicators".

CHAPTER 4. EMPIRICAL FINDINGS

The main empirical findings of the analyses carried out in this study are presented in current chapter. It is divided into two sections. The first section provides a brief overview of descriptive results on socio-demographic characteristics and labour market outcomes of immigrants as compared to the native-born in studied countries. Furthermore, main institutional characteristics of the countries under discussion in this study through macro variables included in the analyses namely VOC framework individual variables (union density, collective barraging, employment protection regulation (EPL) strictness, skill specificity and labour market skill structure), migration variables (migration system and migrant selectivity) and GDP change are described. Then in the second part, multivariate multilevel analyses are carried out in order to evaluate the effects of institutional factors upon the risk of unemployment and occupational status inequalities between highly educated immigrants and natives.

4.1 DESCRIPTIVE RESULTS

4.1.1 SELECTED SOCIO-DEMOGHRAPHIC & LABOUR MARKET CHARATERISTICS

This section exhibits the socio-demographic and labour market characteristics of the immigrants compared to the respective characteristics of the native-born population. Firstly, some socio-demographic characteristics namely, age and education attainments of the native and foreign-born population in the countries under study are presented. Then, some descriptive results on immigrant-native unemployment propensity and occupational status gaps are presented. To clarify the variations and also to simplify comparisons across countries, all descriptive and analytical results are presented in three main country-groups namely, LMEs, CMEs and MMEs based on VOC literature and its extensions (Hall and Soskice, 2001; Hancké et al. 2007; Molina and Rhodes 2007).

Figure 4.1 shows three main age cohorts (15-25, 26-45, and 46-64 years old) distribution among the working age population[34]. As depicted in the Figure 4.1, the youngest age group, proportion of young persons aged 15-25, consists 15 to 23 percent of native working age population in most countries except for the Australia in which it accounts for more than 30 percent. As it can be seen, 15-25 aged immigrants are at lower rate than native-born people in the countries under discussion. For instance, in LMEs countries, there is a considerable difference between share of native-born people aged 15-25 and that of foreign-born people. But in some CMEs countries like

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[34] All persons between the ages 15 to 64 who could potentially be economically active (OECD 2015).

Germany and Finland, 15-25 aged immigrants' share is slightly larger than native-born share. In some MMEs countries like Spain, Italy and Portugal, there is no significant difference between native and foreign-born people in terms of 15-25 aged persons' proportion whereas in France the difference is twofold and also in Greece the 15-25 aged immigrants' share is larger than that of native-born.

For the middle-aged cohort (26-45 years old), we see a different picture. Comprising about 40 per cent, in fact, 26-45 aged people distribution among the native population does not vary considerably across the countries except for Denmark and Finland. There is, however, some variation in the proportion of middle-aged immigrants. Actually, in the majority of countries studied here, around half of immigrants in working age are between 26 and 45 while in some countries like Spain, Italy and Ireland this share even amounts to 60 percent. As a particularly striking finding, the proportion of 26–45 years-old immigrants in all three groups of countries (LMEs, CMEs and MMEs) is higher than the proportion of the middle-aged native-born people. Nevertheless, in three countries namely, Australia, Canada and France the 26-45 aged people's share is rather same for both native and foreign-born.

Considering the top-age cohort (Ages 46-64), no common pattern was found among the countries studied. While in a number of countries the proportion of 46-64 aged native people is larger than that of foreign-born, it is not the case in Australia, Canada, Sweden and France. In most of MMEs counties except for France, the share of 46-64 aged persons among native people is much greater than of foreign-born people. In other words, Italy, Greece, Portugal and Spain (in particular) comparatively host lower numbers of older (46-64 aged) immigrants. However, in countries like Sweden, Belgium, Austria, Netherlands, Switzerland and United States the proportion of 46-64 aged immigrants is rather similar to that of the native-born and hence we do not see considerable difference between natives and immigrants. Interestingly, in Denmark the top-age cohort (Ages 46-64) encompasses around half of the native working age population (15-64 years-old), while the opposite is the case for the France. So, France's higher percentage of older immigrants is noteworthy.

Figure 4.2 depicts educational attainment -as one of the most important socio-demographic characteristics and determinants of workers' success in the labour market- among the native and migrant population in the selected OECD countries. Three levels of education are distinguished: low, which means primary and lower secondary education (ISCED 0–2); medium, encompassing secondary and post-secondary/non-tertiary education, including vocational (ISCED 3–4); and, finally, high or tertiary education (ISCED 5–6). Generally, variations in the distribution of education attainments among both the native-born and foreign-born population are noticeable

across countries studied. Some LMEs countries (the UK and USA), Northern European countries (Sweden, Norway, Finland and Denmark) and Belgium lead among countries with the highest proportion of highly-educated native-born persons. At the same time, these countries (except for Belgium and the UK) as well as Switzerland and Ireland are among those with the lowest percentage of native people holding primary or lower secondary education.
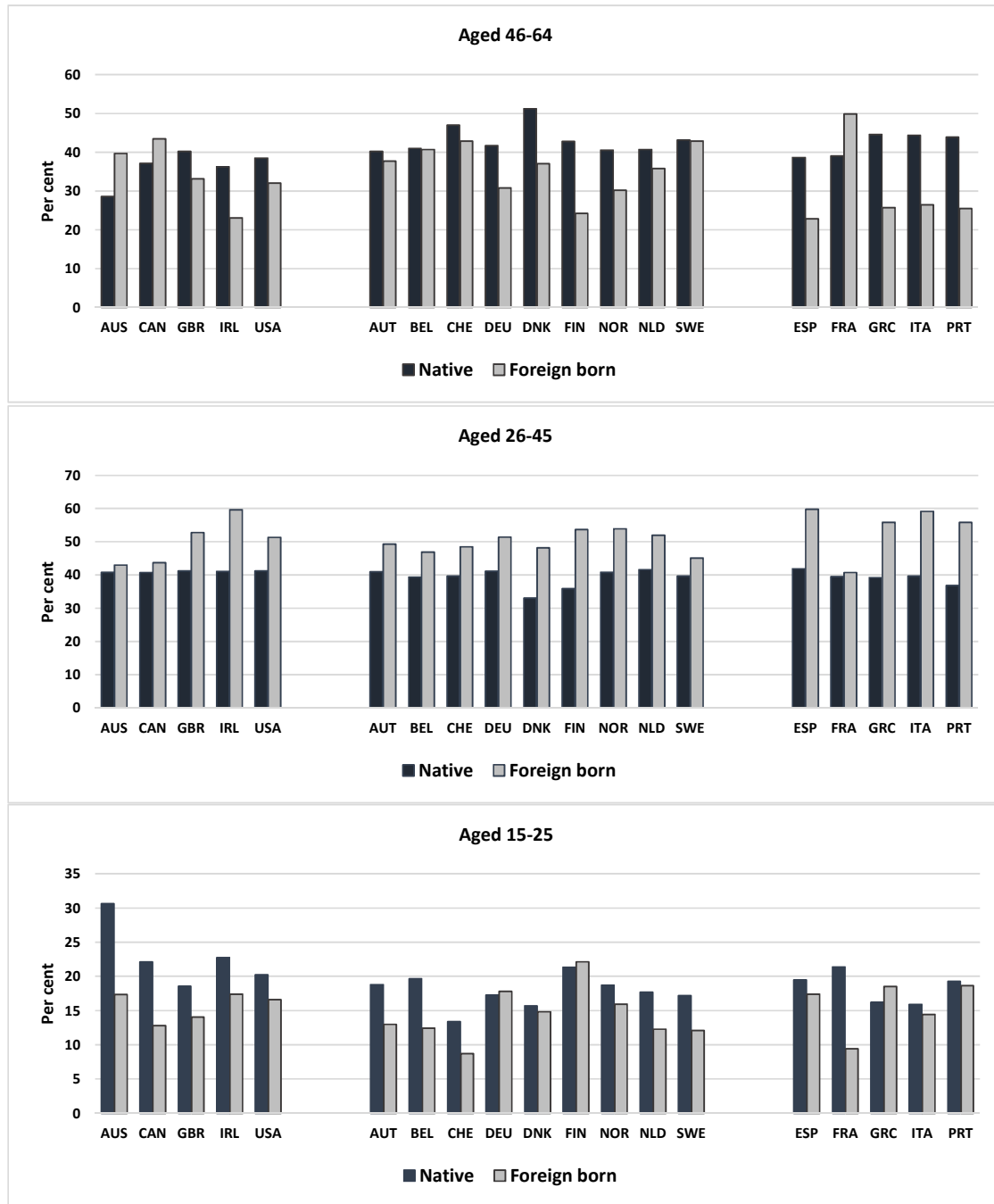
Figure 4.1 Age distribution of the native-born and foreign-born persons in selected OECD countries (in percentages), 2000-2010

Data source:
EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

On the contrary, MMEs countries particularly Southern European countries (Italy, Portugal, Spain and Greece) as well as Australia are among countries with high proportions of native people with primary or lower secondary education. The Southern European countries (except for Spain) as well as Austria have a smaller proportion of native people with tertiary education. A different picture is evident in CMEs countries. Indeed, large proportion of native people with secondary and post-secondary non-tertiary education in CMEs countries particularly in Austria, Germany, Denmark and Switzerland (with dual skill formation systems) as well as Sweden and Norway compared to the other countries is clearly witnessed.

On the other hand, immigrants' educational attainments variation across receiving countries is absolutely obvious in Figure 4.2. Applying skill-based immigrant selecting policies in some countries like Australia and Canada with the aim of recruiting immigrants for their educational qualifications and skills has resulted in large proportion of highly-educated immigrants in such countries. Accordingly, highly educated immigrants are over-represented in LMEs countries compared to the CMEs and MMEs countries. Among European countries, highly educated immigrants are under-represented in Austria, Germany, Italy and Greece as well as Portugal. At the same time, low-educated immigrants are highly over-represented in MMEs countries as well as Australia, Germany and Belgium. The percentage of immigrants with secondary and post-secondary non-tertiary education is noticeable in Austria, Canada, Norway and Sweden.

Educational attainment proportion differences among native and foreign-born population across countries are also notable. We can see three different common trends among LMEs, CMEs and MMEs group of countries. In LMEs, as it can be seen, highly-educated immigrants are over-represented and low-educated immigrants are under-represented compared to the other groups of countries. Hence, there is a significant difference between percentages of highly-educated and low-educated native-born national population and foreign-born population in these countries with the exception of the United States. While there is rather equal percentage of highly-educated proportion for both natives and foreign-born population in the United States, we see that the proportion of low-educated immigrants is greater than that of natives. The proportion of foreign-born people with secondary and post-secondary non-tertiary education is smaller than that of native people in LMEs. As stated above, CMEs countries have rather high proportions of post-secondary non-tertiary (including vocational training) educated native people particularly in Austria, Germany and Switzerland, so medium-educated native people's proportion is quite high compared to the foreign-born persons. At the same time, the low-educated proportion of immigrants is greater than that of natives in all CMEs countries. In Germany, the difference between proportion of highly-educated

native people and of highly-educated immigrants as well as the difference between proportions of low-educated immigrants compared to the natives is sizeable. Whereas there is no considerable disparity between highly-educated immigrants' proportion and highly-educated native-born population's proportion in rest of the CMEs countries.

Finally in MMEs, both foreign-born and native-born people are over-represented in low-educated. So, we do not see a noticeable difference among low-educated proportions of both groups. This kind of correspondence also can be seen for other two higher educational levels (secondary and tertiary levels). Hence, both native- born people and immigrants tend to have similar proportion of educational attainments in MMES countries. The only exception to this common pattern among MMEs countries is Portugal in which we can see significant differences between proportions of educational attainment of native-born and foreign-born people. While low-educated native-born people's proportion is greater than low-educated foreign-born people's proportion, percentages of medium-educated and highly-educated immigrants are greater than those of natives.

High level of education
(Tertiary)

Medium level of education
(Vocational, secondary and post-secondary)

Low level of education
(Primary and lower secondary)

Figure 4.2 Educational attainment of immigrants and the native-born (aged 15-64) in selected OECD countries (in percentages), 2000-2010

Data source:
EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11); LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

In the following, also some descriptive results on immigrant-native unemployment propensity and occupational status gaps are presented[35] which could be very fruitful to get some insights into the variations of native and foreign-born workers' labour market outcomes both nationally and, more importantly, cross-nationally.

Figure 4.3 plots unemployment rates for males of two main interested comparison groups: i.e. highly-educated native and immigrant workers across selected OECD countries. As it is clearly apparent, highly-educated immigrant men have higher unemployment rates than their native counterparts in all countries under discussion. At the same time, cross-national variation in unemployment rates of immigrants is also evident. In LMEs countries, unemployment rates among highly-educated immigrants seem to be closer to those among the native-born males, whereas in CMEs and MMEs countries employment disadvantage appears to be more pronounced among this immigrant group. Among LMEs countries, unemployment rate of highly-educated immigrants in the United States is quite similar to those of the native-born people and in the UK unemployment rates of both comparison groups are rather close with each other. This situation applies to the Switzerland and Portugal among CMEs and MMEs countries respectively. In these countries, highly-educated immigrants' unemployment rates seem to be closer to those among the native-born males. On the other hand, highly-educated migrant workers' employment disadvantage appears to be more pronounced in some CMEs countries particularly Scandinavian countries. For example, in Sweden, Denmark, Netherlands and Germany unemployment rates of highly-educated immigrants are more than four times higher of natives, whereas only in Finland immigrants have almost an eightfold likelihood of being unemployed as compared to the native-born. Among MMEs countries, the unemployment differences are considerable in Greece and Spain while France shows the highest employment gap between immigrants and native-born workers.

Figure 4.4 depicts occupational status (average ISEI score) of jobs held by highly-educated immigrant males compared with respective native-born workers. Again variation in the magnitude of differences is evident and the underlying trend seems to be similar across almost all the countries under discussion. Indeed in the majority of the countries, highly-educated native-born workers hold jobs of higher occupational status than migrant men. Only in few countries (Austria, Switzerland and the United States), immigrants hold jobs of higher occupational status than their native-born counterparts. In LMEs countries highly-educated immigrants do not significantly differ from the

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[35] Due to important gender contrasts in labour market outcome patterns, for both natives and immigrants, all descriptive and analytical statistics are presented separately by each gender.

native-born with respect to the type of employment they attain, while in MMEs countries we see huge occupational status differences between foreign-born and native population.
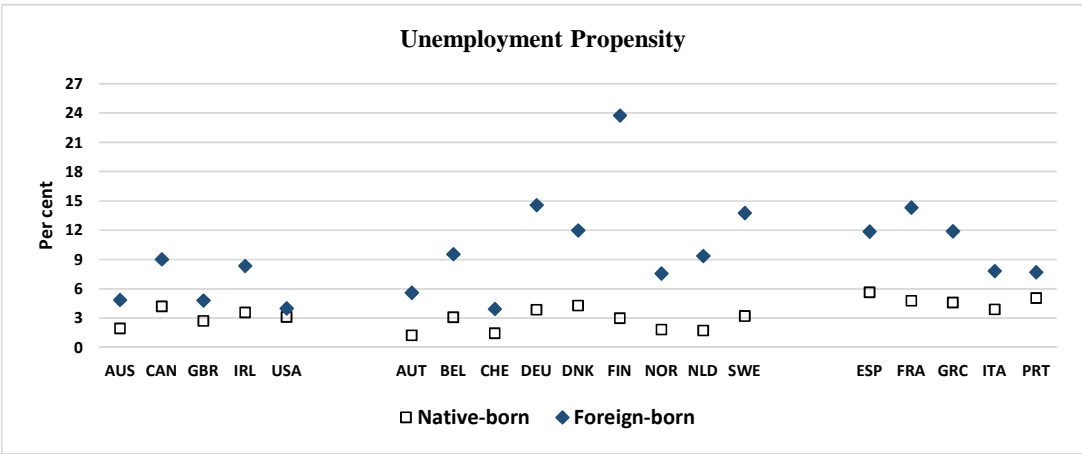
Figure 4.3 Unemployment rates (in percentages) among highly-educated male immigrants and the native-born in selected OECD countries, 2000-2010
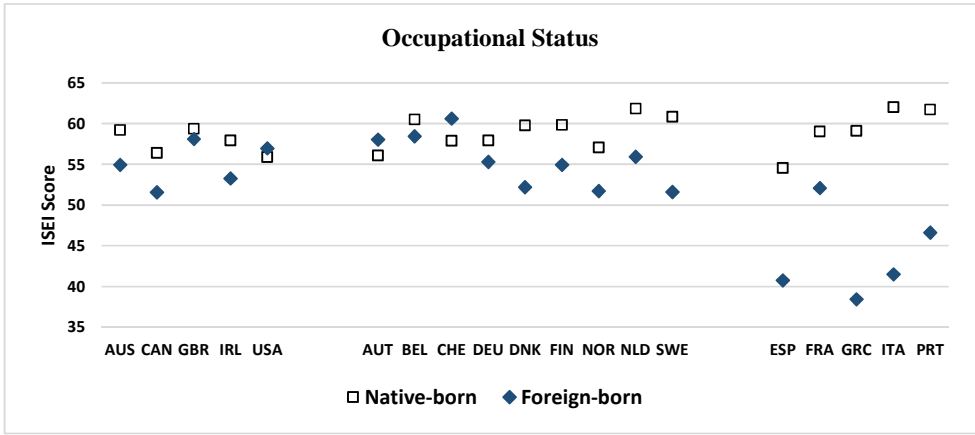
Figure 4.4 Occupational status (ISEI) of highly-educated male immigrants and the native-born in selected OECD countries, 2000-2010

Data source:
EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)
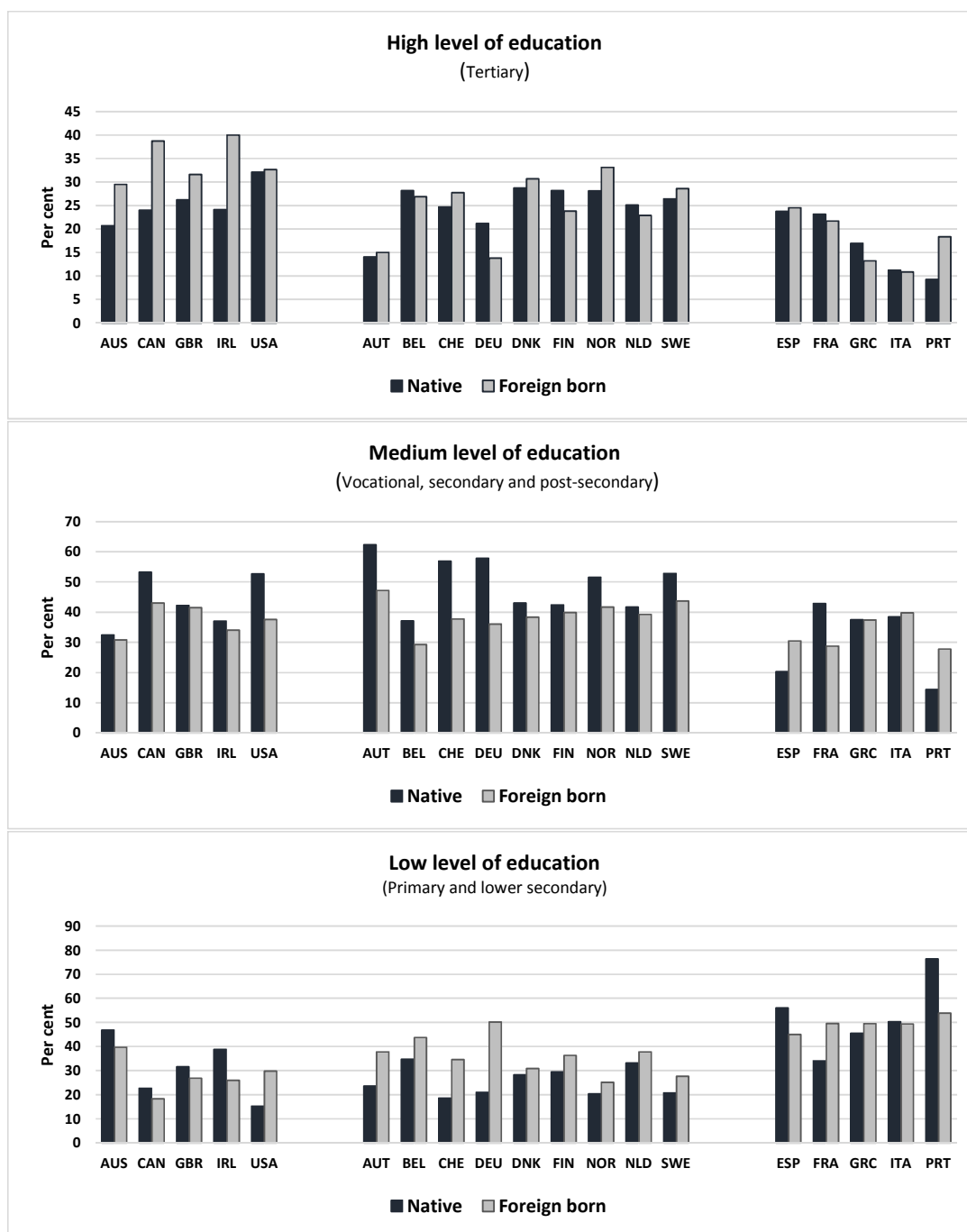
For instance, in the UK and the United states the occupational status of both comparison groups are quite close to each other whereas in Greece, Italy and Spain the differences are significant. In CMEs countries, we can distinguish two clusters of countries. In a number of continental countries like Austria, Belgium, Germany and Switzerland there is no considerable difference between occupational status of immigrants and native people. On the other hand, in Nordic countries (Denmark, Finland, Norway and Sweden) and Netherlands the magnitude of differences is sizeable.

Similarly, Figure 4.5 reports average percentage points gap in unemployment probabilities between highly-educated female immigrants and natives across selected OECD countries. As it is evident, generally here we see the same picture as in the case of male immigrants, i.e. highly-educated female immigrants have higher unemployment rates than their native counterparts in all countries under discussion. However, it appears that the amount of disadvantage of female immigrants is greater than that of male immigrants relative to the natives in LMEs countries. At the same time, the immigrant-native gaps in LMEs are comparatively lower than in CMEs and MMEs countries for female people. Among LMEs countries, almost same amount of female immigrant-native employment gaps exist in the UK, United Stated and Ireland whereas the employment gaps appear to be more pronounced in the Australia and Canada. The immigrant-native employment gaps for women fluctuate among CMEs countries. In some countries like Finland, Germany and Sweden we see a huge gap between natives and migrant people while in other countries such as Austria, Norway and Switzerland it tends to be less pronounced. In MMEs countries, generally, there is a higher level of unemployment rate for native-born females compared to the LMEs and CMEs. At the same the immigrant-native unemployment differences for women are substantial in the Greece, Portugal and Spain. Similar to previous findings (for males), the largest employment gap between immigrants and native-born female workers occurs in France.

In Figure 4.6, the occupational status (average ISEI score) of jobs held by highly-educated migrant females and their native-born counterparts has been compared. As it can be seen, in all countries under discussion highly-educated female immigrants on average tend to have less prestigious occupations than the native-born people except for the Switzerland. While in MMEs countries occupational status differences are considerable, in LMEs and CMEs countries highly-educated female immigrants are able to secure somewhat more prestigious occupations. In some countries like Belgium, United Kingdom and United States, highly-educated foreign-born females do not significantly differ from the native-born people with respect to the type of employment they attain. Only in Switzerland female immigrants hold jobs of higher occupational status than their native-born counterparts. With the exception of France, in rest of the MMEs countries (Italy,

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Greece, Portugal and Spain), the magnitudes of occupational status differences between foreign-born and native-born population are sizeable.
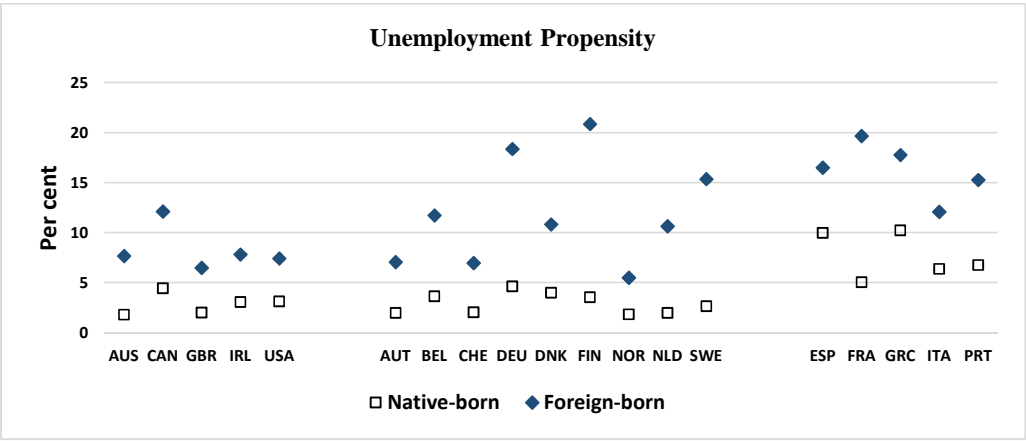
Figure 4.5 Unemployment rates (in percentages) among highly-educated female immigrants and the native-born in the selected OECD countries, 2000-2010
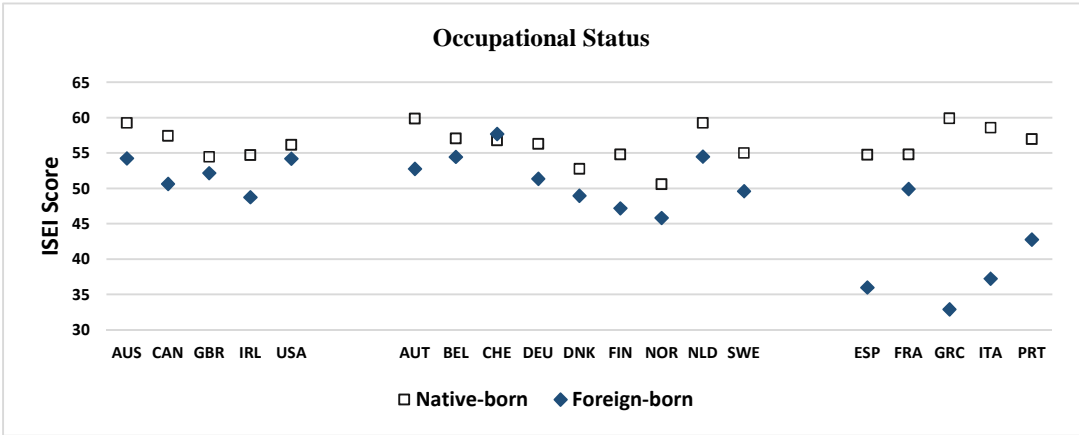
Figure 4.6 Occupational status (ISEI) of highly-educated female immigrants and the native-born workers in selected OECD countries, 2000-2010

Data source:
EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

To sum up the descriptive results on individual characteristics of immigrant and native workers, we see that around half of immigrants in working age are between 26 and 45 in host countries studied here while this share even amounts to 60 percent in some receiving countries. Very interestingly, the proportion of 26–45 years-old immigrants in all three groups of countries (LMEs, CMEs and MMEs) is higher than the proportion of the middle-aged native-born people. Additionally, in most of MMEs counties, the share of 46-64 aged persons among native people is much greater than that of foreign-born people. Considering education profiles, it is empirically evident that education attainments among both the native-born and foreign-born population vary substantially across receiving countries under discussion. For instance, some LMEs countries together with Northern European countries are among countries with the highest proportion of highly-educated native-born persons. On the other hand, high proportions of native people with primary or lower secondary education are in Southern European countries. In the CMEs countries particularly those with dual skill formation systems, large proportion of native people have secondary and post-secondary non-tertiary education. Concerning immigrants' education portfolios, one can see three different common trends among LMEs, CMEs and MMEs group of countries. Generally, highly-educated immigrants are over-represented and low-educated immigrants are under-represented in LMEs with respect to the CMEs and MMEs countries. Contrarily, low-educated immigrants are highly over-represented in MMEs countries. Hence, both native- born people and immigrants tend to have rather similar proportion of educational attainments in MMES countries. Among CMEs countries, while highly educated immigrants are under-represented and low-educated immigrants are highly over-represented in some countries such as Austria and Germany, but totally medium-educated native people's proportion is quite high compared to the foreign-born persons. Finally, descriptive results on immigrant-native unemployment propensity and occupational status gaps indicate that both highly-educated immigrant men and women tend to have higher unemployment rates and hold lower job positions than their native counterparts in all countries under discussion. At the same time, cross-national variations in unemployment rates and occupational status of immigrants are also evident. For instance, in LMEs countries, unemployment rates among highly-educated immigrants seem to be closer to those among the native-born males, whereas in CMEs and MMEs countries employment disadvantage tends to be more pronounced. Nevertheless, it appears that the female immigrants are much more disadvantaged than male immigrants relative to respective the natives in LMEs countries. Furthermore, highly-educated immigrants in LMEs countries do not significantly differ from the native-born with respect to the type of employment they attain, while in MMEs countries we see huge occupational status differences between foreign-born and native population.

4.1.2 INSTITUTIONAL CHARACTERISTICS

In this sub-section, some selected institutional characteristics of the countries under discussion are mapped out. The main aim is to provide some descriptive evidence for three distinct types of the market economies (LMEs, CMEs and MMEs country-clusters) for analytical purposes. Selected institutional characteristics of countries under discussion in this study consist macro variables included in the analyses namely, VOC variables (union density, collective barraging, employment protection regulation (EPL) strictness, skill specificity and labour market structure), migration variables (migration system and migrant selectivity) and GDP change.

For industrial relations, I use main indicators of social dialogue related to the coverage of collective bargaining and trade union density. While the latter represents the extent of unionization, as the share of workers who are members of a trade union, the former mainly indicates the unions' influence and bargaining power. Both indicators are incorporated in the analyses because they not only might influence labour market outcomes, but also interact with how industrial relations are shaped in the countries. As Figure 4.7 depicts, there is a large variation in the levels of union density[36] (UD) across countries ranging from for example around 75% in Sweden or 70% in Denmark and Finland, to less than 10% in France. Although in most of the countries the density rate is rather constant and it does not change over time. Generally, the union density level in CMEs countries is higher than in LMEs and MMEs countries. Among CMEs, Scandinavian countries (DNK, FIN, NOR and SWE) as well as Belgium have very high rates of the trade union density (around 70-75 percent) while countries like Germany, Netherlands and the Switzerland have much lower rates (around 20 percent). Among the MMEs countries, Italy and France have the highest (around 35%) and the lowest (below 10 %) union density respectively, while in the rest of countries (ESP, GRC and PRT) the union density ranges from 18 to 28 per cent. We see rather the same situation among LMEs countries. The Ireland has the highest union density with 35 percent and the USA has the lowest union density with 10 percent, while other countries (AUS, CAN and GBR) have union density between 20 and 28 percent.

On the other hand, Figure 4.8 reports collective bargaining coverage[37] (CB) among countries under discussion. Not surprisingly, CMEs countries have high coverage rates of collective bargaining with the exception of Switzerland whose coverage rate is under 50%. For example in Scandinavian countries (DNK, FIN, NOR and SWE), the coverage rate is above 70 %, while in

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[36] The ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners (Visser et al., 2010).

[37] The number of employees covered by a collective agreement divided by the total number of wage and salary-earners (Visser 2013).

Austria and Belgium it is so close to 100 percent. But surprisingly, in MMEs countries which do not show high level of union density, the collective bargaining coverage is considerably high (above 80 %) except for Greece whose coverage rate is around 65 percent. On the contrary, the coverage rate in LMEs countries is low and it ranges from 15 percent in the USA to 50 percent in the Australia.

As the empirical findings imply to the large differences in industrial relation across countries under study[38], the considerable variation between unionisation and coverage within countries is prima facie evidence of the importance of institutional factors. Despite such considerable variations, attempting to find industrial relations patterns across VOC clusters (LMEs, CMEs and MMEs) according to both their union density rates and collective bargaining coverage (relevant for industrial relation's potential impact on immigrant-native gaps), four country clusters can be distinguished:

- CMEs with high UD and high CB: including Nordic countries (DNK, FIN, NOR and SWE) characterized by highest scores on union density (UD) rates and also relatively high levels of collective bargaining (CB) coverage among countries under discussion.

- CMEs with low UD and high CB: including continental Europe countries (AUT, BEL, CHE and DEU) with the predominance of high level of collective bargaining coverage despite the rather low level of union density. The only exception is the Switzerland whose coverage rate is low relative to the other countries in this cluster.

- MMEs with low UD and high CB: including southern European countries (ESP, FRA, GRC, ITA and PRT), characterized by a low union density particularly in France and high bargaining decentralization/fragmentation.

- LMEs with low UD and low CB: including Anglophone countries (AUS, CAN, IRE, GBR and USA) with low level in both union density and collective bargaining coverage compared to the CMEs and MMEs countries. The density level and coverage rate in the USA are comparatively lower than other countries.

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[38] Since discussing particular institutional characteristics of industrial relations (for instance predominance of bargaining at company, sectoral or national level) in the countries under discussion here are beyond the scope of this study, to greater detail see Kahancová and Szabo (2012) or Traxler (1996).
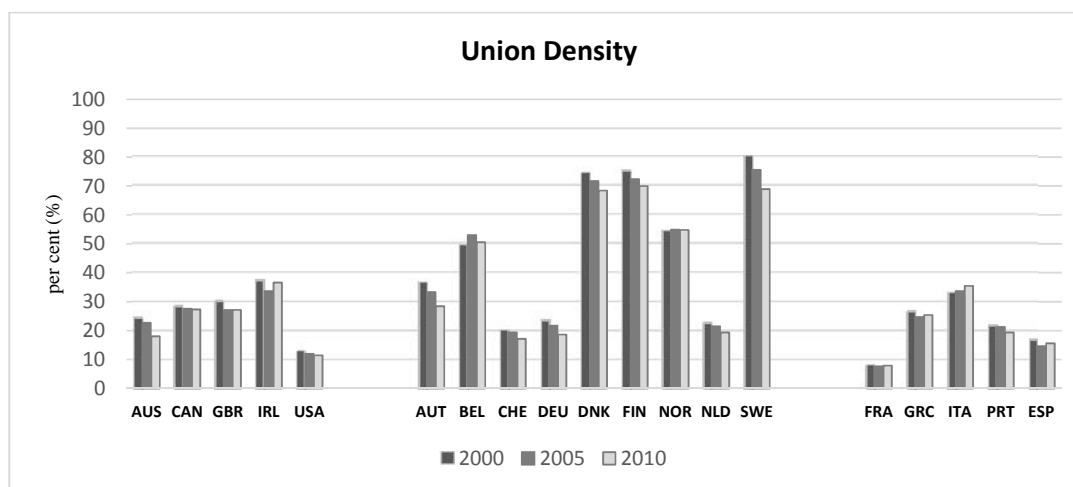
Union Density

Figure 4.7 Union density in selected OECD countries, 2000-2010

Collective Bargaining Coverage
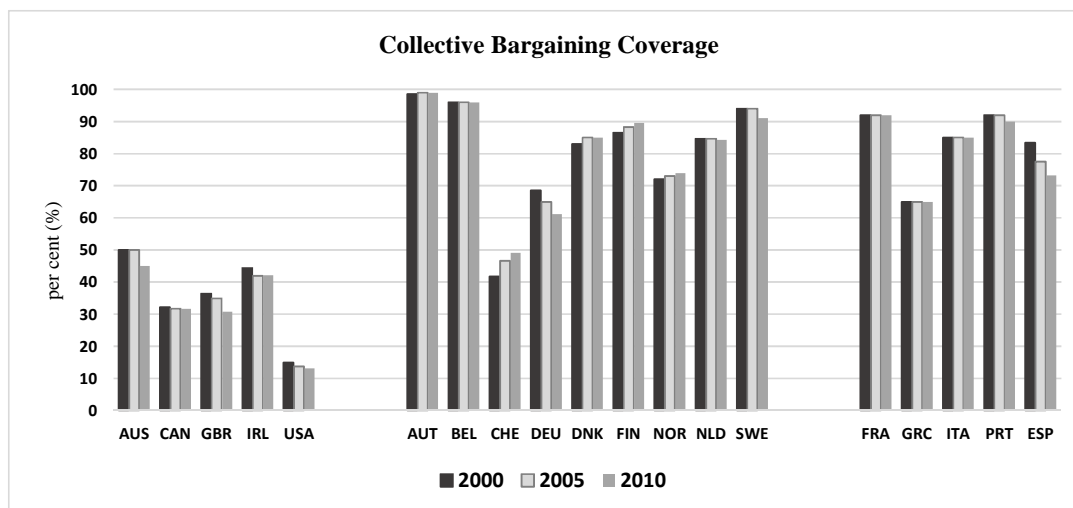
Figure 4.8 Collective bargaining coverage in selected OECD countries, 2000-2010

Figure 4.9 shows three main indicators of EPL strictness (OECD 1999)[39] across selected countries including: the first one indicates regular employment, the second refers to EPL strictness in regulating temporary employment and finally the third one relates to collective dismissals strictness. As it is evident, there are sizable differences among countries especially huge variations across VOC clusters with respect to each indicator of EPL strictness. In most of the countries under study, however, the EPL strictness is rather constant and it does not vary over time. The LMEs countries with the most flexible labour markets, in overall, score lowest in the indicators of regular and temporary contracts compared to the CMEs and MMEs countries. For instance, the USA has very low strictness in both regular and temporary contracts legislation among all countries under discussion. But surprisingly, LMEs countries which are marked by low level of employment protection particularly in temporary contracts, show higher level of strictness in collective dismissals even more regulated than some CMEs (like AUT and FIN) and MMEs countries (such as PRT). On the other hand, MMEs countries seem more regulated than other country-groups in all three indicators especially in terms of temporary contracts. While Portugal scores the highest in the indicator of regular contracts, Spain and France and to a lesser extent the Greece have rather high temporary contract protection. The CMEs countries, generally, have high strictness of regulation for the regular contracts. At the same time, there is great amount of variety across these countries in terms of temporary contracts and collective dismissals regulation. The Austria, Belgium and Norway are three countries with the highest temporary contracts regulations, whereas the Germany, Netherlands and Switzerland have the lowest regulation among CMEs. Considering collective dismissals regulation, the Austria and Finland score the lowest and on the contrary, Belgium scores the highest among all countries under discussion. Despite the low level of temporary contract protection, the Germany, Netherlands and Switzerland plus the Denmark have relatively high levels of collective dismissals regulation.

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[39] As a matter of fact, it is difficult to construct a single measure of employment protection regulation (EPL) strictness mainly due to the multi-dimensional nature of the phenomenon with its many facets, such as regulation of fixed-term contracts, temporary work, part-time work, working condition and dismissals of regular workers. Accordingly, the EPL indicators are usually presented in three main components to indicate much more accurate picture of countries' employment regulation. This is especially the case for some countries which have strict employment regulation in some areas but not others (OECD 1999; Kogan 2007).
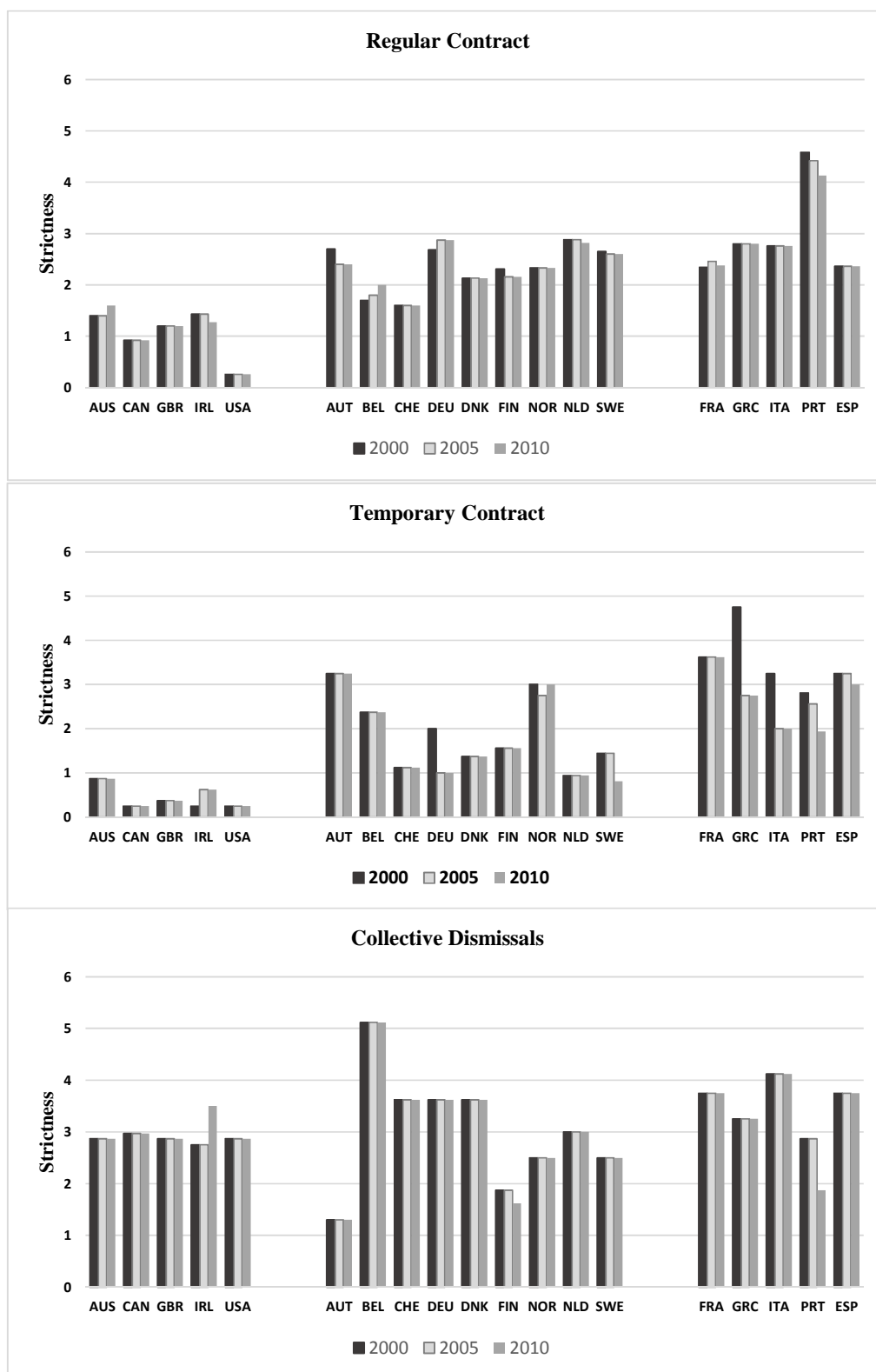
Figure 4.9 Employment protection regulation (EPL) strictness in regular contracts, and temporary contracts and collective dismissals among selected OECD countries, 2000-2010

Data source:
OECD Employment database, 2015

Figure 4.10 indicates the skill specificity (share of vocational education and training) among countries under discussion here and similar to the institutional characteristics presented so far, there is a great deal of cross-country variation in terms of skill specificity. As discussed before, the main reasoning is that VET indicator somehow entails the formation of more specific skill sets than do education in general or academic educational institutions. Hence, one would expect the most specific skill systems to achieve the highest values on this indicator and the most general skill systems to lie at the other end of the extreme. Consistent with this expectation, we see relatively low level of skill specificity (share of VET) in LMEs countries compared to the CMEs and MMEs countries. For example in Canada and the USA, there are comparatively very low levels of skill specificity. However, in some LMEs countries like Australia and the UK the vocational training intensity is considerable. On the contrary, the CMEs countries are to be found at the upper end of the skill specificity scale. In fact, most of the CMEs countries particularly the countries such as Austria, Belgium, Netherlands and Switzerland have a sizeable share of vocational education and training. MMEs countries take place between LMEs and CMEs with rather medium-low level of skill specificity. As it can be seen, most of the MMEs countries achieve the medium values (30 to 40 %) on this indicator.
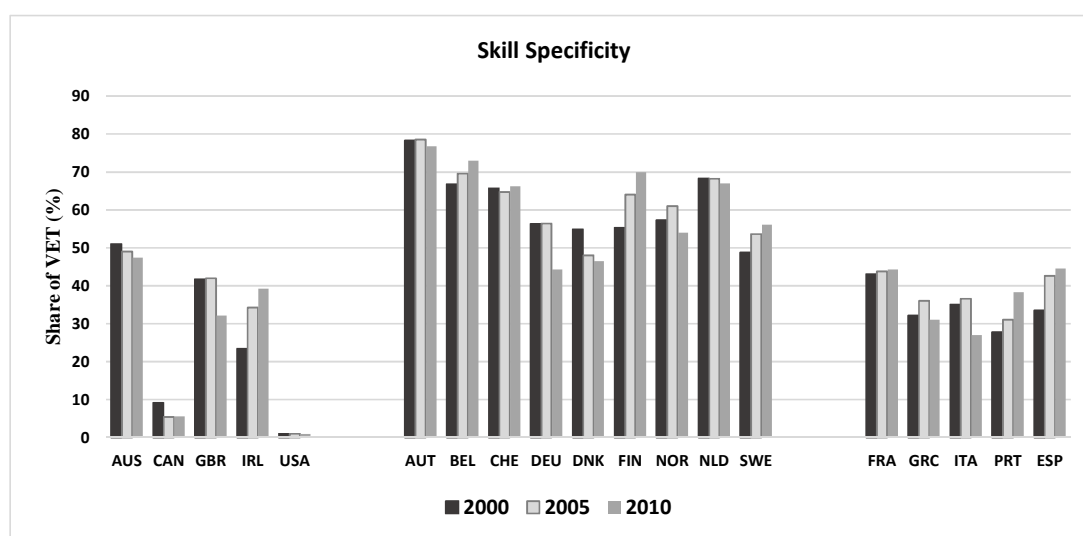
Figure 4.10 Skill specificity (share of vocational education and training) among selected OECD countries, 2000-2010

Data source: Education at a Glance (EAG) reports (OECD, 1998-2014)

To gain some insights about labour market skill structure among countries under investigation, the occupational hierarchy including the proportions of native and foreign-born

workers having high, medium and low status job positions based on the ISEI scores has been depicted in Figure 4.11. As it is evident, a "balanced-form" of occupational hierarchy[40] can be seen in most of the LMEs countries except for the Australia with heavy-middle structure which might be related to somewhat high skill specificity in this country. Very interestingly, we see that the occupational hierarchy form of migrant workers corresponds to that of the natives and as a consequent, a rather large proportion of immigrants especially in Canada and the UK hold high status job positions. On the contrary, CMEs countries particularly in Continental Europe countries (AUT, BEL, CHE, DEU, and NLD) the occupational hierarchy tends to have "middle-heavy" form. In such countries, a considerable proportion of native workers occupy semi-skilled job positions. On the other hand, although the proportion of migrant workers holding medium job status positions are sizeable, a large number of immigrants are found engaged in low status and low return manual jobs in these countries and hence the top of occupational hierarchy is rather thin. At the same time, among CMEs the occupational hierarchy structure in Nordic countries (DNK, FIN, NOR and SWE) is much more similar to the "balanced-form" and so the middle part is not as heavy as is the case in the Continental Europe countries. However, the bottom of occupational hierarchy for migrant workers still remains heavy in Nordic counties. In MMEs countries, there is rather different labour market skill structure compared to the former groups of countries. The occupational hierarchy of native workers tends to have "heavy-bottom" form and so the bottom segment (representing workers holding law status job positions) is very sizable in comparison to the middle and top segments. This type of low-skilled oriented labour market is so apparent in countries like Portugal and Spain. Such heavy-bottom structure is even much more pronounced looking at the migrant workers occupational profiles in MMEs. Indeed, in some countries such as Greece, Italy and Spain a large proportion (more than 60 percent) of migrant workers take low status positions (16-33 ISEI) so that overrepresentation of unskilled workers at the bottom segment of the labour market is predominant and consequently the occupational hierarchy is so steep. Therefore, one could say that the skill profiles of migrant workers correspond to a great extent to that of native workers in MMEs countries.

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[40] Generally based on the evidence from the countries under discussion in this study, three forms of occupational hierarchy can be distinguished. First, "balanced form" which implies there are no significant differences among top, middle and bottom of occupational hierarchy although the middle often seems to some extent heavier than other parts. Second, "heavy-middle" skill structures in which a large proportion of workers hold semi-skilled job positions or have upper secondary/non- tertiary education and hence there is a significant difference between the centre and other segments (top and down) of occupational hierarchy. Third, "heavy-bottom" occupational hierarchy which is more oriented towards low-skilled job positions with large extent of unskilled workers.

Occupational Hierarchy in LMEs

Australia

Foreign-born		Native
22.76	High(56-85)	18.29
55.67	Medium(34-55)	60.62
21.57	Low(16-33)	21.09

Canada

Foreign-born		Native
32.37	High(56-85)	29.46
35.79	Medium(34-55)	40.07
31.85	Low(16-33)	30.47

Ireland

Foreign-born		Native
24.66	High(56-85)	21.85
41.17	Medium(34-55)	50.3
34.17	Low(16-33)	27.85

United Kingdom

Foreign-born		Native
28.96	High(56-85)	25.32
40.75	Medium(34-55)	46.52
30.29	Low(16-33)	28.17

United States

Foreign-born		Native
22.39	High(56-85)	25.08
40.25	Medium(34-55)	50.45
37.37	Low(16-33)	24.47

Occupational Hierarchy in CMEs

Austria

Foreign-born		Native
11.28	High(56-85)	14.08
40.36	Medium(34-55)	56.37
48.36	Low(16-33)	29.55

Belgium

Foreign-born		Native
25.9	High(56-85)	26.3
40.7	Medium(34-55)	48.1
33.4	Low(16-33)	25.6

Switzerland

Foreign-born		Native
18.07	High(56-85)	19.82
49.18	Medium(34-55)	60.07
32.75	Low(16-33)	20.11

Germany

Foreign-born		Native
10.66	High(56-85)	20.59
42.74	Medium(34-55)	55.05
46.6	Low(16-33)	24.36

Figure 4.11. Proportion of native and foreign-born workers holding high, medium and low status job positions based on the ISEI scores in selected OECD countries (in percentages) , 2000-2010

Denmark

Foreign-born | Native

	Foreign-born		Native
High(56-85)	18.39		20.84
Medium(34-55)	41.17		49.49
Low(16-33)	40.44		29.66

Finland

Foreign-born | Native

	Foreign-born		Native
High(56-85)	25.72		23.57
Medium(34-55)	37.35		43.24
Low(16-33)	36.93		33.09

Netherlands

Foreign-born | Native

	Foreign-born		Native
High(56-85)	21.32		25.22
Medium(34-55)	45.22		51.47
Low(16-33)	33.47		23.31

Norway

Foreign-born | Native

	Foreign-born		Native
High(56-85)	17.55		18.04
Medium(34-55)	43.97		51.58
Low(16-33)	38.48		30.37

Sweden

Foreign-born | Native

	Foreign-born		Native
High(56-85)	19.2		23.29
Medium(34-55)	38.76		46.43
Low(16-33)	42.03		30.28

Occupational Hierarchy in MMEs

France

Foreign-born | Native

	Foreign-born		Native
High(56-85)	18.73		21.03
Medium(34-55)	36.73		46.2
Low(16-33)	44.54		32.77

Greece

Foreign-born | Native

	Foreign-born		Native
High(56-85)	4		16.18
Medium(34-55)	29.19		49.77
Low(16-33)	66.81		34.05

Italy

Foreign-born | Native

	Foreign-born		Native
High(56-85)	5.46		12
Medium(34-55)	33.61		57.34
Low(16-33)	60.94		29.89

Portugal

Foreign-born | Native

	Foreign-born		Native
High(56-85)	14.17		9.75
Medium(34-55)	40.22		43.77
Low(16-33)	45.61		46.48

Figure 4.11 (Continued)

Data source:
EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Table 4.1 shows some stylized facts on the skill migration policies and also some selected general specifications of immigration systems for 19 selected OECD countries over the period from 2000 to 2010. The most striking result is that no receiving country applies purely point-based system to admit skilled migrant workers, among the countries studied here. So, all host countries use employer-based system either purely or concurrently with point-based system (as the hybrid systems). Along with general application of employer-based systems by almost all immigrant-receiving countries, Papademetriou and Sumption (2011) argue that these schemes have been typified as direct policy mechanism for economic growth and augmenting competitiveness of firms by responding directly to employer's needs for specific skills. As depicted, hybrid systems seem to be more convenient and prevalent to use in LMEs countries such as Australia, Canada, and United Kingdom, while most of the CMEs countries apply pure employer-based (demand-oriented) systems except for Austria, Denmark and the Netherlands which just have begun using hybrid systems. Very interestingly, we see that all of MMEs countries under study exercise employment-based systems to recruit migrant workers and consequently the hybrid systems are not so common in these countries. Besides the main types of skill migration regimes, there are some migration system technical specifications like shortage list, labour market tests and quota system that vary across countries. Receiving countries take advantages of these schemes and manipulate them as instruments to regulate their migration systems according to the supply and demand of economy for native and foreign-born labour force. For instance, occupation shortage lists exist in all LMEs countries, while only some CMEs and MMEs have such most demanded occupations list. At the same time, all countries execute labour market tests to grant access to the labour market to migrant workers, although there are some exceptions in a number of countries. Furthermore, quota systems are applied in some countries like Australia and the USA (in LMEs), Austria and Norway (in CMEs) and Italy, Portugal and Spain (in MMEs) to restrict the influx of migrant workers into their labour markets.

Another important question is whether different skill immigration policies lead to a different compositions of the migrant workers. In other words, another aspect of skill migration policies which might mostly affect migrants' skill portfolio is the "selectivity". Figure 4.12 presents the effect of migration policies' selectivity through proportion of highly skilled immigrants out of whole admitted immigrants across selected OECD countries under discussion over 2000-2010. A cursory look at Figure 4.12 reveals that admission rates of highly skilled immigrants vary widely for the countries considered here, both between countries and over time. Accordingly, the skill portfolio of the foreign-born population varies substantially across countries, clearly reflecting the effects of different institutional settings of host countries particularly the extent of the selectivity of underlying migration regimes. For instance, the LMEs countries on average receive

comparatively higher ratios (25-55 %) of skilled immigrants than CMEs and MMEs countries, particularly in countries like Australia, Canada and the UK which apply hybrid systems. In the LMEs countries applying hybrid systems, we see that the proportion of admitted highly skilled migrant workers increases precipitously over time with respect to the rather constant ratio of those LMEs countries using employment-based systems like Ireland and the USA. On the other hand, among CMEs countries, there are some countries especially Nordic countries like Norway, Sweden and Denmark in which the proportion of highly skilled immigrants out of all admitted immigrants (30-35%) is higher than other countries such as Austria and Germany (around 15%). As it is evident, the ratio of admitted highly skilled migrant workers is relatively constant over 2000-2010 among CMEs countries which mostly apply employment-based systems to recruit skilled immigrants. In some countries particularly Denmark and Netherland that recently have begun to use hybrid systems, a considerable increase on proportion of highly skilled immigrants can be seen evidently. The proportion of highly skilled immigrants out of all settled immigrants in MMEs countries especially in Italy and Greece (10-25 %) is much lower than LMEs and CMEs countries. While a steady increase of highly skilled immigrants can be observed in France, Portugal and Spain between 2000 and 2005, contrarily one could see a slight decrease in admission of highly skilled immigrants in Italy and Greece over the same period. Interestingly, there has not been a considerable variation in the selectivity level of skilled immigrants in all MMEs countries under study between 2005 and 2010.

So, consistent with our expectation and also other research, we see that the more selective a host country's immigration policy, the higher proportion of highly skilled immigrants admitted to that country.

Table 4.1 Overview of Skill Migration Policies in 19 selected OECD countries (2000-2011)

Countries/ VOC regimes	Migration Regimes			Shortage list (Positive list)	Quota system	Labour market test (LMT)
	Points Sys.	Hybrid Sys.	Employ. Sys.			
LMEs						
AUS	0	1	0	1	1	0/E
CAN	0	1	0	1	0/E	1/E
GBR	0	1 **	0	1	0	1
IRE	0	0	1	1/E	0	1
USA	0	0	1	1	1/E	1
CMEs						
AUT	0	1***	0	0	1	1
BEL	0	0	1	1	0	1
CHE	0	0	1	0	1	1
DEU	0	0	1	1	0	1/E
DNK	0	1*	0	1	0	1
FIN	0	0	1	1	0	1
NOR	0	0	1	0	1/E	1
NLD	0	1**	0	0	0	1/E
SWE	0	0	1	0	0	1
MMEs						
ESP	0	0	1	1	1	1/E
FRA	0	0	1	1	0	1
GRE	0	0	1	1	0	1
ITA	0	0	1	0/E	1/E	1
PRT	0	0	1	0	1/E	1

Notes:

-Stars denote the year of points system enforcement: * 2007, ** 2008, *** 2011.
- "**1**" denotes that system exists. "**0**" denotes that system doesn't exist. **E:** There are some exceptions.
Source: own elaboration based on OECD (2001, 2007); Holzmann et al. (2011); CESifo (2011); Chaloff et al. (2009); Papademetriou et al (2008); Salt et al (2002); Jones (2012).
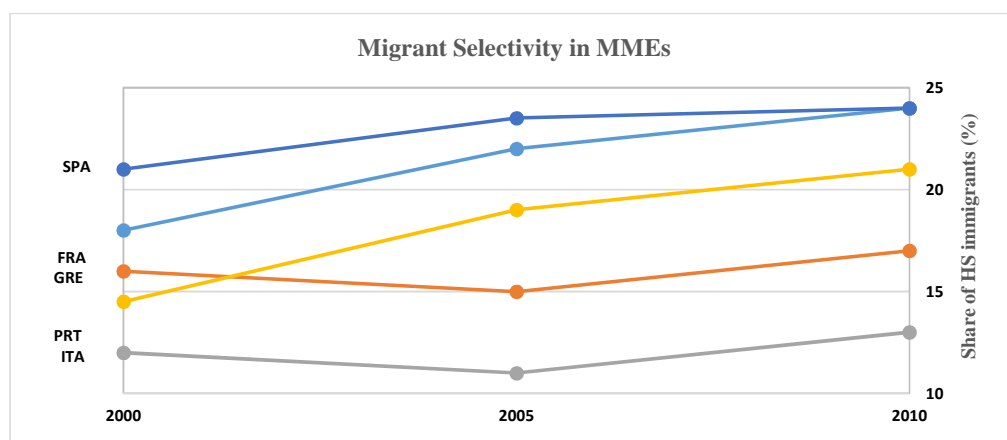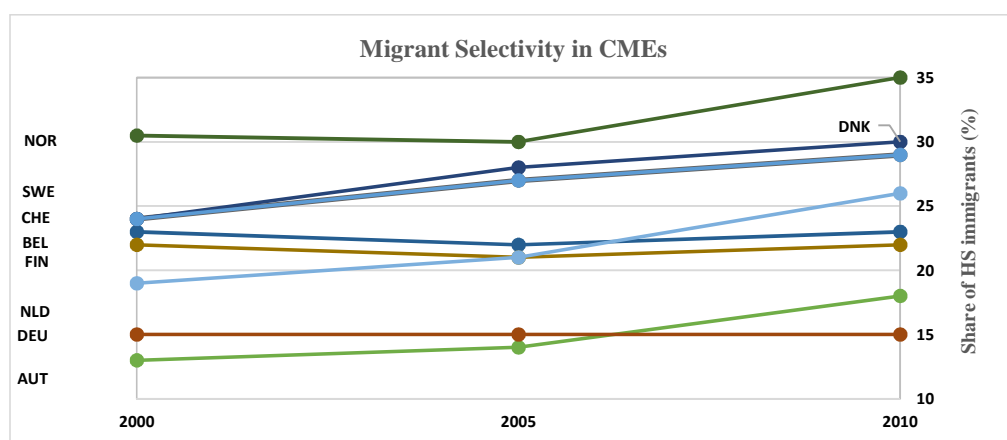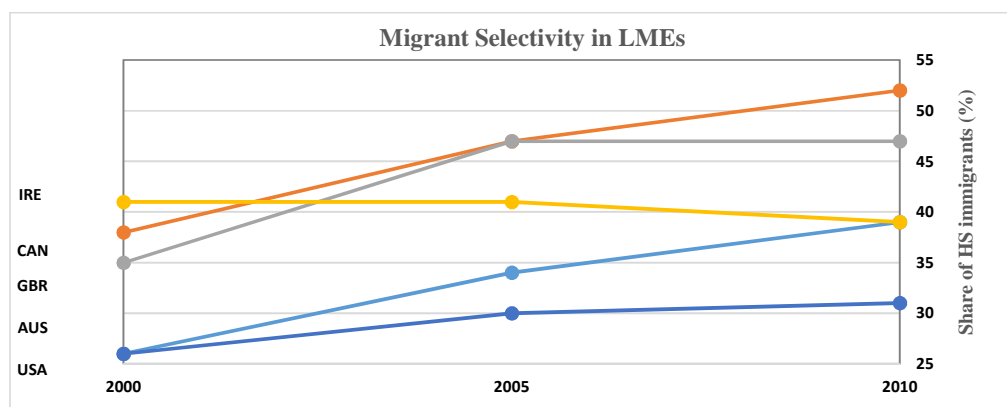
Figure 4.12 Proportion of highly skilled immigrants among selected OECD countries over 2000-2010 (in percentages)

Data source: DIOC (2000, 2005, 2010)

To sum up, the descriptive results on the institutional features of the countries under discussion are summarized in Table 4.2. This systematic overview could help us very fruitfully to link between institutional design (market economy regime, skill regime, employment protection

legislation, industrial relations, labour market structure) and migration regime setting (skill migration system, migrant selectivity and composition) of main three country-groups (LMEs, CMEs and MMEs) to investigate institutional factors effects on immigrant-native labour market outcome gaps variations across countries. At the same time, we should also bear in mind that the summary table would be regarded as an attempt to depict the general features of ideal country regime types; it therefore inevitably hides variations within these regimes and any country specific differences that might affect certain institutional areas.

In the multilevel multivariate empirical analyses which follow, I capture systematic context-specific effects by including categorical variables grouping countries and mapping country-level contextual differences, as well as by testing the impact of country-specific continuous variables on immigrant-native gaps.

Table 4.2 Overview of institutional and migration regime design in three main country-clusters (19 selected OECD countries)

Countries under discussion		
	Anglophone countries (AUS, CAN, IRE, UK, USA)	**Nordic countries- NORC (DNK, FIN, NOR and SWE)** **Continental Europe countries-CEUC (AUT, BEL, CHE, DEU, NLD)**	**Mediterranean countries (ESP, FRA, GRC, ITA) and PRT**
Institutional regimes features		
VOC regime type	Liberal market economies (LMEs)	Coordinated market economies (CMEs)	Mixed market economies (MMEs)
Skill regime and specificity	General skill regimes Low skill specificity	Specific skill regimes High skill specificity	Mixed skill regimes Medium skill specificity
Employment protection regulation (EPL)	Flexible (weakly regulated)	Rigid (regulated-dualized)	Rigid (highly regulated- high level of informality)
Industrial Relations: **-Union Density (UD)** **-Collective Bargaining (CB)**	Low UD Low CB	-High UD in NORC -Low UD in CEUC -High CB in NORC -High CB in CEUC	Low UD High CB
Labour mkt. structure: **-labour f. composition** **-Occupation Hierarchy(OC)**	Large proportion of highly educated labour force Balanced OC	-High proportion of highly-educated in NORC -High proportion of semi-educated in CEUC -Balanced OC in NORC -Heavy-middle OC (34-55 ISEI)in CEUC	Large proportion of low-educated labour force -Heavy-bottom OC (16-33 ISEI) - -Thin-top OC (56-85 ISEI)
Migration regimes features		
Migration policy	-Hybrid systems (AUS, CAN and UK) -Employment-based systems (IRE and USA)	-Employment-based systems -Hybrid systems (very recently) in some countries (AUT, DNK and NLD)	Employment-based systems
Migration selectivity	-High selectivity	-Medium selectivity in NORC -Low selectivity in CEUC	-Low selectivity
Immigrants composition (age and education)	-Over representation of the highly skilled immigrants -Under representation of the low skilled immigrants	-Over representation of the medium skilled immigrants	-Under representation of the highly skilled immigrants -Over representation of the low skilled immigrants

4.2 MULTIVARIATE MULTILEVEL ANALYSES

This section presents the results of the multivariate multilevel analyses which take into account both individual characteristics of the immigrants and native-born population together with institutional a of the host societies. Accordingly, unemployment propensity and occupational status as two important aspects of the immigrant economic integration in host countries' labour markets are explored in this section. Analysing unemployment propensity gaps between native and migrant workers allows us to evaluate the general degree of openness of a receiving society's labour market towards immigrants. Moreover, considering the immigrant-native occupational status gaps is no less important, since even if able to find employment, immigrants might be pushed to occupations and economic sectors abandoned by the native-born, leading to poorer economic integration. The hypotheses put forward in line with the analyses largely concern the institutional factors in host countries that have an effect upon immigrant-native labour market outcome gaps: migration policies, labour market structure and regulations, industrial relations, and the nature of the skill regimes which all were discussed in previous chapters. Due to important gender contrasts in labour market patterns for both native and migrant workers, and also given that my initial descriptive results suggest some differences between the genders, I specify separate models to explore possible explanations for these differences. So all the models are estimated for males and females separately in a multivariate way, so we would be able to investigate differences in the effects of institutional factors between the genders.

4.2.1 IMMIGRANT-NATIVE GAPS FOR MALES

The analyses presented in the following examine immigrant-native unemployment propensity and occupational status gaps between highly educated male migrant workers and native counterparts taking into account both individual attributes and structural factors that potentially influence the labour market outcomes. Table 4.3 presents the results (macro-level effects) of the linear two-step regression predicting the risk of being unemployed for highly educated native-born men as compared to the immigrants. Since the effects of macro-level (institutional) predictors upon the immigrant-native labour market gaps (i.e. unemployment propensity and occupational status) are of primary interest to this study, while the individual factors and structural determinants of unemployment in general are not here in the focus, in the following the macro level factors' effects will be discussed in detail here and also.

The aim of model 1 (see Table 4.3) is to assess the unemployment risk difference between the highly educated immigrants and the native-born male workers when none of the macro level

variables are included. In models 2-5 the intercept and the slope for immigrants (immigrant-native gaps) are modelled as a function of macro-level characteristics, namely the nature of the skill regimes -VOC dummies- (Model 2), the individual variables of the VOC regimes (Model 3), skill regimes together with the main variables of the VOC (Model 4), the nature of the migration regimes and the general economic climate in the countries (Model 5).

The intercept in model 1 (a = 0.067) suggests that, on average, highly educated migrant men are more likely to be unemployed than the native-born male population across all the countries under discussion, when not controlling for institutional attributes. The dummy coded variables pertaining to general (LMEs) and specific (CMEs) skill regimes – with the mixed (MMEs) skill regimes being a reference category – are included in model 2. As expected, immigrants' employment disadvantage (b = -0.040) is significantly lower in the general skill regimes (liberal market economies) than in the specific regimes (coordinated market economies) and mixed systems. Although VOC dummies capture notable effects and the immigrant-native unemployment gaps across skill regimes are considerable, the individual VOC variables (industrial relations, employment regulation, skill specificity and labour market structure), can provide a richer picture of the underlying relationships driving these effects. Model 3 shows that a higher union density provides a less favourable context for highly-educated immigrant workers vis-à-vis the natives in terms of access to the labour market and getting a job. Collective bargaining coverage seems to have a similar effect to union density on the immigrant-native unemployment gaps.

Regarding employment protection, models 3 suggests in countries with high level of job security (regular contracts) highly-educated immigrants seem to be less disadvantaged when it comes to employment, although the effect is not statistically significant (b= -0.011). It seems that the regulation on collective dismissals has the same effect which is also statistically significant. On the other hand, we see that higher protection of temporary contracts has the opposite effect. In countries with less temporary contract flexibility, highly-educated migrant males have higher chances of ending up in employment.

Skill specificity, as proxied by the share of the population with vocational education and training, seems to disadvantage immigrants in terms of risk of being unemployed, although the effect is very small and is not statistically significant. Here for the labour market skill structure[41], I have considered the middle and lower end of the labour market hierarchy. As model 3 indicates, the size of the semi-skilled and unskilled segments seems to matter when explaining unemployment

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[41] Labour market skill structure or occupational hierarchy based on the ISEI scores with skill level: low (16-33); medium (34-55) and high (56-85).

differentials between immigrants and the native-born men. Actually, in medium-skilled oriented labour markets (i.e. countries with a real demand for semi-qualified labour force) the gap between immigrants and the native-born shrinks slightly. Also it is interesting to note that in countries with heavy bottom labour markets[42], unemployment gaps moderately get closer. This is evident from the significant negative interaction effect (b = -0.002) of the slope for highly-educated migrant men with this macro level variable.

In model 4, skill regimes dummy coded variables pertaining to skill regimes with the individual VOC variables are included together simultaneously. It is noteworthy that the only effect of EPL strictness (temporary contract) disappears once skill regimes dummy variables included in the model and other statistically significant effects still remain. The positive impact of general skill regimes in LMEs countries on highly-educated immigrants becomes bigger but decreases to 10% significance level in this model. Along with the macro-level variables relating to the skill regimes, in model 5, dummy variables representing the skill migration regimes (employment-based and hybrid systems) in addition to the selectivity of highly-educated immigrants are included; the employment based migration regime serves as a reference category. Furthermore, the general economic climate[43] of the countries under discussion is considered. All statistically significant effects in previous models remain in model 5 except for union density which fails to reach statistical significance once all variables are accounted for. Consistent with hypotheses put forward, in hybrid migration systems highly educated immigrants are less disadvantaged when looking for jobs compared to the employment-based migration (reference dummy) regimes, the effect is significant at 90 % level other things being equal. The results pertaining to the degree of selectivity suggest that in countries which receive a larger proportion of highly educated immigrants, the unemployment gap between immigrants and the native-born men shrinks slightly although the effect is not statistically significant. Finally, GDP growth neither plays any significant role in explaining the employment disadvantages of highly skilled immigrants, nor does it strongly influence the effects of other macro-level variables.

As we have seen so far, highly-educated male immigrants in all receiving countries under discussion seem to be more disadvantaged in terms of employment chances compared to the their native counterparts. Although in countries with general skill regimes (LMEs) and hybrid migration regimes, the immigrant-native unemployment gap tends to shrink. Along with higher

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[42] Serves as a proxy for the size of the secondary labour market and with large proportion of the low-skilled in the total labour force.

[43] Measured by the percentage change in the current year GDP.

unemployment risks, another question also needs to be discussed: do highly-educated immigrants experience disadvantage in the types of occupations they pursue?

Table 4.3 Macro level factors effects on immigrant-native unemployment risk gaps, for highly educated men in 19 selected OECD countries, 2000-2010

Immigrant-native Unemployment Risk Gaps (highly educated-male workers)					
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Intercept (Difference from native-born)	**0.067***	**0.066***	**0.213***	**0.319***	**0.376***
	(0.004)	**(0.007)**	**(0.039)**	**(0.068)**	**(0.089)**
VOC dummies (Ref. MMEs)					
LMEs		**-0.040***		**-0.072 ***	**-0.062 ***
		(0.008)		**(0.032)**	**(0.029)**
CMEs		**0.019**		**-0.032**	**-0.022**
		(0.010)		**(0.022)**	**(0.023)**
VOC variables					
Union density			**0.0004***	**0.0005***	**0.0005**
			(0.0002)	**(0.0002)**	**(0.0002)**
Collective bargaining coverage			**0.0012***	**0.0009****	**0.0009****
			(0.0003)	**(0.0002)**	**(0.0002)**
EPL- regular contract			**-0.011**	**-0.021**	**-0.022**
			(0.008)	**(0.011)**	**(0.011)**
EPL- temporary contract			**0.014****	**0.003**	**0.002**
			(0.004)	**(0.007)**	**(0.007)**
EPL- collective dismissals			**-0.024****	**-0.026****	**-0.024****
			(0.007)	**(0.008)**	**(0.007)**
Skill Specificity (%share of VET)			**0.00002**	**0.0002**	**0.0002**
			(0.0002)	**(0.0002)**	**(0.0002)**
Size of the medium-status jobs segment(%ISEI 34-55)			**-0.002****	**-0.002***	**-0.003***
			(0.0005)	**(0.0007)**	**(0.0009)**
Size of the low-status jobs segment (%ISEI 16-33)			**-0.002***	**-0.002****	**-0.002****
			(0.0005)	**(0.0007)**	**(0.0008)**
Migration Regimes (Ref. Employment-based system)					
Hybrid systems					**-0.020***
					(0.008)
High-Skilled Selectivity (%)					**-0.0005**
					(0.0004)
Contextual variables					
GDP change (%)					**-0.00008**
					(0.0013)
R-squared		**0.15**	**0.42**	**0.44**	**0.46**
Number (macro level)	**185**	**185**	**171**	**171**	**171**

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) =5,355,349;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

A linear two-stage regression model is run to deal with this question and predict the occupational status of highly-educated male immigrants compared to the native-born people (see Table 4.4). This model takes all former individual and macro-level characteristics into account (Model 1-5). As shown in Table 4.4, in model 1 the intercept for immigrants (a= - 6.39) is negative which indicates that immigrants on average seem to hold less prestigious occupations than the native-born men. In model 2, controlling for the nature of the skill regime including two dummy-coded variables for general (LMEs) and specific (CMEs) skill regimes with the mixed (MMEs) regimes being a reference category, the results indicate that both in countries with general and specific skill regimes the occupational status gap between immigrants and the native-born seems to become smaller. Quite a strong, however, statistically significant positive effect within the general skill regimes consistent with hypotheses is evident. In model 3, the individual VOC variables are considered to predict immigrant-native occupational status gaps. As it can be observed, while in countries with higher union density the occupational status gap tend to be larger (b= -0.12), collective bargaining coverage seems to have a favourable effect (b= 0.06) on highly-educated immigrant workers' job positions vis-à-vis the natives. Although higher protection of regular employment contracts has positive effect on highly-educated immigrants' employment chances, here we see that it has less favourable effect on male immigrants' job positions. The same negative effect is seen for other aspects of EPL (temporary contract and collective dismissals). Surprisingly, we observe that in countries with higher skill specificity, the highly-educated male immigrants hold more prestigious jobs, other things being equal. Also as expected, in countries with heavy bottom labour markets, these immigrants hold jobs of lower occupational status (b= -0.27). Besides the individual VOC variables, in model 4, I also control for the nature of the skill regimes including dummy-coded variables. Most of the statistically significant effects in previous models remain except for EPL (contrary contracts), skill specificity and labour market structure which fail to reach statistical significance once dummies for VOC are controlled for in model 4. Finally, all institutional variables including skill regimes dummies, VOC individual variables, migration regimes dummies, selectivity of highly-educated immigrants and the general economic climate are included in model 5. Again, quite a strong, statistically significant positive effect within the general skill regimes (LMEs) is evident. Regarding skill migration regimes, contrary to our expectation, male immigrants appear on average to hold more prestigious jobs in receiving countries with employment-based systems than hybrid systems (b= -4.27). At the same time, it seems that higher immigrant selectivity i.e. receiving a larger proportion of highly educated immigrants has positive effect on occupational status of immigrants compared to the natives. Similar to the former analysis, GDP change does not affect significantly occupational status of immigrants, other things being equal.

Table 4.4 Macro level factors effects on immigrant-native occupational status gaps, for highly educated men in 19 selected OECD countries, 2000-2010

Immigrant-native Occupational Status Gaps(highly educated male workers)					
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Intercept (difference from native-born)	-6.39***	-15.34***	-16.16	-9.81	-9.82
	(0.59)	(1.03)	(5.40)	(4.98)	(5.53)
VOC dummies (Ref. MMEs)					
LMEs		13.48***		16.05***	16.54***
		(1.26)		(2.50)	(2.19)
CMEs		11.62***		15.79***	14.74***
		(1.15)		(1.92)	(1.68)
VOC variables					
Union density			-0.12***	-0.23***	-0.24***
			(0.02)	(0.02)	(0.02)
Collective bargaining coverage			0.06*	0.15***	0.16***
			(0.03)	(0.03)	(0.03)
EPL- regular contract			-4.70***	-3.95***	-3.37***
			(0.82)	(0.65)	(0.66)
EPL- temporary contract			-1.65***	0.99	0.80
			(0.44)	(0.52)	(0.45)
EPL- collective dismissals			-1.54*	-1.39**	-1.46**
			(0.62)	(0.47)	(0.44)
Skill Specificity (%share of VET)			0.153***	-0.006	0.013
			(0.03)	(0.03)	(0.03)
Size of the medium-status jobs segment(%ISEI 34-55)			-0.04	0.05	-0.03
			(0.07)	(0.05)	(0.06)
Size of the low-status jobs segment (%ISEI 16-33)			-0.27***	-0.06	-0.06
			(0.08)	(0.05)	(0.05)
Migration Regimes (Ref. Employment-based system)					
Hybrid systems					-4.27***
					(1.14)
High-Skilled Selectivity (%)					0.09**
					(0.03)
Contextual variables					
GDP change (%)					0.06
					(0.15)
R-squared		0.52	0.72	0.80	0.84
Number (macro level)	164	164	163	163	163

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) =5,355,349;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

4.2.2 IMMIGRANT-NATIVE GAPS FOR FEMALES

To investigate the institutional factors effects upon the risk of unemployment for highly educated female immigrants as compared to the native-born, here again a linear two-stage regression is run. As model 1 in Table 4.5 indicates, female immigrants on average (a = 0.079) are more likely to be unemployed than the native-born when none of the macro level variables are included. In line with expectations, I find that Female immigrants' employment disadvantage (b = -0.040) is significantly lower in the LMEs countries than in the CMEs and MMEs countries once skill regimes dummy coded variables pertaining to general (LMEs) and specific (CMEs) skill regimes – with the mixed (MMEs) regimes being a reference category – are included in model 2. Model 3 presents the individual VOC variables' impacts (industrial relations, employment regulation, skill specificity and labour market structure) on female immigrant-native employment gaps. As shown, in countries where industrial relations institutions are well established and particularly collective bargaining is strong, female immigrants have less chances of getting access to the labour market compared to the native-born females. On the other hand, employment protection has mixed effects on female immigrant-native employment gaps. It seems that in countries with high job security (regular contracts) highly-educated female immigrants tend to be less disadvantaged when it comes to employment, although the effect is not statistically significant. The employment protection on collective dismissals has the same positive effect on female immigrants employment chances which is also statistically significant (b= - 0.015). At the same time, it is interesting to note that in countries with high job security on temporary contracts, female immigrants are more likely to be unemployed. Also labour market structure seems to matter when investigating unemployment differentials between highly educated immigrants and the native-born females. In this regard, we see that in countries where the bottom of the labour market is heavy (so many job openings for low skilled workers) and in the countries with large proportion of the semi-skilled in the total labour force, immigrant-native unemployment gaps shrink slightly.

In model 4, when skill regimes dummy coded with the individual VOC variables are included together, the positive effect of general skill regimes in LMEs countries on highly-educated female immigrants gets larger (b= -0.067) while decreases to the 10% significance level. At the same time, the impact of the specific skill regimes in CMEs becomes significant at 90% level (b= -0.057). All other statistically significant effects in previous models except for EPL (temporary contract) still remain. At the last step, all macro-level variables of main interest in this study are included in the model 5. As in the earlier analyses, general skill regimes in LMEs countries play a positive role in female immigrants' employment propensity, but once all macro variables are controlled in the model 5, this effect is no longer significant. This also happens to EPL (collective

dismissals). As expected and consistent with hypotheses put forward in this study, in countries with hybrid migration systems highly educated female immigrants face less difficulties when looking for jobs compared to the employment-based migration (reference dummy) regimes, ceteris paribus. Furthermore, the selectivity of highly educated immigrants as well as GDP change does not play any significant role in explaining female immigrant-native employment gaps.

Table 4.6 repeats the analysis of a linear two-stage regression model which is run to address the impacts of institutional factors on the occupational status of highly-educated female immigrants compared to the native-born. As it is evident in the model 1, on average female immigrants in the countries under discussion tend to have less prestigious occupations than the native-born ($a= -7.51$). But when the nature of countries' skill regime are controlled by dummy-coded variables in model 2, we see that in countries with general skill regimes (LMEs) and also in countries with specific skill regimes (CMEs) female immigrant-native occupational status gap shrinks considering the mixed skill regimes (MMEs) as reference category. A strong and statistically significant positive effect within the LMEs suggests that female immigrants appear to hold more prestigious jobs in receiving countries with general skill regimes than other skill regimes. In model 3, immigrant-native occupational status inequalities are predicted by the individual VOC variables. The negative coefficients related to employment protection legislation's (EPL) variables (regular and temporary contracts, collective dismissals) suggest that stricter EPL in countries might be held accountable for the greater difficulty highly educated female immigrants face in finding prestigious job positions, once other factors are controlled for. Instead, we see that higher skill specificity seems to have a favourable effect on highly-educated female migrant workers' job positions. Also, in countries with heavy bottom labour markets, female immigrants tend to have jobs of lower occupational status. When skill regimes dummy-coded variables together with the individual VOC variables are all included in the model 4, we observe some changes in effects. For instance, industrial relations institutions effects which were insignificant in previous model here become statistically significant. As shown, in countries with high collective bargaining coverage female immigrant-native occupational status gaps tend to become narrower. At the same time, we see that strong union density has unfavourable effects on female immigrants' job positions. Other statistically significant effects in previous model (EPL, skill specificity and labour market structure) fail to reach statistical significance once dummies for VOC are controlled for in model 4.

Table 4.5 Macro level factors effects on immigrant-native unemployment risk gaps, for highly educated women in 19 selected OECD countries, 2000-2010

Immigrant-native Unemployment Risk Gaps (highly educated-female workers)					
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Intercept (difference from native-born)	0.079***	0.098***	0.255***	0.357***	0.401***
	(0.004)	(0.007)	(0.041)	(0.073)	(0.097)
VOC dummies (Ref. MMEs)					
LMEs		-0.051***		-0.067*	-0.060
		(0.007)		(0.033)	(0.030)
CMEs		-0.014		-0.057*	-0.054*
		(0.009)		(0.024)	(0.024)
VOC variables					
Union density			-0.0002	0.0002	0.0001
			(0.0002)	(0.0003)	(0.0002)
Collective bargaining coverage			0.001**	0.0007*	0.0007*
			(0.0003)	(0.0003)	(0.0003)
EPL- regular contract			-0.0005	-0.006	-0.0045
			(0.008)	(0.011)	(0.011)
EPL- temporary contract			0.014**	0.003	0.0015
			(0.005)	(0.008)	(0.008)
EPL- collective dismissals			-0.015*	-0.016*	-0.014
			(0.007)	(0.008)	(0.007)
Skill Specificity (%share of VET)			-0.0003	0.0002	0.0003
			(0.0002)	(0.0003)	(0.0003)
Size of the medium-status jobs segment(%ISEI 34-55)			-0.002***	-0.003***	-0.004***
			(0.0006)	(0.0008)	(0.001)
Size of the low-status jobs segment (%ISEI 16-33)			-0.003***	-0.003***	-0.003**
			(0.0005)	(0.0008)	(0.0008)
Migration Regimes (Ref. Employment-based system)					
Hybrid systems					-0.028*
					(0.012)
High-Skilled Selectivity (%)					-0.000005
					(0.0005)
Contextual variables					
GDP change (%)					0.0003
					(0.001)
R-squared		0.12	0.30	0.33	0.35
Number (macro level)	183	183	169	169	169

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) =5,960,425;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

In the model 5, all macro-level (institutional) variables of interest are included to predict female immigrant-native occupational status gaps. Like previous models, quite a strong and statistically significant positive effect within the general skill regimes (LMEs) is evident (b=18.64). The picture related to the industrial relations institutions effects predicted in model 4, stay unchanged here in model 5. Concerning migration regimes, it seems that female immigrants on average tend to hold more prestigious jobs in receiving countries with employment-based systems than hybrid systems, as it is the case for male immigrants. At the same time, in countries selecting higher proportion of skilled immigrants, female immigrant-native gaps appear to close fairly, other things being equal. Finally no significant effect for the GDP change capturing general economic climate (GDP change) of countries on immigrant-native job differences is noticeable.

Table 4.6 Macro level factors effects on immigrant-native occupational status gaps, for highly educated women in 19 selected OECD countries, 2000-2010

Occupational status gaps(highly educated -female)					
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Intercept(difference from native-born)	-7.51***	-17.20***	-16.50	-14.58	-18.33*
	(0.59)	(1.34)	(7.84)	(8.44)	(8.45)
VOC dummies (Ref. MMEs)					
LMEs		13.61***		19.77***	18.64***
		(1.38)		(3.46)	(3.15)
CMEs		12.91***		17.89***	15.20***
		(1.38)		(3.99)	(3.37)
VOC variables					
Union density			-0.04	-0.15***	-0.15***
			(0.02)	(0.04)	(0.03)
Collective bargaining coverage			0.07	0.17**	0.17***
			(0.04)	(0.05)	(0.05)
EPL- regular contract			-2.87*	-1.56	-0.83
			(1.31)	(1.25)	(1.11)
EPL- temporary contract			-2.08**	1.29	1.07
			(0.70)	(0.73)	(0.64)
EPL- collective dismissals			-1.01	-0.78	-1.07
			(0.71)	(0.57)	(0.59)
Skill Specificity (%share of VET)			0.09*	-0.08	-0.04
			(0.04)	(0.04)	(0.04)
Size of the medium-status jobs segment(%ISEI 34-55)			-0.13	-0.02	-0.06
			(0.09)	(0.07)	(0.09)
Size of the low-status jobs segment (%ISEI 16-33)			-0.36*	-0.15	-0.13
			(0.15)	(0.17)	(0.15)
Migration Regimes (Ref. Employment-based system)					
Hybrid systems					-3.93**
					(1.41)
High-Skilled Selectivity (%)					0.17***
					(0.04)
Contextual variables					
GDP change (%)					-0.02
					(0.13)
R-squared		0.55	0.55	0.65	0.71
Number (macro level)	168	168	168	168	166

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) =5,960,425;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

4.2.3 IMMIGRANT-NATIVE GAPS: HIGHLY-EDUCATED VS. LOW-EDUCATED WORKERS

Here in this subsection, I aim to compare the institutional factors effects on economic performance difference of highly educated and low educated immigrants to that of the respective indigenous population. Indeed, controlling for high and low education level, there may be a number of important differences linked to institutional configuration in the various areas which might shape immigrant-native labour market gaps variation of highly and low educated immigrants across countries. So, I try to address whether institutional factors such as skill regimes, industrial relations, employment protection regulation and labour market structure influence immigrant-native gaps for highly educated workers in the same way they do for low educated workers or not? Accordingly, Table 4.7 reports the impacts of some selected institutional factors on the unemployment risk and occupational status gaps between highly skilled male immigrants and natives vis-à-vis low-educated immigrants and native-born men.

As shown before, highly skilled immigrants on average tend to have higher unemployment propensity (a=0.318) than their native counterparts. On the contrary, there is no significant difference between the unemployment risk of low educated immigrants and native-born workers. The results also highlight the different effects of skill regimes (VOC dummies) on immigrant-native unemployment risk gaps for high and low-educated male workers. As Table 4.7 depicts, unemployment propensity for highly-educated migrant workers (b = -0.072) is significantly lower than that of natives in the general skill regimes (liberal market economies) compared to the specific regimes (coordinated market economies) and mixed systems, while we do not see such an effect of skill regimes for low-educated workers across the countries under investigation. Indeed, immigrant-native employment gaps for highly skilled workers seem to be closer in LMEs, however, the results do not support that unemployment differentials between low-educated migrants and native workers tend to be narrower in LMEs.

Considering industrial relations institutions, it seems that they have same effects on immigrant-native unemployment gaps for either highly-educated or low-educated workers. In other words, a higher union density and stronger collective bargaining seem to provide a less favourable context for male immigrant workers vis-à-vis the natives in terms of access to labour market and getting a job irrespective of educational level (high or low). Contrarily, employment protection legislation (EPL) has different effects on immigrant-native employment gaps regarding educational level. Actually, as the results suggest highly-educated immigrants tend to be less disadvantaged in countries with high level of job security (regular contracts and collective dismissals) when it comes to employment. On the other hand, we see the opposite effect of EPL on low-educated male

immigrants, and hence they have lower chances of ending up in employment with respect to native counterparts in countries with higher protection of employment. Moreover, the results show that the skill specificity has a negative effect on immigrant-native employment gaps for men either high-educated or low educated. So both highly-educated and low-educated male immigrants in the countries with high skill specificity appear to be disadvantaged in terms of risk of being unemployed compared to the natives. The evidence also suggests that labour market structure matters for both highly-educated and low-educated workers when explaining unemployment differentials between immigrants and the native-born men. It is noteworthy that in medium-skilled oriented labour markets (i.e. countries with a real demand for semi-educated workers) the immigrant-native unemployment gaps not only for highly-educated, but also for low-educated male workers shrink although slightly. But somewhat surprisingly, in counties with heavy bottom labour markets, we see not only the immigrant-native unemployment gaps for low-educated workers shrinks, but also the unemployment differentials between highly-educated immigrants and native people tend to close. While the former is consistent with our expectation, but the latter is rather contrary to our supposition.

Table 4.8 also reports the results of two-step multilevel model which is run to address the impacts of institutional factors on the occupational status of highly-educated and low-educated male immigrants compared to their native-born counterparts. As it is evident, on average highly-educated male immigrants in the countries under discussion tend to have less prestigious occupations than the native-born (a= - 9.66), while it is not straightforwardly the case for low-educated male immigrants. Particularly once the nature of countries' skill regime are controlled by VOC dummy-coded variables, we see that in countries with general skill regimes (LMEs) and also in countries with specific skill regimes (CMEs) immigrant-native occupational status gap for highly-educated male workers shrinks compared to the mixed skill regimes as the reference category. Not surprisingly, the skill regimes seem to have no specific effects on low-educated male immigrants' occupational status compared to the native-born.

Concerning VOC framework individual variables, we see that industrial relations institutions have mixed effects on immigrant-native occupational status gaps with respect to workers' educational level. For instance, while a higher union density seems to provide a less favourable context for highly-educated male immigrants in terms of occupational status, it appears to suppress immigrant-native job position gaps for low-educated workers. On the other hand, the results show the opposite effect of collective barraging coverage. While strong collective bargaining appears to help highly-educated male immigrants to settle in more prestigious jobs, it has unfavourable effect on low-educated male immigrants' occupational status and exacerbate

immigrant-native gaps. Similarly, employment protection legislation (EPL) has mixed effects on immigrant-native unemployment gaps for different education level. Based on the results, highly-educated male immigrants tend to be more disadvantaged in countries with high job security (regular contracts and collective dismissals), whereas the low-educated immigrants appear to fare better in strict labour market regulations. Consistent with our expectation, immigrant-native occupational status tend to increase in countries with high skill specificity which is more pronounced for highly skilled workers. Considering labour market structures, it seems that immigrant-native job position gaps for highly-educated workers shrink in countries with expanded medium-skilled job markets, whereas the gaps for low-educated workers tend to be greater in such labour markets. Not surprisingly and as one would expect, immigrant-native occupational status differentials tend to aggravate in countries whose occupational hierarchy bottom is heavy for both high and low educated workers. Moreover, as shown, better economic situation can have positive effect on occupation prospects of immigrants with both high and low education level.

Similar to the immigrant-native gap analysis for the males, in the final part of this section, I try to investigate how the institutional factors do affect the immigrant-native labour market gaps (unemployment propensity and occupational status) of female immigrants, highly-educated and low-educated, compared to the native born. As Table 4.8 depicts, both highly-educated (a = 0.361) and low-educated (a = 0.346) female immigrants on average are more likely to be unemployed than their native-born counterparts. As discussed before, immigrant-native unemployment risk gap (b = -0.069) for highly-educated female workers is lower in the general skill regimes (liberal market economies) than in the specific regimes (coordinated market economies) and mixed systems (as the reference category). Somewhat unexpectedly and contrary to the results of male workers, here we see the same picture for low-educated female workers, i.e. the lower unemployment risk gap in LMEs and CMEs compared to the MMEs, although the effects are not statistically significant.

As it can be seen, industrial relations institutions appear to have negative effects on unemployment propensity of both highly-educated and low-educated female immigrants. In other words, there is a less favourable context for female immigrants irrespective of their educational level in terms of employment chances in countries with high union density and strong collective bargaining. In contrast to the male immigrants, here we see that employment protection legislation (EPL) has same effects on immigrant-native employment gaps of female workers possessing different education level. Actually, both highly-educated and low-educated female immigrants seem to be less disadvantaged in countries with high level of job security (regular contracts and collective dismissals) when it comes to employment. The results also suggest that the skill specificity intensifies the immigrant-native unemployment gaps for female workers either high-

educated or low educated. Therefore, as one would expect in the countries with high skill specificity, both highly-educated and low-educated female immigrants tend to be disadvantaged in terms of risk of unemployment.

Table 4.7 Macro level factors effects on immigrant-native gaps: highly-educated vs. low-educated workers, for males in 19 selected OECD countries, 2000-2010

Native-Immigrant Gap (Male)				
Variables	**Unemployment Risk**		**Occupational Status**	
	Highly-educated	Low-educated	Highly-educated	Low-educated
Intercept (difference from native-born)	0.318***	0.030	-9.66*	-0.90
	(0.070)	(0.088)	(4.73)	(2.61)
VOC dummies (Ref. MMEs)				
LMEs	-0.072 *	0.037	15.87***	0.61
	(0.032)	(0.039)	(2.45)	(1.24)
CMEs	-0.032	-0.01	15.45***	0.83
	(0.022)	(0.037)	(1.92)	(1.04)
VOC variables				
Union density	0.0005*	0.001**	-0.23***	0.04**
	(0.0002)	(0.0004)	(0.02)	(0.01)
Collective bargaining coverage	0.0009**	0.0009	0.16***	-0.03**
	(0.0002)	(0.0005)	(0.03)	(0.01)
EPL- regular contract	-0.021	0.009	-3.83***	1.06**
	(0.011)	(0.012)	(0.67)	(0.33)
EPL- temporary contract	0.003	0.010	0.93	0.02
	(0.007)	(0.008)	(0.52)	(0.25)
EPL- collective dismissals	-0.026**	0.002	-1.32**	1.13***
	(0.008)	(0.010)	(0.47)	(0.29)
Skill Specificity (share of VET)	0.0002	0.002***	-0.005	-0.00002
	(0.0002)	(0.0005)	(0.03)	(0.01)
Size of the medium-status segment(%ISEI 34-55)	-0.002***	-0.003**	0.05	- 0.14***
	(0.0007)	(0.0008)	(0.05)	(0.02)
Size of the low-status jobs segment (%ISEI 16-33)	-0.002**	-0.002	-0.08	-0.02
	(0.0008)	(0.001)	(0.05)	(0.03)
Contextual variables				
GDP change (%)	-0.00008	0.001	0.13	0.08
	(0.0013)	(0.002)	(0.13)	(0.06)
R-squared	0.45	0.50	0.81	0.25
Number (macro level)	171	171	163	163

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) =10,785,535;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Similar to the previous analysis for male immigrants, here the results imply that labour market structure matters for unemployment risk of both highly-educated and low-educated female immigrants (see Table 4.8). Hence, in countries with medium-skilled oriented labour markets and also with heavy bottom labour markets, the unemployment gaps between immigrants and native-born females for highly-educated as well as low-educated workers seem to become somewhat smaller. As we have seen so far, GDP change has not had any significant effect on unemployment risk of highly-educated immigrants either male or female. Nevertheless, here we see that GDP change has a statistically significant negative impact on unemployment propensity of low-educated female immigrants compared to the native-born.

On the right hand side of Table 4.8, the impacts of institutional factors on the occupational status of highly-educated and low-educated female immigrants compared to the native-born have been shown. Apparently, on average highly-educated female immigrants seem to hold less prestigious occupations than their native-born counterparts (a= - 14.2). In contrast to the previous analysis for low-educated male immigrants, here we see that there is a significant occupational gap between low-educated female immigrants and the native born (a= -22.12). As discussed before, the occupational status gaps between highly-educated female workers and the native-born become smaller in countries with general skill regimes (b=19.55) and also in countries with specific skill regimes (b=17.63). But very interestingly and converse to the analysis of males, here there is the same picture for low-educated female immigrants. In other words, it seems that low-educated female immigrants are less disadvantaged in LMEs than in CMEs and MMEs in terms of the job positions which they hold.

Regarding VOC framework main individual variables, it is evident that industrial relations institutions influence significantly immigrant-native occupational status gaps for highly-educated female workers although with different signs, but at the same time they do not have significant impact upon on gaps of low-educated female workers across countries under discussion. On the contrary, employment protection legislation appears to have not significant effects on immigrant-native employment occupational gaps for highly-educated female workers whereas it affects immigrant-native gaps for low-educated females. As it is apparent, in the countries with high job security (regular and temporary contracts and collective dismissals) low-educated female immigrants tend to fare better in the labour markets with respect to position. Other VOC individual variables (skill specificity and labour market structure) have no significant effects on immigrant-native occupational gaps for either highly-educated or low-educated workers based on the evidence of selected countries under study here. At the same time, we see that flourishing economic status has positive effect on low-educated female immigrants' job positions.

Table 4.8 Macro level factors effects on immigrant-native gaps: highly-educated vs. low-educated workers, for females in 19 selected OECD countries, 2000-2010

	Native-Immigrant Gap (Female)			
Variables	**Unemployment Risk**		**Occupational Status**	
	Highly educated	**Low educated**	**Highly educated**	**Low educated**
Intercept (difference from native-born)	0.361***	0.346**	-14.2	-22.12***
	(0.074)	(0.114)	(8.41)	(3.05)
VOC dummies (Ref. MMEs)				
LMEs	-0.069*	-0.018	19.55***	10.69***
	(0.034)	(0.043)	(3.43)	(1.27)
CMEs	-0.059*	-0.057	17.63***	4.78***
	(0.024)	(0.054)	(3.92)	(1.16)
VOC variables				
Union density	0.0002	0.0002	-0.15***	0.0001
	(0.0002)	(0.0005)	(0.04)	(0.01)
Collective bargaining coverage	0.0007*	0.002**	0.17**	0.008
	(0.0003)	(0.0006)	(0.05)	(0.01)
EPL- regular contract	-0.005	-0.014	-1.49	1.66***
	(0.011)	(0.016)	(1.24)	(0.43)
EPL- temporary contract	0.002	0.003	1.24	0.98***
	(0.008)	(0.007)	(0.72)	(0.26)
EPL- collective dismissals	-0.015	-0.024**	-0.74	1.22***
	(0.008)	(0.008)	(0.57)	(0.32)
Skill Specificity (share of VET)	0.0002	0.001*	-0.07	-0.009
	(0.0003)	(0.0005)	(0.04)	(0.02)
Demand for semi-skill jobs (ISEI 34-55)	-0.003***	-0.003**	-0.02	0.03
	(0.0008)	(0.0008)	(0.07)	(0.03)
Demand for low-skill jobs (ISEI 16-33)	-0.003***	-0.006*	-0.17	-0.01
	(0.0008)	(0.002)	(0.17)	(0.04)
Contextual variables				
GDP change (%)	0.0007	0.003*	0.09	0.17*
	(0.001)	(0.002)	(0.12)	(0.07)
R-squared	0.33	0.49	0.66	0.40
Number (macro level)	169	169	168	168

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) =11,248,872;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

4.3 SUMMARY

Besides the variations of individual characteristics (like age and education) of native and immigrant population in the receiving countries under discussion here, the descriptive results presented in this chapter indicate significant variation in immigrant-native labour market gaps of highly skilled male and female workers both within country and cross-nationally. Generally, highly skilled immigrants, on average, have higher unemployment rates and hold jobs of lower occupational status than the native-born. Hence, analyses in this chapter aimed at explaining whether cross-national variations in unemployment and occupational status gaps between immigrant and native-born populations is systematically related to variations in institutional factors of countries under discussion – in particular, skill migration policies, skill regimes, industrial relations, labour market structure and regulations, and the economic climate.

First of all, this study confirms evidently that institutional configurations and factors in host countries influence the degree of economic incorporation of immigrant workers and consequently affect immigrant-native labour market gaps especially the varying gap is evident when it comes to highly skilled immigrants. Since highly skilled immigrants are particularly disadvantaged in receiving countries' labour markets, the multivariate multilevel analyses here are mostly focused on this segment of the foreign-born population (see summary of results in Table 4.9). As the two-step multilevel linear regressions results confirm, in LMEs countries with general skill regimes, highly skilled immigrants have better employment entry chances or, in other words, are less disadvantaged compared to the native-born in terms of unemployment gaps. Hence as expected, immigrant-native unemployment gaps (inequalities) are lower in liberal market economies (LMEs) with general skill regimes (H1). This is particularly true when it comes to recent (less than 10 years since migration) male immigrants, who seem to be less disadvantaged when entering employment in the more flexible labour markets characteristic of general skill regimes of liberal market economies.

Furthermore, controlling for VOC framework selected individual variables effects, industrial relations institutions appear to be associated with negative effects on unemployment propensity of both male and female highly-educated immigrants. In other words, there is a less favourable context for immigrants in terms of employment chances in countries with high union density particularly strong collective bargaining. On the other hand, employment protection legislation (EPL) seems to have mixed effects on immigrant-native unemployment gaps. While both male and female highly educated immigrants seem to be more disadvantaged in the host countries with high job security (temporary contracts), they tend to fare better in the rigid labour markets in terms of regular contracts and collective dismissals. Consistent with our expectation,

immigrant-native unemployment risk gaps tend to increase in countries with high skill specificity which is more pronounced for highly skilled workers. Surprisingly, considering labour market skill structure, it seems that in countries with medium-skilled oriented labour markets and also with heavy bottom labour markets, the unemployment gaps between immigrants and native-born for highly-educated workers (males and females) tend to become somewhat smaller.

Consistent with our expectation (H2), the findings show that in LMEs with general skill regimes (LMEs), immigrants have better prospects of finding employment and are able to land jobs, on average, of higher occupational status than those who settled in countries with specific skill regimes (CMEs) and mixed skill systems (MMEs). Accordingly, the immigrant-native occupational gaps for both highly skilled male and female workers tend to be closer in LMEs. It should be stressed, however, that immigrants heading to the countries with specific skill regimes also show comparatively higher occupational status than immigrants in countries with mixed skill regimes (as the reference category) which it more probably relates to the heavy bottom of occupational hierarchy (low skilled oriented labour markets) in those countries. Additionally, the effects of VOC individual variables on immigrant-native occupational status are noteworthy. While industrial relations institutions have somewhat negative effects on unemployment risk of immigrants, they show mixed effects on immigrants' occupational status. Indeed, there is evidence that countries with strong collective bargaining appear to have a narrower gap in occupational status between highly skilled immigrants and the native-born. However, immigrant-native occupational status differentials tend to aggravate in countries with the higher trade union density. Regarding EPL, very interestingly and contrary to the unemployment risk gaps, we see that immigrant-native occupational status gaps tend to shrink in countries with higher protection on temporary contracts. Conversely, in countries with stricter regulation on regular contracts and collective dismissals the gaps worsen. Somewhat unexpectedly, the skill specificity appears to have positive effect (although this finding is not statistically significant) on immigrant-native job status gaps for highly skilled male workers. But as expected, it has negative effect on occupational differentials between highly skilled female immigrants and their native counterparts. Regarding labour market skill structure, the results also imply that occupational disadvantages among highly skilled immigrants are somehow higher in countries with heavy bottom and middle of occupational hierarchy which are consistent with our expectations.

According to our research results, unemployment gaps between highly skilled immigrants and native-born workers seem to be smaller in countries with hybrid migration regimes (H3). But contrary to expectations (H4), based on the evidence from the countries under discussion here, no support is found for the claim that host societies applying hybrid migration regimes are able to

remedy occupational prestige gaps between highly skilled immigrants and native-born people. At the same time, it should be noted that immigrant selectivity has a positive effect on labour market outcomes of both male and female highly educated immigrants compared to the their native counterparts among countries included in the analysis. In other words, the findings indicate that in countries which are subjected to stronger immigrant selectivity with respect to education, immigrants have better prospects of finding employment and are able to land jobs, on average, of higher occupational status than those who settled in countries with less selectivity. Finally, although the findings are not statistically significant, GDP change affects immigrant-native labour market outcome gaps differently for male and females. Interestingly, while the better economic situation seems to have positive effects on highly educated male immigrants' employment chances and occupational status, it has less desirable effects on immigrant-native gaps for female workers.

Table 4.9 Institutional factors effects on the (highly-skilled male and female) immigrant-native unemployment risk and occupational status gaps (summary)

| | | Immigrant-native Gaps | | | |
| | | Unemployment Propensity | | Occupational Status | |
		Male	Female	Male	Female
VOC Regimes (Skill regimes)	MMEs	Ref. G	Ref. G	Ref. G	Ref. G
	LMEs	Positive (*)	Positive (Not-Sig)	Positive (***)	Positive (***)
	CMEs	Positive(Not-Sig)	Positive(*)	Positive(***)	Positive (***)
Industrial Relations	Union density	Negative (Not-Sig)	Negative (Not-Sig)	Negative (***)	Negative (***)
	Collective bargaining	Negative (**)	Negative (*)	Positive (***)	Positive (***)
EPL	Regular contract	Positive (Not-Sig)	Positive (Not-Sig)	Negative (***)	Negative (Not-Sig)
	Temporary contract	Negative (Not-Sig)	Negative (Not-Sig)	Positive (Not-Sig)	Positive (Not-Sig)
	Collective dismissals	Positive (**)	Positive (Not-Sig)	Negative (***)	Negative (Not-Sig)
Skill Specificity	Share of VET	Negative (Not-Sig)	Negative (Not-Sig)	Positive (Not-Sig)	Negative (Not-Sig)
Labour Market skill structure	Size of semi-skilled sector	Positive (***)	Positive (***)	Negative (Not-Sig)	Negative (Not-Sig)
	Size of unskilled sector	Positive (**)	Positive (**)	Negative (Not-Sig)	Negative (Not-Sig)
Migration Regimes	Employment-based system	Ref. G	Ref. G	Ref. G	Ref. G
	Hybrid System	Positive (*)	Positive (*)	Negative (***)	Negative (***)
	Immigrant selectivity	Positive (Not-Sig)	Positive (Not-Sig)	Positive (**)	Positive (**)
Economic climate	GDP	Positive (Not-Sig)	Negative (Not-Sig)	Positive (Not-Sig)	Negative (Not-Sig)

Significance: * p<.05; ** p<.01; *** p<.001;
Note: Results refer to the effects from the final models (all variable of interest incorporated).

CHAPTER 5. CONCLUSION

The main purpose of this study has been to find explanation for cross country immigrant-native labour market gaps variations for highly skilled workers in Western countries with a special attention to the structural determinants of immigrants' economic inequalities. Hence, I have undertaken secondary data analysis of the time series cross sectional data for about nineteen receiving countries (16 European countries, Australia, Canada and USA) applying two-stage multilevel modelling to estimate two major outcome variables, namely the risk of being unemployed and the job status. In other words, this research focuses on how well highly skilled immigrants fare in labour markets across host countries under investigation here and, in particular, how institutional configurations may shape differences in employment chances and job positions between natives and immigrants.

The empirical findings show that in all countries studied, highly skilled immigrants (both male and female) significantly lag behind comparable natives in terms of employment chances and occupational status, in conformity with the disadvantage hypothesis. Furthermore, the results obviously indicate significant variation in immigrant-native labour market gaps of highly skilled workers both within country and cross-nationally. In fact, in this research project, I have looked at the significance of the institutional and economic contexts for immigrant-native labour market gaps variation and particularly how key institutional and migration policy variables systematically relate to one another and address this variation. In this regard, I have adopted the Varieties of Capitalism (VOC) framework which offers a systematic typology of socio-economic regimes for advanced economies (LMEs, CMEs and MMEs) and proxies the institutional configuration and labour market characteristics that may be relevant for immigrant-native labour market gaps.

As the two-step multilevel linear regressions results confirm, in LMEs countries with general skill regimes, highly skilled immigrants have better employment entry chances. Hence as expected, immigrant-native unemployment gaps are lower in liberal market economies (LMEs) compared to the CMEs and the MMEs. Also, the findings show that immigrants have better prospects of finding employment and are able to land jobs, on average, of higher occupational status in LMEs than those who settled in countries with specific skill regimes (CMEs) and mixed skill systems (MMEs). Accordingly, the immigrant-native occupational gaps for both highly skilled male and female workers tend to be closer in LMEs.

From the migration policy regimes perspective, very interestingly, the results imply that immigrant-native unemployment gaps seem to be smaller in countries with hybrid migration regimes compared to the countries with employment-based migration systems. At the same time,

contrary to our expectation, in the host societies which apply hybrid migration regimes, there tends to be a greater occupational status gap between highly skilled immigrants and native-born workers. However, it should be noted that immigrant selectivity has a positive effect on labour market outcomes of both male and female highly educated immigrants. In other words, the findings indicate that in countries which are subjected to stronger immigrant selectivity with respect to education level, immigrants have better prospects of finding employment and are able to land jobs, on average, of higher occupational status than those who settled in countries with less selectivity.

Therefore, the results seem to confirm the institutional specificity hypothesis: the immigrant-native labour market outcome gap is affected by the institutional features of the host countries. Indeed, as analyses' results exhibit the VOC types (LMEs, CMEs and MMEs) and the individual variables underpinning the VOC typology do matter for highly skilled immigrant integration in host labour markets. Compared to coordinated market economies (CMEs) and mixed market economies (MMEs), liberal market economies (LMEs) seem to attract and keep highly skilled immigrants better equipped to succeed in the labour markets. Considering skill migration policy regimes, the results are mixed especially when it comes to hybrid migration policy systems. Consistent with the earlier discussion, hybrid systems provide favourable conditions in terms of highly skilled immigrants' labour market access and employment, whereas these immigrants seem to have less desirable job positions in host countries with hybrid systems.
Hence, the results suggest that immigrant-native occupational status gaps tend to be larger in countries with hybrid systems compared to those with employment-based systems.

The empirical findings point towards a number of policy discussions and implications. Firstly, from skill migration policy perspective (conditions of entry), while some new developments like hybrid migration systems convey some promising signs for improving the labour market outcomes of the highly skilled immigrants particularly in employment chances, but they offer only partial solutions. For instance, as one of the main hypotheses under investigation, it was expected that in hybrid migration regimes (as compared to countries with employment-based regimes) immigrant-native labour market gaps between highly educated natives and immigrants would be smaller. Because as discussed before, the main idea behind the hybrid systems is to combine the advantages of both prominent skill migration systems (point-based and employment based systems) and to establish an intermediate model which is more efficient. The results show, however, that this "ideal" is not still attained in all intended labour market aspects, at least from the occupational status aspect, particularly where the job position gaps between highly skilled immigrants and indigenous population in the analysed countries with hybrid systems are greater than those countries with employment-based systems. Indeed, hybrid systems which originally adapted to

combine "selectivity" and "employability" elements of points-based and employment-based systems respectively, partly support the expectations of attaining desired goals. So in this regard, as Cornelius et al. (2004) argue and point to the "Gap Hypothesis" under which significant gaps exist between migration policies and actual policy outcomes[44], we see that there are some discrepancies between immigration objectives and outcomes. So, under gap hypothesis, while employment chances of highly skilled immigrants, as one of the main challenges towards points systems, tend to be enhanced in hybrid migration regimes, the occupational status problems seem to be unsolved yet. Nevertheless, as reflected in the results, it should be noted that the hybrid systems perform very well in terms of attracting highly skilled immigrants due to their skill selectivity element adopted from points systems. Accordingly, such migration policy frameworks favouring high-skilled migrants (more common in LMEs) may seem tempting especially in the eyes of receiving countries with employment based systems and new receiving countries suffering from either the shortage of high-skilled workers (like CMEs) or the large numbers of low-skilled immigrants (like MMEs). Consequently, there is a great tendency towards hybrid systems and several receiving countries have recently started to implement these systems.

In this sense, expectations are high about the newly adopted mechanisms (hybrid systems) for selecting the highly skilled immigrants among competitors (traditional and new receiving countries) in the international talent markets. However, it should be bear in mind that while such systems succeed in selecting desirable highly skilled migrants, they cannot necessarily prevent undesirable labour market outcomes for both immigrants and host countries. Therefore, a full understanding of the extent and the drivers of immigrants' success in a given host country with specific skill migration regime is important consideration to assess whether such experience or policy can be implemented or replicated in other host countries. In other words, for developing effective immigration policy, there is a crucial need for careful assessments of alternative selection mechanisms towards host countries and a careful scrutiny of the root causes of the difficult adaptation of highly skilled immigrants into their labour markets which eventually lead to immigrant-native gaps. This is the main rationale for why immigration countries have to fine tune and calibrate their selection systems consistent with the real demand of economy for foreign-born labour force. Moreover, as shown and discussed in previous chapter, while there are some common characteristics draw the general framework for the skill-based selecting systems, there is great heterogeneity across destination countries in terms of the technical specifications such as shortage

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[44] Moreover, according to Czaika and de Haas (2011), other different types of immigration policy gaps also can be regarded namely, the discursive gap (public discourse differs from policies on paper); the implementation gap (policies on paper differ from implementation in practice) and the efficacy gap (the gap between stated and actual effects of policies on migration).

list, labour market tests and quota system. It should be noticed, hence, destination countries quite often manipulate these specifications as instruments to regulate their migration systems with the hopes of improving the immigrants' labour market outcomes.

Secondly, as the results suggests, the host country's specific institutional arrangements (context of reception) significantly influence immigrants' labour market outcomes as well as immigrant-native gaps. As argued, human capital (skill) transferability is the main channel through the institutional arrangements affect the relative position of immigrants in the labour market. In this regard, as is evident from empirical findings, there is considerable variation in the institutional configurations across different receiving countries especially among LMEs, CMEs and MMEs. Such heterogeneous contexts of reception, for instance divergent skill regimes embedded in LMEs and CMEs with different type of institutional complementarities and coordination mechanisms, can strongly influence the extent of the immigrants' skill transferability. So, immigrants' prior credentials obtained in their origin countries are more likely in risk of devaluation or underutilization in specific skill regimes of CMEs. Skill discounting in specific skill regimes not only hinders migrant workers initial integration, but also slow down their upward occupational mobility and might block them in low skilled job positions. Conversely, immigrants' prior skills are more likely to be valued by the market and a large range of firms and employers in general skill regimes. Consequently, the higher skill transferability of migrants may ease initial integration to labour market and makes occupational advancement more feasible in general skill regimes.

As one would expect the skill transferability challenge is much more pronounced for highly skilled immigrants than low-skilled immigrants in the host countries. This is supported by the results (see Table 4.7) where there are significant effects of skill regimes (LMEs, CMEs and MMEs) on immigrant-native labour market outcome gaps for highly skilled workers, while we do not see such significant impacts on low skilled immigrants. Additionally, depending on the intensity of skill specificity, the skill regimes might have different effects on native and migrant workers labour market outcomes. For instance, in the CMEs, specific skill systems providing specific skills for native-born people through vocational education training (VET) have positive influence on the employment opportunities of school leavers as well as the speed of their transition from school to work. On the other hand, initial labour market entry and economic integration of highly skilled immigrants seems to be more difficult in specific skill regimes of CMEs due to the skill transferability problems. So there is an "immigrant-native skills dilemma" in receiving countries particularly in those with specific skill regimes. This calls for special attention of policy makers in the skilled migration policy realm especially when host countries with specific skill regimes intend to develop migration policy frameworks favouring high-skilled migrants or to adopt

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policy solutions like hybrid systems. Hence, it emphasizes the importance of awareness of the context in which migration policies are developed and in particular policy makers need to be aware of the potentially adverse side effects of skill formation and skilled migration policies that might hinder immigrants' economic integration.

All in all, one of the remarkable implications obtained from this study is that both skill migration policies (conditions of entry to a host country) and the host country's specific institutional arrangements (context of reception) have significant impacts on highly skilled immigrants' economic performance and as a consequence influence immigrant-native gaps. While skill migration policies, for instance, shape the composition of immigrants by selecting individuals with favourable labour market characteristics or define their initial access to labour markets, but returns from immigrants' characteristics and their positions in the market are mainly determined through complex interactions of the economic and structural aspects of host countries' skill regimes and other labour market institutions. This reflects the fact that, one the one hand, both skill migration policies and contextual factors might have positive or negative effects on immigrants' outcomes and therefore can facilitate or impede their integration in the host country's labour market. On the other, it also suggests that immigrant-native gaps may be due to inconsistency between skill regimes and skilled migration policies that leads to labour market inefficiencies in the host countries.

Besides, the inconsistency between contextual factors (like skill regime) and immigration policies (like skilled migration policy) might cause other serious negative economic and social outcomes for both migrant workers and the host society. In this regard, most of host countries usually apply some complementary integration policies like extensive language training, faster credential recognition, or other supportive integration initiatives in order to mitigate these side effects. Nevertheless, it is crucial to note that prevalent migration/integration policy interventions and implications from cross-country comparisons do not necessarily translate into identical and fruitful outcomes in other national contexts. In a nutshell, migration/integration policy interventions and implications are required to depend on the condition and prospects of specific groups (like skilled or unskilled workers) in specific countries (like LMEs, CMEs and MMEs) and hence need to be tailored to the host countries' specific context. So, a comprehensive, modern and effective migration/integration platform in a host country will entail customization and coordination among main elements of skill migration policies, institutional context and also supporting integration system of that country.

While this research work has mainly considered the conditions of entry and context of reception's effects on immigrant-native gaps, further research may also take the integration policies into account. Since immigrants' social and economic integration is not only about achievements at a particular point in time, but also a more complicated process of transition and integration over a long enough period of time, hence the research may adopt a more holistic approach and investigate connections and interrelations among conditions of entry (migration policies), context of reception (like skill regimes or other contextual factors) and supporting integration policies. Besides, considering research objectives of this study, a focused cross-country comparison through looking at employment and the occupational careers of highly skilled immigrants as compared to the native-born in two countries representing two contrasting migration and skill regimes or syndromes (for instance, Germany with employment-based migration system and specific skill regime versus Canada with hybrid system and general skill regime) can be very instructive and fruitful. Another important issue is sending countries' institutional setting, an often neglected area which has been detached from migration policy realities and implications although being crucial for the success of immigrants. Indeed, institutional factors such as skilled immigration policies and skill regimes and their effects on immigrant-native gaps are quite often viewed from the perspective of receiving countries, while sending countries' contextual conditions, for instance their skill regimes and consequently skill profiles of their emigrants, might have important consequences for immigrants and their destination countries. Considering all above issues, a specific suggestion for the analytic approach of future research could be looking at (highly skilled) immigrants of a single origin in multiple destination countries with contrasting institutional settings using longitudinal data (panel data). Such analysis might be able to mitigate the main methodological drawbacks and constraints of the current analysis by concentrating upon a single immigrant group in various receiving countries.

Among the various limitations and constraints towards this research, three main items should be mentioned. Firstly, it should be noted that here we cannot derive a straightforward causal relationship from empirical findings presented mainly due to the cross sectional character of the data used in this analysis[45]. Indeed, identifying the direct causal connection between institutional settings and immigrant-native gaps is not possible using the research design undertaken here, nor was this the current goal. Rather the aim has been to have a closer look at interrelations between macro level factors and the processes occurring on the highly skilled economic integration in the

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[45] Indeed, the cross sectional character of the labour force surveys data, like EU-LFS used here, lacks a dynamic perspective and allows no more than a snapshot at a particular point in time in a particular country or countries. Hence, the ambiguity in causal relationships remains unsolved (Blossfeld and Rohwer, 1995; Kogan, 2007).

host countries resulting in immigrant-native gaps. In this sense, this study primarily indicates the potential of institutional factors for analysing the highly skilled immigrants' labour market inclusion processes which leads to merely correlational accounts.

Secondly, the study does not distinguish explicitly what proportion of immigrant-native gaps variation is being explained by either contextual factors (at macro-level) or individual characteristics (micro-level) which is usually expected to be explained in a multilevel analysis. Indeed, due to some methodological considerations especially for the sake of simplicity of the data management for the very large-size microdata used in this analysis, an explicit trade-off decision has been made between gaining more stable reliability estimates (as basically intended here by applying two-stage multilevel modelling) and disentangling the proportion of variation across the levels (by using simultaneous multilevel modelling).

Besides the inferential and methodological constraints, there are some limitations towards labour force surveys as the main data sources used in this analysis. Actually, the labour force surveys (LFS), as the best existing source of standardised and comparable microdata across various receiving countries under discussion here, not only provide large sample sizes covering immigrant population together with core demographic and educational background information, but also allow the study of ethnic subgroups as well as the analysis of gender differences. Nevertheless, labour force surveys suffer from some deficiencies relevant to the representation and recognition of distinct ethnic minorities in the labour market particularly recent immigrants. In fact, it is to be expected that different groups of immigrants might be under-represented in the labour force surveys especially of those countries in which survey participation is voluntary. So, it more likely results in neglecting or under-sampling of some immigrant groups like precarious migrant workers, recently arrived asylum seekers or illegal immigrants. On the other hand, the labour force surveys do not capture the full information in the nature of immigration inflow into host countries in a more precise manner particularly the information classifying the immigrants based on their main entry channel (work, family, study or humanitarian). In this regard, the immigrant groups analysed here might have heterogeneous profile of entry and especially their composition is diverse to consider them fully comparable. Hence, such under-representation and/or under-recognition of different immigrant groups may more probably lead us to an unavoidable bias into any models of immigrant economic integration. Accordingly, the making of a reliable comparable microdata source that permits a sophisticated cross-country analysis of different ethnic minorities remains still as a major challenge for comparative migration studies as well as migration-related policies.

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ANNEXES

Annex 1. Educational attainment of male immigrants and the native-born population (aged 15-64) in selected OECD countries (in percentages), 2000-2010

High

Medium

Low
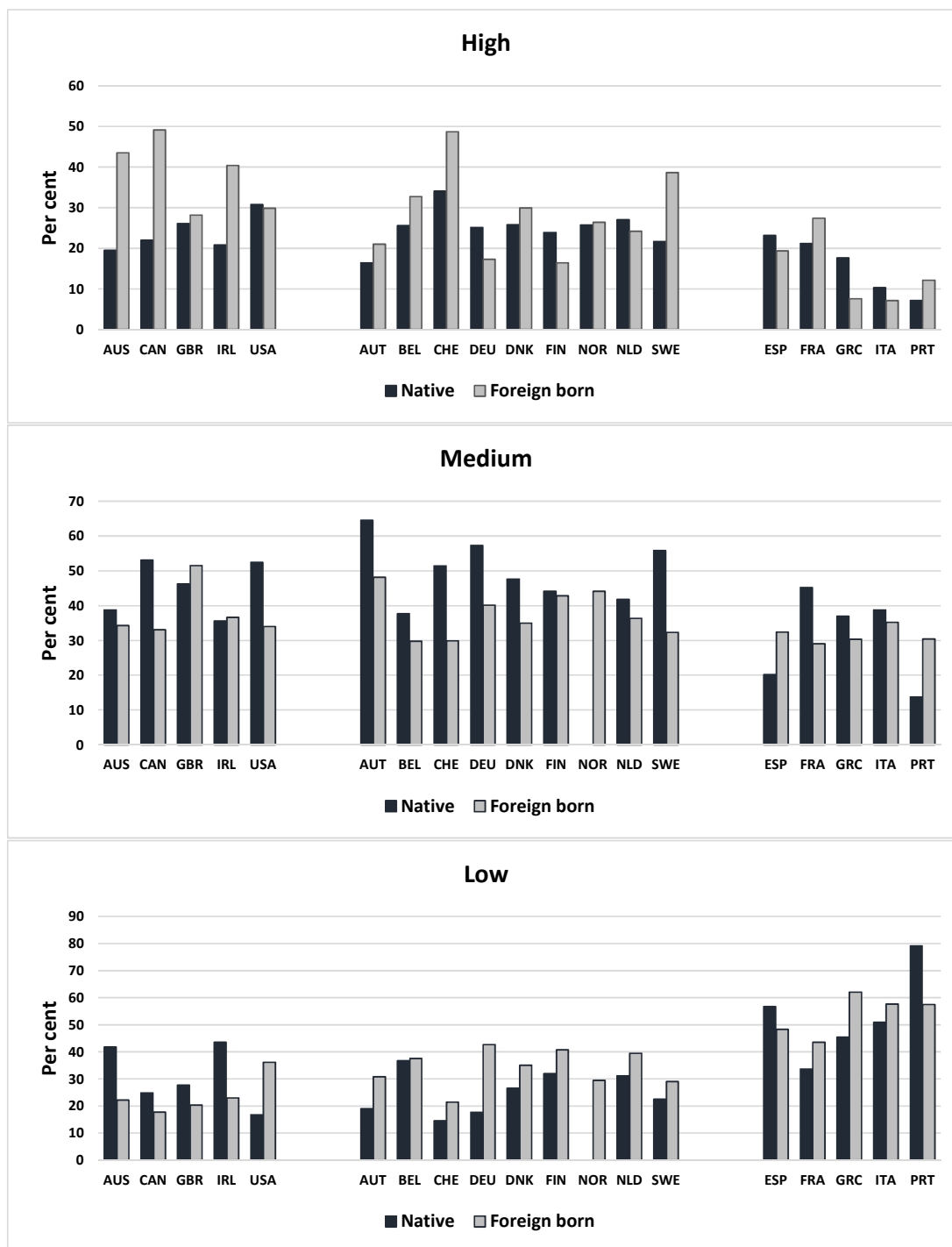
Source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex 2. Educational attainment of female immigrants and the native-born population (aged 15-64) in selected OECD countries (in percentages), 2000-2010

High

Per cent — axis 0 to 50

Native / Foreign born

Countries: AUS CAN GBR IRL USA | AUT BEL CHE DEU DNK FIN NOR NLD SWE | ESP FRA GRC ITA PRT

Medium

Per cent — axis 0 to 70

Native / Foreign born

Countries: AUS CAN GBR IRL USA | AUT BEL CHE DEU DNK FIN NOR NLD SWE | ESP FRA GRC ITA PRT

Low

Per cent — axis 0 to 80

Native / Foreign born

Countries: AUS CAN GBR IRL USA | AUT BEL CHE DEU DNK FIN NOR NLD SWE | ESP FRA GRC ITA PRT
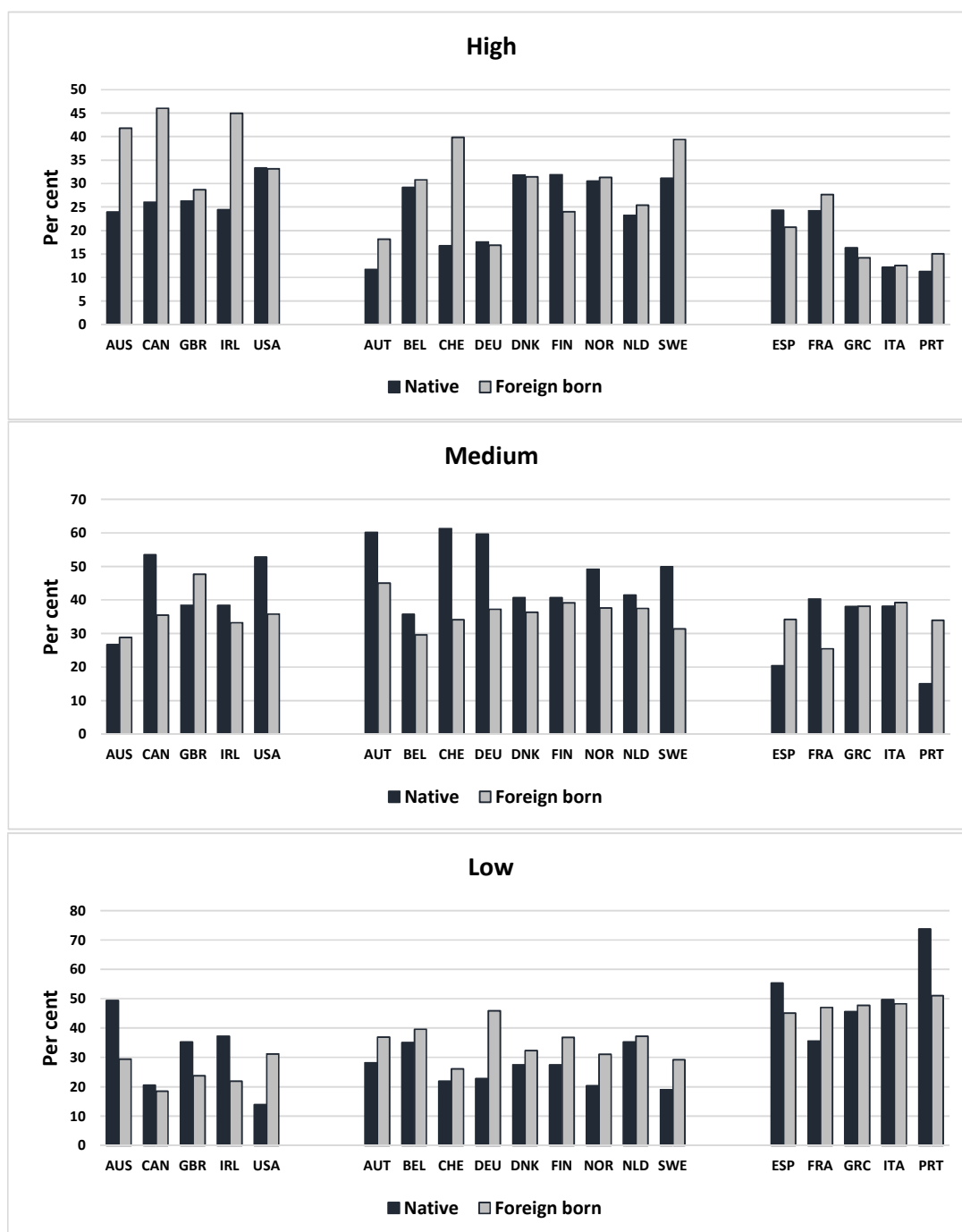
Source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex 3. Unemployment rates (in percentages) among immigrants and the native-born for different educational level in selected OECD countries (For Male), 2000-2010
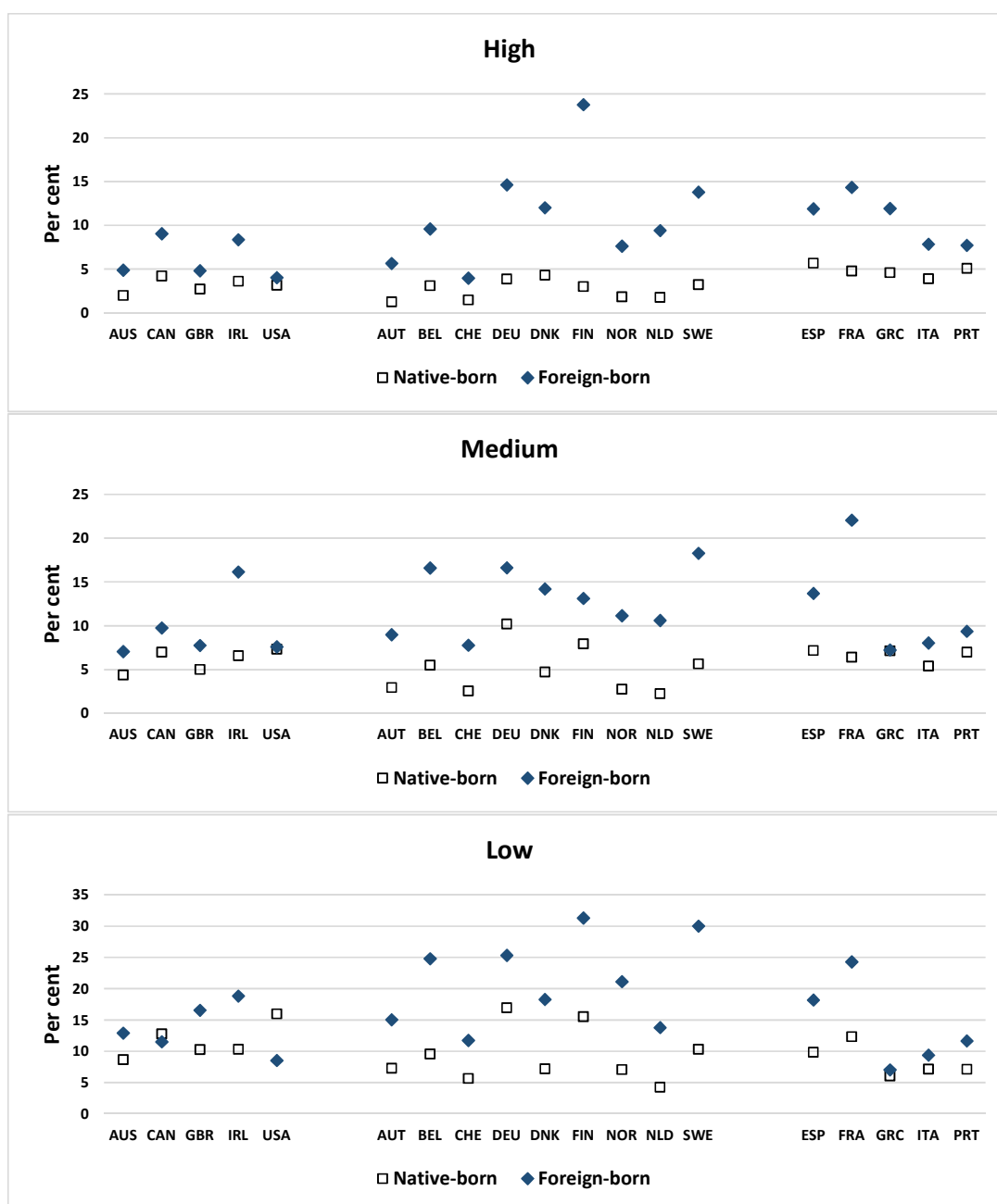
Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex 4. Occupational status (ISEI) of immigrants and the native-born for different educational level in selected OECD countries (For Male), 2000-2010

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

142
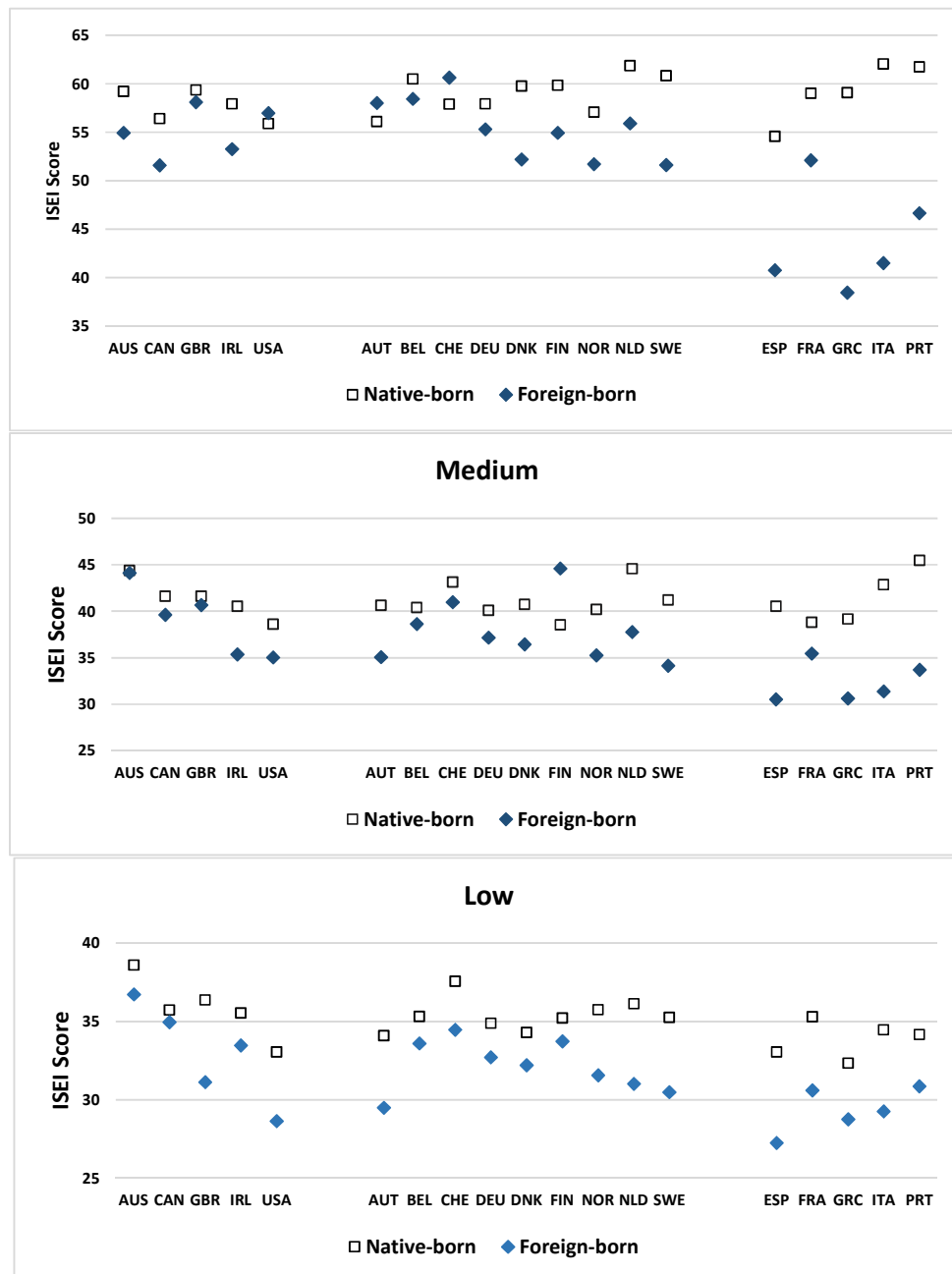
Annex 5. Unemployment rates (in percentages) among immigrants and the native-born for different educational level in selected OECD countries (For Female), 2000-2010
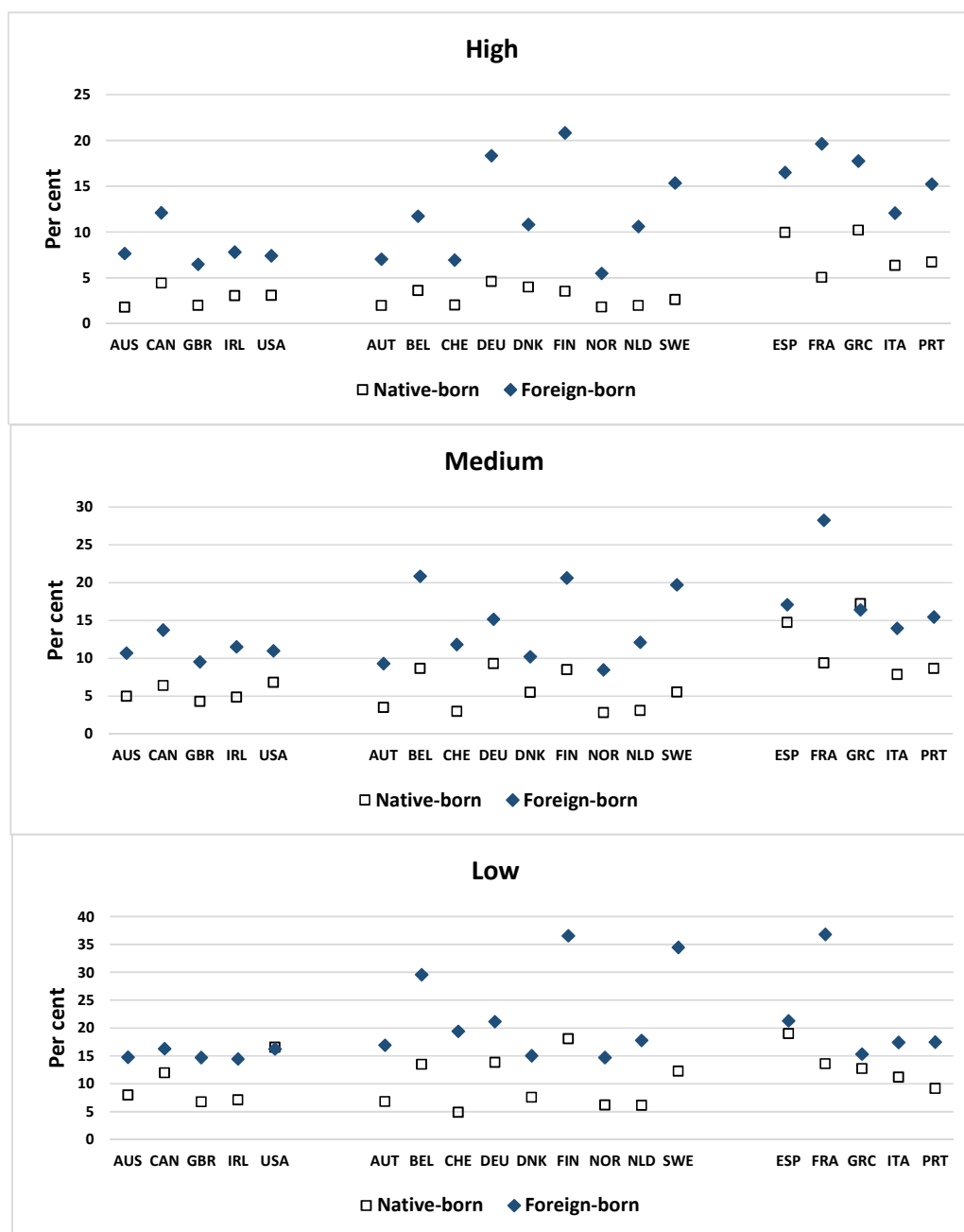
Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex 6. Occupational status (ISEI) of immigrants and the native-born for different educational level in selected OECD countries (For Female), 2000-2010
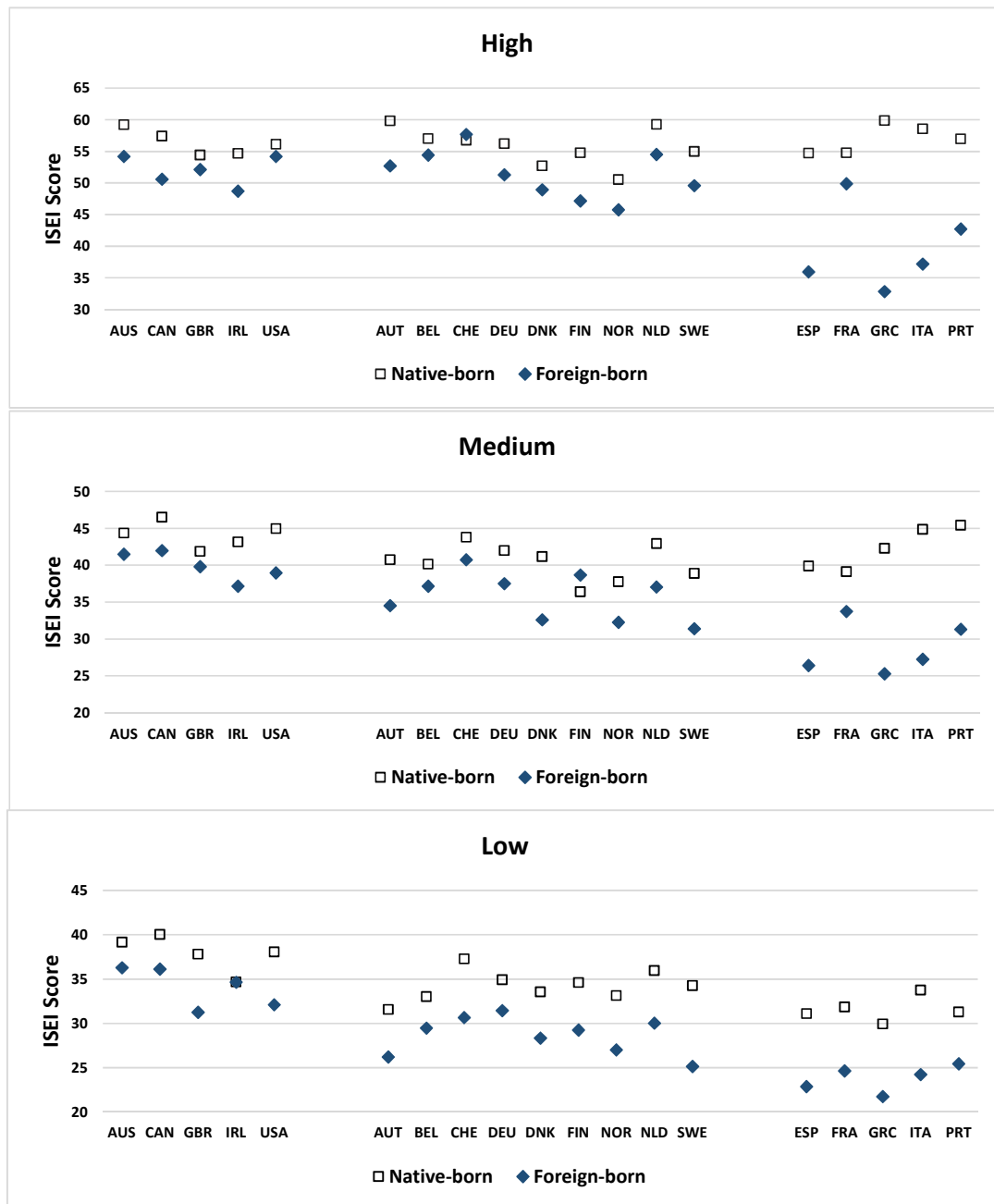
Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex7. Immigrant-native unemployment rate gaps (in percentages) for different educational level in selected OECD countries, 2000-2010 (pooled)
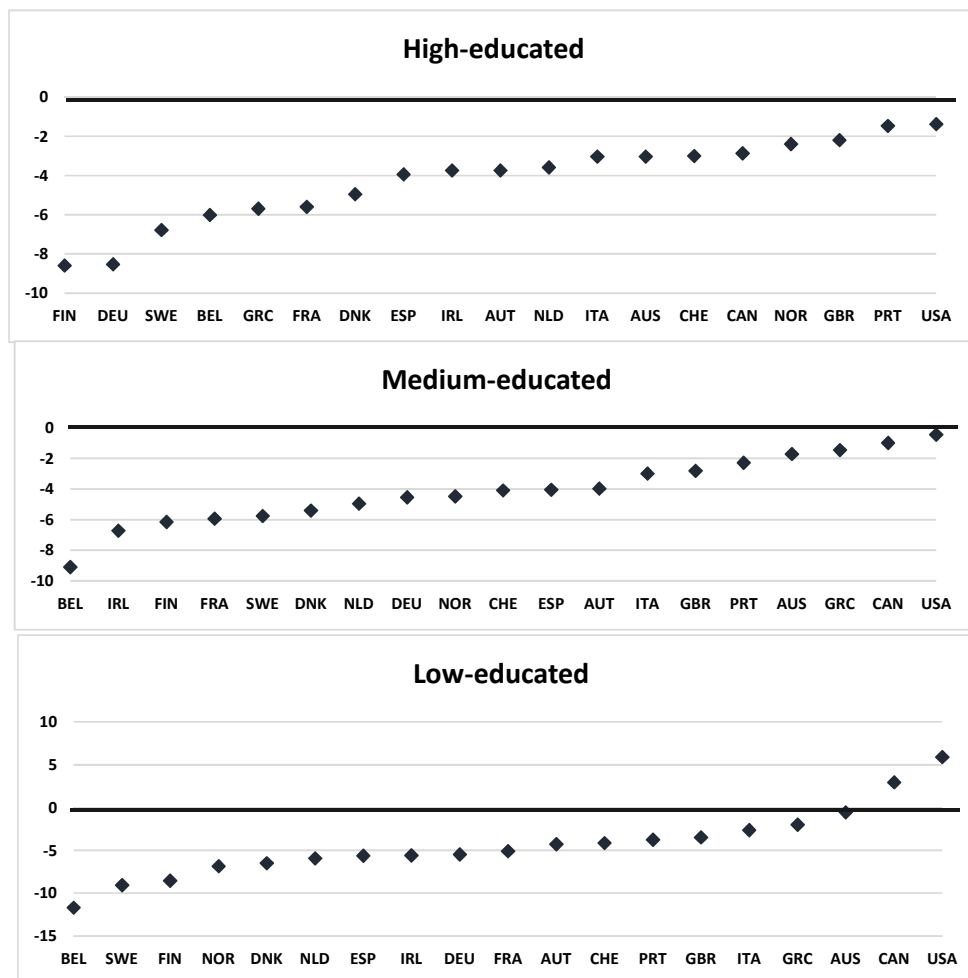
Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex 8. Immigrant-native unemployment rate gaps (in percentages) for highly skilled immigrants (old immigrants vs. new immigrants) in selected OECD countries, 2000-2010 (pooled)
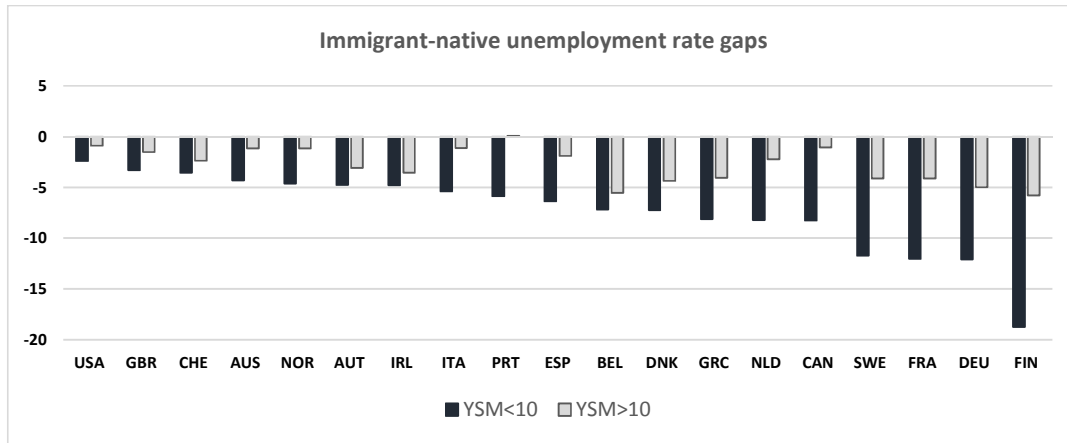
Annex 9. ISEI Scores for the International Standard Classification of Occupations (ISCO-88-4 digit)

No.	Code				Classification	ISEI
	1-digit	2-dig.	3-dig.	4-dig.		
1	1000				LEGISLATORS, SENIOR OFFICIALS & MANAGERS	55
2		1100			LEGISLATORS & SENIOR OFFICIALS	70
3			1110		LEGISLATORS [incl. Member of Parliament, Member of Local Council]	77
4			1120		SENIOR [NATIONAL] GOVERNMENT OFFICIALS [incl. Minister, Ambassador]	77
5			1130		[SENIOR LOCAL GOVERNMENT OFFICIALS] [incl. Local Government Senior Officials, Mayor]	66
6			1140		SENIOR OFFICIALS SPECIAL-INTEREST ORGANIZATIONS	58
7		1200			CORPORATE MANAGERS [LARGE ENTERPRISES]	68
8			1210		[LARGE ENTERPRISES] DIRECTORS & CHIEF EXECUTIVES [incl. CEO, Large Business Owner 251 employees]	70
9			1220		[LARGE ENTERPRISE OPERATION] DEPARTMENT MANAGERS [incl. Manager in establishment with 251 employees]	67
10			1230		[LARGE ENTERPRISES] OTHER DEPARTMENT MANAGERS	61
11			1240		OFFICE MANAGERS [incl. Clerical Supervisor]	58
12			1250		MILITARY OFFICERS	64
13		1300			[SMALL ENTERPRISE] GENERAL MANAGERS	51
14			1310		[SMALL ENTERPRISE] GENERAL MANAGERS [incl. Businessman, Trader, Manager nfs]	51
15	2000				PROFESSIONALS	70
16		2100			PHYSICAL, MATHEMATICAL & ENGINEERING SCIENCE PROFESSIONALS	69
17			2110		PHYSICISTS, CHEMISTS & RELATED PROFESSIONALS	74
18			2120		MATHEMATICIANS, STATISTICIANS, ETC. PROFESSIONALS	71
19			2130		COMPUTING PROFESSIONALS	71
20			2140		ARCHITECTS, ENGINEERS, ETC. PROFESSIONALS	73
21		2200			LIFE SCIENCE & HEALTH PROFESSIONALS	80
22			2210		LIFE SCIENCE PROFESSIONALS	78
23			2220		HEALTH PROFESSIONALS (EXCEPT NURSING)	85
24			2230		NURSING & MIDWIFERY PROFESSIONALS [incl. Registered Nurses, Registered Midwives, Nurse nfs]	43
25		2300			TEACHING PROFESSIONALS	69
26			2310		HIGHER EDUCATION TEACHING PROFESSIONALS [incl. University Professor]	77

No.	Code				Classification	ISEI
	1-digit	2-dig.	3-dig.	4-dig.		
27			2320		SECONDARY EDUCATION TEACHING PROFESSIONALS	69
28			2330		PRIMARY & PRE-PRIMARY EDUCATION TEACHING PROFESSIONALS	66
29			2340		SPECIAL EDUCATION TEACHING PROFESSIONALS [incl. Remedial Teacher, Teacher of the Blind]	66
30			2350		OTHER TEACHING PROFESSIONALS	66
31		2400			**OTHER PROFESSIONALS [incl. Professional nfs, Administrative Professional]**	68
32			2410		BUSINESS PROFESSIONALS	69
33			2420		LEGAL PROFESSIONALS	85
34			2430		ARCHIVISTS, LIBRARIANS, ETC. INFORMATION PROFESSIONALS	65
35			2440		SOCIAL SCIENCE, ETC. PROFESSIONALS	65
36			2450		WRITERS & CREATIVE OR PERFORMING ARTISTS	61
37			2460		RELIGIOUS PROFESSIONALS [incl. Priest, Chaplain, Theologian, Professional Nun]	53
38	3000				**TECHNICIANS AND ASSOCIATE PROFESSIONALS**	54
39		3100			**PHYSICAL & ENGINEERING SCIENCE ASSOCIATE PROFESSIONALS**	50
40			3110		PHYSICAL & ENGINEERING SCIENCE TECHNICIANS	49
41			3120		COMPUTER ASSOCIATE PROFESSIONALS	52
42			3130		OPTICAL & ELECTRONIC EQUIPMENT OPERATORS	52
43			3140		SHIP & AIRCRAFT CONTROLLERS & TECHNICIANS	57
44			3150		SAFETY & QUALITY INSPECTORS	50
45		3200			**LIFE SCIENCE & HEALTH ASSOCIATE PROFESSIONALS**	48
46			3210		LIFE SCIENCE TECHNICIANS, ETC. ASSOCIATE PROFESSIONALS	50
47			3220		MODERN HEALTH ASSOCIATE PROFESSIONALS EXCEPT NURSING	55
48			3230		NURSING & MIDWIFERY ASSOCIATE PROFESSIONALS	38
49			3240		TRADITIONAL MEDICINE PRACTITIONERS & FAITH HEALERS	49
50		3300			**TEACHING ASSOCIATE PROFESSIONALS**	38
51			3310		PRIMARY EDUCATION TEACHING ASSOCIATE PROFESSIONALS [incl. Teacher's Aid]	38
52			3320		PRE-PRIMARY EDUCATION TEACHING ASSOCIATE PROFESSIONALS [incl. Kindergarten Teacher's Aid]	38
53			3330		SPECIAL EDUCATION TEACHING ASSOCIATE PROFESSIONALS	38
54			3340		OTHER TEACHING ASSOCIATE PROFESSIONALS	38
55		3400			**OTHER ASSOCIATE PROFESSIONALS**	55
56			3410		FINANCE & SALES ASSOCIATE PROFESSIONALS	55
57			3420		BUSINESS SERVICES AGENTS AND TRADE BROKERS	55
58			3430		ADMINISTRATIVE ASSOCIATE PROFESSIONALS	54
59			3440		CUSTOMS, TAX, ETC. GOVERNMENT ASSOCIATE PROFESSIONALS [incl. Administrative Associate Professional, Executive Civil Servants nfs, Public Administrator]	56
60			3450		POLICE INSPECTORS & DETECTIVES/[ARMY]	56
61			3460		SOCIAL WORK ASSOCIATE PROFESSIONALS	43
62			3470		ARTISTIC, ENTERTAINMENT & SPORTS ASSOCIATE PROFESSIONALS	52
63			3480		RELIGIOUS ASSOCIATE PROFESSIONALS [incl. Evangelist, Lay Preacher, Salvationist]	38
64	4000				**CLERKS**	45
65		4100			**OFFICE CLERKS [incl. Clerk nfs, Government Office Clerk nfs]**	45
66			4110		SECRETARIES & KEYBOARD-OPERATING CLERKS	51
67			4120		NUMERICAL CLERKS	51
68			4130		MATERIAL-RECORDING & TRANSPORT CLERKS	36
69			4140		LIBRARY, MAIL, ETC. CLERKS	39
70			4190		OTHER OFFICE CLERKS [incl. Address Clerk, Timekeeper, Office Boy, Photocopy Machine Operator]	39
71		4200			**CUSTOMER SERVICES CLERKS [incl. Customer Service Clerk nfs]**	49
72			4210		CASHIERS, TELLERS, ETC. CLERKS	48
73			4220		CLIENT INFORMATION CLERKS	52
74	5000				**SERVICE WORKERS & SHOP & MARKET SALES WORKERS**	40

No.	Code				Classification	ISEI
	1-digit	2-dig.	3-dig.	4-dig.		
75		5100			**PERSONAL & PROTECTIVE SERVICES WORKERS**	**38**
76			5110		TRAVEL ATTENDANTS, ETC.	**34**
77			5120		HOUSEKEEPING & RESTAURANT SERVICES WORKERS	**32**
78			5130		PERSONAL CARE, ETC. WORK	**25**
79			5140		OTHER PERSONAL SERVICES WORKERS	**30**
80			5150		ASTROLOGERS, FORTUNE-TELLERS, ETC. WORKERS	**43**
81			5160		PROTECTIVE SERVICES WORKERS	**47**
82		5200			**[SALESPERSONS, MODELS & DEMONSTRATORS]**	**43**
83			5210		FASHION & OTHER MODELS [incl. Mannequin, Artist's Model]	**43**
84			5220		SHOP SALESPERSONS & DEMONSTRATORS [incl. Shop Assistant, Gas Station Attendant, Retail Assistant]	**43**
85			5230		STALL & MARKET SALESPERSONS	**37**
86	6000				**SKILLED AGRICULTURAL & FISHERY WORKERS**	**23**
87		6100			**MARKET-ORIENTED SKILLED AGRICULTURAL & FISHERY WORKERS** **[This category includes skilled farm workers and self-employed small farmers who have no employees.]**	**23**
88			6110		MARKET GARDENERS & CROP GROWERS	**23**
89			6120		MARKET-ORIENTED ANIMAL PRODUCERS, ETC. WORKERS	**23**
90			6130		MARKET-ORIENTED CROP & ANIMAL PRODUCERS	**23**
91			6140		FORESTRY, ETC. WORKERS	**22**
92			6150		FISHERY WORKERS, HUNTERS & TRAPPERS	**28**
93		6200			**SUBSISTENCE AGRICULTURAL & FISHERY WORKERS**	**16**
94			6210		SUBSISTENCE AGRICULTURAL & FISHERY WORKERS	**16**
95	7000				**CRAFT, ETC. TRADES WORKERS**	**34**
96		7100			**EXTRACTION & BUILDING TRADES WORKERS**	**31**
97			7110		MINERS, SHOTFIRERS, STONE CUTTERS & CARVERS	**30**
98			7120		BUILDING FRAME, ETC. TRADES WORKERS	**30**
99			7130		BUILDING FINISHERS, ETC. TRADES WORKERS	**34**
100			7140		PAINTERS, BUILDING STRUCTURE CLEANERS, ETC. TRADES WORKERS	**29**
101		7200			**METAL, MACHINERY, ETC. TRADES WORKERS**	**34**
102			7210		METAL MOLDERS, WELDERS, SHEETMETAL WORKERS STRUCTURAL METAL	**31**
103			7220		BLACKSMITHS, TOOL-MAKERS, ETC. TRADES WORKERS	**35**
104			7230		MACHINERY MECHANICS & FITTERS	**34**
105			7240		ELECTRICAL & ELECTRONIC EQUIPMENT MECHANICS & FITTERS	**40**
106		7300			**PRECISION, HANDICRAFT, PRINTING, ETC. TRADES WORKERS**	**34**
107			7310		PRECISION WORKERS IN METAL, ETC. MATERIALS	**38**
108			7320		POTTERS, GLASS-MAKERS, ETC. TRADES WORKERS	**28**
109			7330		HANDICRAFT WORKERS IN WOOD, TEXTILE, LEATHER, ETC.	**29**
110			7340		PRINTING, ETC. TRADES WORKERS	**40**
111		7400			**OTHER CRAFT, ETC. TRADES WORKERS**	**33**
112			7410		FOOD PROCESSING, ETC. TRADES WORKERS	**30**
113			7420		WOOD TREATERS, CABINET-MAKERS, ETC. TRADES WORKERS	**33**
114			7430		TEXTILE, GARMENT, ETC. TRADES WORKERS	**36**
115			7440		PELT, LEATHER & SHOEMAKING TRADES WORKERS	**31**
116		7500			**[SKILLED WORKERS NFS]**	**42**
117			7510		[MANUAL FOREMEN NFS—NON-FARM]	**42**
118			7520		[SKILLED WORKERS NFS] [incl. Craftsman, Artisan, Tradesman]	**38**
119			7530		[APPRENTICE SKILLED WORK NFS]	**26**
120	8000				**PLANT & MACHINE OPERATORS & ASSEMBLERS**	**31**
121		8100			**STATIONARY-PLANT, ETC. OPERATORS**	**30**
122			8110		MINING- & MINERAL-PROCESSING PLANT OPERATORS	**35**
123			8120		METAL-PROCESSING PLANT OPERATORS	**30**

No.	Code				Classification	ISEI
	1-digit	2-dig.	3-dig.	4-dig.		
124			8130		GLASS, CERAMICS, ETC. PLANT OPERATORS	22
125			8140		WOOD-PROCESSING & PAPERMAKING PLANT OPERATORS	27
126			8150		CHEMICAL-PROCESSING PLANT OPERATORS	35
127			8160		POWER-PRODUCTION, ETC. PLANT OPERATORS	32
128			8170		AUTOMATED ASSEMBLY-LINE & INDUSTRIAL-ROBOT OPERTORS	26
129		**8200**			**MACHINE OPERATORS & ASSEMBLERS**	32
130			8210		METAL- & MINERAL-PRODUCTS MACHINE OPERATORS	36
131			8220		CHEMICAL-PRODUCTS MACHINE OPERATORS	30
132			8230		RUBBER- & PLASTIC-PRODUCTS MACHINE OPERATORS	30
133			8240		WOOD-PRODUCTS MACHINE OPERATORS	29
134			8250		PRINTING, BINDING & PAPER-PRODUCTS MACHINE OPERATORS	38
135			8260		TEXTILE, FUR & LEATHER-PRODUCTS MACHINE OPERATORS	30
136			8270		FOOD, ETC. PRODUCTS MACHINE OPERATORS	29
137			8280		ASSEMBLERS	31
138			8290		OTHER MACHINE OPERATORS & ASSEMBLERS	26
139		**8300**			**DRIVERS & MOBILE-PLANT OPERATORS**	32
140			8310		LOCOMOTIVE-ENGINE DRIVERS, ETC. WORKERS	36
141			8320		MOTOR-VEHICLE DRIVERS [incl. Driver nfs]	34
142			8330		AGRICULTURAL & OTHER MOBILE PLANT OPERATORS	26
143			8340		SHIPS DECK CREWS, ETC. WORKERS [incl. Boatman, Deck Hand, Sailor, Ship Deck Ratings]	32
144		**8400**			**SEMISKILLED WORKERS NFS [incl. Production Process Worker nfs, Factory Worker nfs]**	24
145	**9000**				**ELEMENTARY OCCUPATIONS**	20
146		**9100**			**SALES & SERVICES ELEMENTARY OCCUPATIONS**	25
147			9110		STREET VENDORS, ETC. WORKERS	29
148			9120		STREET SERVICES ELEMENTARY OCCUPATIONS [incl. Billposter, Shoe shiner, Car Window Washer]	28
149			9130		DOMESTIC, ETC. HELPERS, CLEANERS & LAUNDERERS	16
150			9140		BUILDING CARETAKERS, WINDOW, ETC. CLEANERS	23
151			9150		MESSENGERS, PORTERS, DOORKEEPERS, ETC. WORKERS	27
152			9160		GARBAGE COLLECTORS, ETC. LABORERS	23
153		**9200**			**AGRICULTURAL, FISHERY, ETC. LABORERS**	16
154			9210		AGRICULTURAL, FISHERY, ETC. LABORERS	16
155		**9300**			**LABORERS IN MINING, CONSTRUCTION, MANUFACTURING & TRANSPORT [incl. Unskilled Worker nfs]**	23
156			9310		MINING & CONSTRUCTION LABORERS	21
157			9320		MANUFACTURING LABORERS	20
158			9330		TRANSPORT LABORERS & FREIGHT HANDLERS	29

Source: Ganzeboom and Treiman (1996)

Annex 10. ISEI Scores for Canada National Occupational Classification for Statistics [NOC-S]-2001

NO	NOC-S Code		ISCO-88	ISEI Score
1	A0	Senior management occupations	1100	**70**
2	A1, A2, A3	Other management occupations	1200, 1300	**68,51, (60)**
3	B0	Professional occupations in business and finance	2400	**68**
4	B1, B2, B3	Financial, secretarial and administrative occupations	3400	**55**
5	B4, B5	Clerical occupations and clerical supervisors	4100	**45**
6	C0, C1	Occupations in natural and applied sciences	2100, 3100	**69, 50(60)**
7	D0,D1	Professional occupations in health, registered nurses and supervisors	2200,2230	**80,43 (62)**
8	D2, D3	Technical, assisting and related occupations in health	3200	**48**
9	E0	Occupations in social science, government services and religion	2420, 2440	**85, 65(75)**
10	E1	Teachers and professors	2300	**69**
11	F0, F1	Occupations in art, culture, recreation and sport	2450, 3470	**61,52 (57)**
12	G0,G1	Wholesale, technical, insurance, real estate sales specialists	3410, 3420	**55**
13	G2,G3	Retail trade supervisors, salespersons, sales clerks and cashiers	4200	**49**
14	G4,G5	Chefs and cooks, supervisors, and other occupations in food	5120	**32**
15	G6	Occupations in protective services	5160	**47**
16	G8	Childcare and home support workers	5130	**25**
17	G7,G9	Service supervisors, occupations in travel and accommodation	5110, 5140	**34,30(32)**
18	H0	Contractors and supervisors in trades and transportation	7500	**42**
19	H1	Construction trades	7100	**31**
20	H2, H3, H4,H5	Other trades occupations	7200, 7300, 7400	**34, 33,33 (33)**
21	H6, H7	Transport and equipment operators	8300	**32**
22	H8	Trades helpers, construction, and transportation labourers and related occupations	9300	**23**
23	I0, I1, I2	Occupations unique to primary industries	6100, 8100, 9200	**23, 30,16(23)**
24	J0,J1,J2	Supervisors, machine operators and assemblers in manufacturing	8200	**32**
25	J3	Labourers in processing, manufacturing and utilities	9300	**23**

Source: Own calculation on the basis of Ganzeboom and Treiman (1996)

Annex 11. ISEI Scores for Canada National Occupational Classification for Statistics [NOC-S]-2011

NO.	Code	NOCS 2011	ISCO-2008 (ISEI2008)	Average ISEI 2008
1	00	Senior Management Occupations	1111 (68), 1112(70), 1113 (57), 1114(68), 1120(68)	**67**
2	01-05	Specialized middle management occupations	1211(68), 1212(68), 1213(68), 1219(63), 1221(66), 1222(67), 1223(79), 1324(57), 1330(70), 1342(59), 1343(59), 1346(59), 1349(59), 1431(59), 1439(59).	**65**
3	06	Middle management occupations in retail and wholesale trade and customer service	1221(66), 1411(43), 1412(47), 1420(56), 1431(59), 1439(59), 4213(70), 5152(33), 5221(45).	**49**
4	07-09	Middle management occupations in trades, transportation, production and utilities	1219(63),1311(60), 1312(60), 1321(63), 1322(60), 1323(59), 1324(57),1431(59), 1439(59), 6111(16), 6112(21), 6113(24), 6114(14), 6121(23), 6122(20), 6123(29), 6129(27), 6130(18), 6221(18), 7111(40).	**40**
5	11	Professional occupations in business and finance	2411(66), 2412(66), 2413(66), 2421(59), 2423(58), 2424(59), 2431(64), 2432(64), 3311(67), 3312(51), 3324(54), 3339(57).	**61**

NO.	Code	NOCS 2011	ISCO-2008 (ISEI2008)	Average ISEI 2008
6	12	Administrative and financial supervisors and administrative occupations	3252(45), 3314(63),3323(52), 3331(54), 3332(56), 3333(55), 3334(57), 3341(57), 3342(47), 3343(49), 3344(49), 3351(63), 3352(61), 3353(50), 3354(52), 3411(52), 4120(42), 4131(42), 4415(40), 7321(38), 9623(34).	51
7	13	Finance, insurance, distribution, tracking, scheduling and related business administrative occupations	3313 (47), 3315(52), 3321(57), 3324(54), 3331(54).	53
8	14	Office support occupations	3252(45), 3354(52), 3411(52), 4110(41), 4131(42), 4132(36), 4214(46), 4223(34), 4226(37),4227(37), 4229(37), 4311(45), 4312(52), 4313(47), 4411(42), 4413(42), 4414(45), 4415(40), 4416(40), 4419(40), 7321(38), 9623(34)	42
9	21	Professional occupations in natural and applied sciences	2111(79),2112(70), 2113(76), 2114(80),2120(73), 2131(71), 2132(64), 2133(67), 2141(65), 2142(76), 2143(72) 2144(69), 2145(71), 2146(74), 2149(70), 2151(74), 2152(75), 2153(74), 2161(71), 2162(60), 2164(60), 2165(67), 2166(60), 2511(70), 2512(70), 2513(70), 2514(70), 2519(70), 2521(68), 2523(68), 2529(68).	71
10	22	Technical occupations related to natural and applied sciences	2132(71), 2133(67), 2162(60), 2163(51), 2165(67), 2519(70), 2522(68), 3111(49),3112(55),3113(51), 3114(53), 3115(52), 3116(52),3117(59), 3118(49), 3119(50), 3139(35), 3141(47) 3142(48), 3143(47), 3151(55),3152(47), 3153(74), 3154(67), 3155(66), 3257(50), 3259(45), 3359(55), 3511(56),3512(60), 3513(50), 3514(50), 3522(46), 4323(41), 5419(38), 6113(24), 6210(26), 6221(18), 7311(38),7412(42), 7421(45), 7422(41).	51
11	30-31	Professional occupations in health (including nursing)	2211(89), 2212(89), 2221(42), 2222(52), 2230(49), 2240(51), 2250(71), 2261(86), 2262(69), 2264(55), 2265(53), 2266(51), 2267(58), 2269(64), 3259(45).	62
12	32-34	Technical and assisting occupations in health (including nursing)	2230(49), 3211(51), 3212(45), 3213(40), 3214(45), 3221(48), 3230(42), 3240(30), 3251(43), 3254(48), 3255(40), 3256(46), 3258(45), 3259(45), 5321(28), 5329(26), 7311(38), 7549(32).	42
13	40	Professional occupations in education services	2310(76), 2320(65), 2330(71), 2341(61), 2352(58), 2353(54), 2356(54), 2359(54).	62
14	41	Professional occupations in law and social, community and government services	2132(64), 2133(67), 2263(66), 2351(67), 2422(62), 2423(58), 2431(64), 2611(85), 2612(88), 2619(72), 2631(72), 2632(75), 2633(76), 2634(74), 2635(59), 2636(53), 2643(68).	69
15	42	Professional occupations in legal, social, community and education services	2342(47), 2352(58), 2359(54), 3253(45), 3353(50), 3354(52), 3411(52), 3412(42), 3413(31), 5165(33), 5311(26).	45
16	43-44	Public protections, care providers, educational, legal and protection support occupations	0210(53), 0310(30), 3112(55), 3119(50), 3355(54), 3411(52), 5152(33), 5311(26), 5312(38), 5322(24), 5411(49), 5412(53), 5413(49), 5419(38).	44
17	51-52	Professional and technical occupations in art, culture, recreation and sport	2163(51), 2166(60), 2354(54), 2355(54), 2359(54), 2431(64), 2621(55), 2622(55), 2641(65), 2642(65), 2643(68), 2651(51), 2652(50), 2653(53), 2654(63), 2655(64), 2656(47), 2659(41), 3421(46), 3422(46), 3423(46), 3431(50), 3432(47), 3433(47), 3435(45), 3521(46), 5113(41), 5241(37), 5419(38), 7113(31), 7215(26), 7312(42), 7313(36), 7314(29), 7315(35), 7316(30), 7317(33), 7318(25), 7319(34), 7532(27), 7533(24).	46
18	62	Retail sales supervisors and specialized sales occupations	2433(64), 2434(64), 3312(51), 3321(57), 3323(52), 3334(57), 5222(40).	55
19	63	Service supervisors and specialized service occupations	3341(57), 3434(47), 4212(46), 4221(42), 4224(37), 5111(44), 5113(41), 5120(27), 5131(28), 5141(32), 5151(33), 5152(33), 5153(26), 5163(37), 5246(25), 5414(27), 7133(48), 7311(38), 7313(36), 7511(29), 7534(29), 7512(29), 7531(24), 7536(27), 8157(24), 9112(16), 9122(20), 9123(20), 9129(20), 9411(20), 9621(30), 9629(20),	32

NO.	Code	NOCS 2011	ISCO-2008 (ISEI2008)	Average ISEI 2008
20	64	Sales representatives and salespersons- wholesale and retail trade.	3322(55), 3339(57), 5211(31), 5223(31), 5249(25).	40
21	65	Service representatives and other customer and personal services occupations	3411(52), 3435(45), 4211(44), 4212(46), 4221(42), 4222(37), 4224(37), 4225(37), 5111(44), 5113(41), 5131(28), 5132(30), 5142(32), 5161(43), 5164(33), 5169(34), 5414(27), 5419(38), 9332(31).	38
22	66	Sales support occupations	5230(31), 5242(41), 5243(34), 5244(35), 5245(17), 5249(25), 9334(20), 9520(26).	29
23	67	Service support and other service occupations, n.e.c.	5111(44), 5152(33), 5153(26), 5162(24), 5212(23), 5246(25), 7133(48), 8157(24), 8322(36), 8342(35), 8343(35), 9111(17), 9112(16), 9121(19), 9122(20), 9123(20), 9129(20), 9331(21), 9411(20), 9412(10), 9510(22), 9613(17), 9621(30), 9622(20), 9629(20).	25
24	72	Industrial, electrical and construction trades	3123(49), 7112(32), 7113(31), 7114(32), 7115(33), 7121(36), 7122(35), 7123(29), 7124(39), 7125(33), 7126(38),7131(33), 7212(37), 7213(36), 7214(36), 7215(26), 7221(34), 7222(40), 7223(36), 7224(41), 7234(26), 7311(38), 7312(42), 7411(43), 7412(42), 7413(43), 7422(41), 7522(34), 7543(32), 7544(32), 7549(32).	45
25	73	Maintenance and equipment operation trades	1324(57), 4323(41), 5112(40), 7113(31), 7114(32), 7119(35), 7125(33), 7127(38), 7132(34), 7215(26), 7213(36), 7221(34), 7222(40), 7224(41), 7231(38), 7232(54), 7233(38), 7311(38), 7314(29), 7316(30), 7321(38), 7322(37), 7323(34), 7412(42), 7541(32), 7542(49), 7549(32), 8111(40), 8113(46), 8132(34), 8311(52), 8312(35), 8331(37), 8342(35), 8343(35), 9333(28).	36
26	74 &76	Trade helpers, construction laborers, installers, repairing and related occupations	7112 (32), 7115(33),7119(35), 7122(35), 7124(39), 7126(38), 7234(26), 7311(38), 7312(42),7412(42), 7422(41), 7544(32), 7549(32), 8219(28), 8344(29), 9311(24),9312(23), 9313(22), 9321(23),9329(21), 9333(28), 9611(18), 9613(17), 9623(34), 9629(20).	31
27	75	Transport and heavy equipment operation and related maintenance occupations	7231(38), 7233(38), 8182(26), 8312(35), 8322(36), 8331(37), 8332(36), 8342(35), 8350(44), 9112(16), 9333(28), 9623(34).	34
28	82-86	Supervisors, technical occupations and workers in natural resources, agriculture and related production	3121(49), 5164(33), 5411(49), 6111(16), 6112(21), 6113(24), 6114(14), 6121(23), 6122(20), 6123(29), 6129(27), 6130(18), 6210(26),6222(19), 6223(35), 6224(10), 7542(49), 7544(32), 8111(40), 8113(46), 8341(22), 9211(16), 9212(20), 9213(18), 9214(16), 9215(19), 9216(19), 9311(24).	27
29	92-94	Supervisors and operators in processing, manufacturing and utilities	3122 (49), 3131(41), 3132(38), 3133(37),3134(37), 3135(37), 3139(35), 7113(31), 7211(38), 7212(37), 7221(34), 7223(36), 7224(41), 7314(29), 7315(35), 7321(38), 7322(37), 7323(34), 7511(29), 7513(34), 7514(24), 7515(32), 7516(10), 7521(27), 7531(24), 7532(27), 7533(24), 7535(30), 7543(32), 8112(39), 8114(33), 8121(35),8131(35), 8132(34), 8141(29), 8142(31), 8143(36), 8151(27), 8152(20), 8153(18), 8154(19), 8155(22), 8156(18), 8159(27), 8160(22), 8171(33), 8172(27), 8181(25), 8182(26), 8183(27), 8189(30).	31
30	95-96	Assemblers and laborers in processing, manufacturing and utilities	7132(34), 7224(41), 7533(24), 7534(29), 7543(32), 7549(32), 8122(31), 8156(18), 8159(27), 8183(27), 8189(30), 8211(33), 8212(27), 8219(28), 9321(23), 9329(21), 9612(17).	28

Source: Own calculation on the basis of Ganzeboom, Harry B.G.; Treiman, Donald J.,(2010)

Annex 12. ISEI Scores for Australian Standard Classification of Occupations (ASCO) Second Edition, 1997

ASCO	ISCO-88	ISEI
[1]managers and administrators	[1000]LEGISLATORS, SENIOR OFFICIALS & MANAGERS	55
[2]professionals	[2000] PROFESSIONALS	70
[3] technicians and trade workers	[3000] TECHNICIANS AND ASSOCIATE PROFESSIONALS	54
[4] community and personal service work	[7000] CRAFT, ETC. TRADES WORKERS	34
[5] clerical and administrative worker	[4000]CLERKS	45
[6] sales workers	[5000] SERVICE WORKERS & SHOP & MARKET SALES WORKERS	40
[7] machinery operators and drivers	[8000] PLANT & MACHINE OPERATORS & ASSEMBLERS	31
[8] labourers	[9000] ELEMENTARY OCCUPATIONS	20

Source: Own calculation on the basis of Ganzeboom and Treiman (1996)

Annex 13. Data Structure and Source

Country	Included Years	Database	Source
Australia	2001,2003,2008	Survey of Income and Housing Costs (SIHC)	Luxembourg Income Study Database (www.lisdatacenter.org/)
	2010	Household Expenditure Survey (HES) and Survey of Income and Housing (SIH)	
Austria	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Belgium	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Canada	2000, 2004, 2007, 2010	Survey of Labour and Income Dynamics (SLID)	*Luxembourg Income Study Database (www.lisdatacenter.org/)*
	2001,2006,2011	Census Public USE Micro-data File of Individuals (PUMF)	*Statistics Canada (www.statcan.gc.ca/)*
Denmark	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Finland	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
France	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Germany	2002-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Greece	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Ireland	2000-2005 2008-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Italy	2005-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Portugal	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Netherlands	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Norway	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Spain	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Sweden	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
Switzerland	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
United Kingdom	2000-2010	The European Union Labour Force Survey (EU-LFS micro data)	Eurostat (www.ec.europa.eu/eurostat)
United States	2000-2010	Integrated Public Use Microdata Series: Version 5.0(IPUMS-USA database)	University of Minnesota (www.ipums.org)

Annex 14. Mapping of ISCO-08 Major Groups to Skill levels

ISCO-08 Major Groups	Skill Level
1 – Managers, senior officials and legislators.	**3 + 4**
2 - Professionals	**4**
3 - Technicians and associate professionals	**3**
4 - Clerks **5 -** Service and sales workers **6 -** Skilled agricultural and fishery workers **7 -** Craft and related trades workers **8 -** Plant and machine operators, and assemblers	**2**
9 - Elementary occupations	**1**
0 – Military occupations	**1 + 4**

Source: ILO (1990)

Annex 15. Mapping of The Four ISCO-08 Skill levels to ISCED-97 Levels of Education

ISCO-08 Skill Level	ISCED-97 group	
4	6	Second stage of tertiary education (leading to an advanced research qualification)
	5a	First stage of tertiary education, 1st degree (medium duration)
3	5b	First stage of tertiary education (short or medium duration)
2	4	Post-secondary, non-tertiary education
	3	Upper secondary level of education
	2	Lower secondary level of education
1	1	Primary level of education

Approach	Author(s)	Key Dimension	Typologies & Measures	
Production /Skill Regime Specificity	Hall & Soskice(2001)	-**Liberal Market Economies** (LMEs) -**Coordinated Market Economies**(CMEs)	(1)General Skill Regimes (2)Specific Skill regimes	
Vocational (Training) Specificity	Estevez-Abe et al. (2001)	Vocational Training Share (VTS)	Share(%) of secondary school students enrolled in vocational training	
	Iversen & Soskice (2001)	Vocational Training Intensity(VTI)	Share(%) of young people in (post-)secondary vocational training as a percentage of all those in the (post-)secondary school age cohort	
	Culpepper (2007)	Tertiary Vocational Training Share (TVTS)	Share (%) of students enrolled in tertiary vocational training	
	Hanushek et al. (2011)	(Vocational) orientation of educational system	**Vocationally oriented systems (Dual):** Germany, Austria, Denmark, Switzerland, Czech Republic, Hungary **Vocationally oriented systems (School-based):** The Netherlands, Belgium, Sweden, Finland, Norway	**Mediterranean countries:** Spain, Italy, Greece, Portugal **Academically oriented systems (France, UK)** **Anglo-Saxon general systems (US & Ireland)**
	Bol & Werfhorst (2011), (2013)	**Vocational enrolment** (prevalence of vocational enrolment) **Vocational Specificity** (the existence of a dual system/ provision of specific vocational skills)	Share(%) of students that are enrolled in vocational programs in upper Secondary education. Share (%) of students in upper secondary education that are in a dual system	
	Busemeyer (2009)	-Firms' involvement in skill formation -The vocational specificity of the education system	-General Skill Regimes (USA) -School-based occupational skill R.(Sweden) -Firm-based Skill R.(Japan) -Workplace-based occupational skill R.(Germany)	
Occupational (Training) specificity	Iversen & Soskice (2001) Cusack et al. (2006)	(Micro-level/individual measure of) relative skill specificity	Skill Specificity(SS) is defined by the ISCO classification and the individual's reported level of education	
	Martinaitis (2010)	**Specificity of work** (ease of replacing employees) **Transferability of skills**(ease of switching employers)	-Segmented LABM -Highly General skill LABM -Firm Specific Skill LABM -Specialized LBAM	
	Lazear (2003) Geel et al. (2009)	**Lazear skills weights approach** (Firms demand different combinations and different weights of skills)	Skill specificity measured by assessing the distances or overlaps in combinations of tasks and associated skills.	

Control variables on the micro-level consist of general demographic indicators such as gender, having children aged 6 years and younger, socioeconomic status of the father, and nationality/ethnicity
Vocational specificity of their educational systems.

Annex 17. Macro level factors effects on immigrant-native gaps: highly-educated, medium-educated and low-educated workers, for males in 19 selected OECD countries, 2000-2010

Native-Immigrant Gap (Risk of Being Unemployed-Male)												
Variables	**Model 0**			**Model 1**			**Model 2**			**Model 3**		
	H	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**
Intercept	0.067***	0.061***	0.069***	0.066***	0.052***	0.041***	0.376***	0.048	0.025	0.319***	0.065	0.030
	(0.004)	(0.004)	(0.006)	(0.007)	(0.009)	(0.009)	(0.089)	(0.060)	(0.086)	(0.068)	(0.059)	(0.083)
VOC dummies (Ref. MMEs)												
LMEs				-0.040***	-0.028**	-0.041**	-0.072 *	0.063*	0.040	-0.072 *	0.072**	0.037
				(0.008)	(0.010)	(0.015)	(0.029)	(0.025)	(0.038)	(0.032)	(0.026)	(0.040)
CMEs				0.019	0.029**	0.072***	-0.022	0.009	-0.006	-0.032	0.013	-0.041
				(0.010)	(0.010)	(0.012)	(0.022)	(0.026)	(0.036)	(0.023)	(0.026)	(0.035)
VOC variables												
Union density							0.0005*	0.0001	0.001**	0.0005*	0.0001	0.001***
							(0.0002)	(0.0003)	(0.0004)	(0.0002)	(0.0003)	(0.0004)
Collective bargaining coverage							0.0009**	0.0018***	0.0009	0.0009**	0.0018***	0.0008
							(0.0002)	(0.0003)	(0.0005)	(0.0002)	(0.0003)	(0.0004)
EPL- regular contract							-0.021	-0.001	0.008	-0.022	-0.0006	0.010
							(0.011)	(0.009)	(0.012)	(0.011)	(0.009)	(0.012)
EPL- temporary contract							0.003	0.015**	0.011	0.002	0.016**	0.010
							(0.007)	(0.006)	(0.008)	(0.007)	(0.006)	(0.008)
EPL- collective dismissals							-0.024**	0.004	0.001	-0.026**	0.002	0.003
							(0.008)	(0.006)	(0.011)	(0.007)	(0.006)	(0.011)
Skill Specificity (%share of VET)							0.0002	0.0002	0.002***	0.0002	0.0002	0.002***
							(0.0002)	(0.0003)	(0.0005)	(0.0002)	(0.0002)	(0.0004)
Demand for semi-skill jobs (%ISEI 34-55)							-0.003***	-0.001*	-0.002**	-0.002***	-0.001	-0.003**
							(0.0007)	(0.0006)	(0.0008)	(0.0009)	(0.006)	(0.0008)
Demand for low-skill jobs (%ISEI 16-33)							-0.002**	-0.003**	-0.002	-0.002**	-0.003**	-0.002
							(0.0008)	(0.001)	(0.001)	(0.0007)	(0.001)	(0.001)
Migration Regimes (Ref. Employment-based system)												
Hybrid systems										-0.020*		
										(0.008)		
High-Skilled Selectivity (%)										-0.0005		
										(0.0004)		
Semi-Skilled Selectivity (%)											-0.001*	
											(0.0004)	
Low-Skilled Selectivity (%)												-0.0015*
												(0.0007)
Contextual variables												
GDP change (%)										-0.00008	0.0006	0.0005
										(0.0013)	(0.0011)	(0.002)
R-squared				0.15	0.19	0.29	0.44	0.50	0.50	0.46	0.53	0.52
Number	185	185	185	185	185	185	171	171	171	171	171	171

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) = 22,564,767;
Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

	Native-Immigrant Gap (Occupational Status-Male)											
Variables	**Model 0**			**Model 1**			**Model 2**			**Model 3**		
	H	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**	**H**	**M**	**L**
Intercept	-6.39***	-4.06***	-3.13***	-15.34***	-8.12***	-3.65***	-9.81	18.42***	-1.30	-9.82	18.82***	-0.82
	(0.59)	(0.34)	(0.16)	(1.03)	(0.55)	(0.20)	(4.98)	(5.06)	(2.56)	(5.53)	(5.10)	(2.65)
VOC dummies (Ref. MMEs)												
LMEs				13.48***	5.80***	0.59	16.05***	-0.29	0.85	16.54***	-0.75	0.59
				(1.26)	(0.62)	(0.37)	(2.50)	(1.98)	(1.20)	(2.19)	(2.09)	(1.32)
CMEs				11.62***	5.42***	0.74*	15.79***	0.014	0.97	14.74***	-0.30	0.83
				(1.15)	(0.72)	(0.32)	(1.92)	(1.46)	(0.86)	(1.68)	(1.52)	(1.04)
VOC variables												
Union density							-0.23***	0.007	0.03**	-0.24***	0.007	0.03**
							(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
Collective bargaining coverage							0.15***	-0.005	-0.03**	0.16***	-0.006	-0.04**
							(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.01)
EPL- regular contract							-3.95***	-3.06***	1.002**	-3.37***	-3.03***	1.04**
							(0.65)	(0.75)	(0.34)	(0.66)	(0.75)	(0.35)
EPL- temporary contract							0.99	0.44	0.06	0.80	0.37	0.009
							(0.52)	(0.37)	(0.25)	(0.45)	(0.38)	(0.26)
EPL- collective dismissals							-1.39**	-1.77***	1.10***	-1.46**	-1.77***	1.11***
							(0.47)	(0.51)	(0.29)	(0.44)	(0.51)	(0.30)
Skill Specificity (%share of VET)							-0.006	0.12***	-0.0002	0.013	0.12***	0.00004
							(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.01)
Demand for semi-skill jobs (%ISEI 34-55)							0.05	-0.27***	- 0.14***	-0.03	-0.28***	- 0.14***
							(0.05)	(0.05)	(0.02)	(0.06)	(0.06)	(0.02)
Demand for low-skill jobs (%ISEI 16-33)							-0.06	-0.09	-0.012	-0.06	-0.10	-0.03
							(0.05)	(0.06)	(0.03)	(0.05)	(0.06)	(0.03)
Migration Regimes (Ref. Employment-based system)												
Hybrid systems										-4.27***		
										(1.14)		
High-Skilled Selectivity (%)										0.09**		
										(0.03)		
Semi-Skilled Selectivity (%)											0.011	
											(0.02)	
Low-Skilled Selectivity (%)												0.008
												(0.02)
Contextual variables												
GDP change (%)										0.06	0.06	0.09
										(0.15)	(0.08)	(0.06)
R-squared				0.52	0.30	0.03	0.80	0.59	0.24	0.84	0.60	0.25
Number	164	164	164	164	164	164	163	163	163	161	161	161

Significance: * p<.05; ** p<.01; *** p<.001; Cluster Standard Errors are in parentheses; N (individual level) = 21,123,537;

Data source: EULFS (2000-2010); IPUMS (US: 2000-2010), STATCAN (CAN: 2001, 06, 11) LIS (AUS: 2001, 03, 08, 10; CAN: 2000, 04, 07, 10)

Annex 18. Bivariate correlation coefficients between macro-level variables included in the analyses

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1- LME	.00														
2-Mixed	0.32***	.00													
3-CME	0.50***	0.55***	.00												
4-UD	0.25***	0.43***	.51***	.00											
5-CB	0.82***	.28***	.33***	.39***	.00										
6-EPL-R	0.73***	.53***	.19**	.05	. 73***	.00									
7-EPL-T	0.63***	.73***	0.18*	0.07	.55***	.54***	.00								
8-EPL-C	0.19**	.15*	0.26***	0.23**	.13	0.07	.23**	.00							
9- VET(Specificity)	0.63***	0.29***	.66***	.37***	.65***	.32***	.16*	.16*	.00						
10- M-Demand	0.34***	0.11	.40***	0.08	.11	.10	.02	.27***	.44***	.00					
11- L-Demand	-0.15*	.74***	0.50***	0.15	.30***	.54***	.53***	.004	0.20**	0.29***	.000				
12- Employ. M. R.	0.37***	.22**	.08	.04	.24**	.25***	.32***	.12	.18**	.48***	.08	.00			
13-Hybrid M.R.	.35***	0.21**	0.07	0.03	0.22**	0.23**	0.31***	0.12	0.16*	0.43***	0.09	0.97***	.00		
14- H-selectivity (%)	41***	0.59***	.12	.11	0.40***	0.58***	0.49***	.02	0.09	0.15 *	0.52***	0.28***	.27***	.00	
15- GDP change	.12	0.06	0.03	.02	0.09	0.11	0.02	0.07	0.05	0.06	.11	.06	0.09	.10	.00

Significance: * p<.05; ** p<.01; *** p<.001

Annex 19. General and Vocational Enrolment Pattern (%) of Upper Secondary Education in Selected OECD Countries (1996-2012)

Year/ Country	1996		1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012	
	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V	G	V
AUS	33	67	m	m	m	m	34,3	65,7	36,1	63,9	37,0	63	35,8	64,2	37,5	62,5	38,5	61,5	38,4	61,6	39,6	60,4	38,9	61,1	52,6	47,4	52,5	47,5	51	49	50	50
AUT	24	76	22,5	77,5	22,1	77,9	21,7	78,3	21,4	78,6	21,0	79	20,8	79,1	21,4	78,6	21,5	78,5	22,1	77,9	22,7	77,3	22,9	77,1	22,7	77,3	23,2	76,8	24	76	25	75
BEL	32	68	31	69	34,3	65,7	33,2	66,8	30,8	69,2	30,3	69,7	29,7	70,3	31,8	68,2	30,4	69,6	30,6	69,4	30,4	69,6	27,1	72,9	27,2	72,8	27,0	73	27	73	27	73
CAN	m	m	88,8	11,2	91,8	8,2	90,9	9,1	84,8	15,2	m	m	m	m	m	m	m	m	94,6	5,4	m	m	94,7	5,3	94,5	5,5	94,4	5,6	94	6	94	6
DNK	47	53	48,2	51,8	46,7	53,3	45,1	54,9	45,4	54,6	47,0	53	46,4	53,6	53,2	46,8	52,1	47,9	52,2	47,8	52,3	47,7	52,0	48	52,7	47,3	53,5	46,5	54	46	54	46
FIN	48	52	48	52	46,8	53,2	44,7	55,3	43,3	56,7	42,8	57,2	41,2	58,8	39,9	60,1	36,1	63,9	34,6	65,4	33,3	66,7	32,1	67,9	31,2	68,8	30,3	69,7	30	70	30	70
FRA	46	54	43,6	56,4	42,8	57,2	42,6	57,4	43,3	56,7	43,7	56,3	43,6	56,4	43,5	56,5	43,6	56,4	56,9	43,1	56,2	43,8	55,8	44,2	55,8	44,2	55,7	44,3	55	45	56	44
DUE	24	76	35,4	64,6	35,4	64,6	36,8	63,2	36,7	63,3	37,0	63	37,8	62,2	38,8	61,2	39,7	60,3	40,6	59,4	42,6	57,4	42,5	57,5	46,8	53,2	48,5	51,5	51	49	52	48
GRE	68	(32)	67,4	32,6	74,2	25,8	67,9	32,1	64,8	35,2	60,0	40	64,0	36	66,0	34	64,0	36	66,1	33,9	68,3	31,7	69,1	30,9	69,1	30,9	69,3	30,7	68	32	67	33
IRE	80	20	82,7	17,3	79,4	20,6	76,6	23,4	74,2	25,8	72,7	27,3	71,7	28,3	66,5	33,5	65,7	(30,5) 34,3	66,6	(31) 33,4	66,5	(31,3) 33,5	66,1	(31,8) 33,9	65,6	(33) 34,4	62,5	(32,5) 37,5	66	(33) 34	68	(31) 32
ITA	28	(72)	35,2	63,6	35,3	63,5	35,7	64,3	35,7	64,3	35,2	64,8	36,2	(37,8) 63,8	37,2	(37,3) 62,8	38,5	(36,6) 61,5	39,5	(35,6) 40,5	40,2	(33,2) 59,8	40,6	(32,7) 59,4	41,0	(26,5) 59	40	60	40	60	41	59
NLD	30	70	34	66	33,4	66,6	31,7	68,3	29,9	70,1	30,8	69,2	30,9	69,1	30,9	69,1	31,8	68,2	32,5	67,5	32,4	67,6	32,9	67,1	32,9	67,1	33	67	31	69	30	70
NZL	62	38	m	m	m	m	m	m	m	m	100,0	a	100	a	m	m	m	m	m	m	m	m	m	m	60,5	39,5	69,9	30,1	71	23	73	27
NOR	42	58	47,5	52,5	46,4	53,6	42,7	57,3	42,4	57,6	42,0	58	40,8	59,2	39,5	60,5	39,2	60,8	40,0	60	42,5	57,5	44,8	55,2	45,9	54,1	46,1	53,9	47	53	48	52
POR	74	(26)	74,6	25,4	75	25	72,2	27,8	71,7	28,3	71,2	28,8	71,5	28,5	71,5	(19,1) 28,5	69,0	(20,5) 31	68,5	(19,9) 31,5	68,4	(16,7) 31,6	69,3	(8,5) 30,7	61,6	(5,6) 38,4	61,2	(3,9) 38,3	58	(4) 42	56	(3) 44
SPA	61	39	78,5	21,5	68,8	31,2	66,5	33,5	64,4	35,6	62,0	38	62,8	37,2	61,3	38,7	57,4	42,6	57,5	42,5	56,6	43,4	56,2	43,8	57,1	42,9	55,4	44,6	55	45	54	46
SWE	46	51	58,7	40,6	49,9	50,1	51,2	48,8	48,3	51,7	50,4	49,6	47,1	52,9	46,6	53,4	46,4	53,6	44,9	55,1	42,9	57,1	43,2	56,8	43,6	56,4	43,9	56,1	44	55	51	49
CHE	31	69	34,3	65,4	34,6	65,4	34,3	65,7	35,0	65,0	35,4	64,6	35,0	65	35,2	64,8	35,3	64,7	35,8	64,2	35,2	64,8	35,2	64,8	34,5	65,5	33,8	66,2	35	65	35	65
UK	43	57	50,7	49,3	33,3	66,7	32,7	67,3	33,1	66,9	27,9	72,1	30,8	69,2	28,5	71,5	27,8	72,2	58,3	41,7	58,6	41,4	68,6	31,4	69,5	30,5	67,9	32,1	64	36	61	39
US	m	m	m	m	m	m	m	m	m	m	100	a	100	a	100	a	100	x	100	x	100,0	x	100,0	x	100	m	m	m	m	m	m	m

Ref: Education at Glance-OECD-1998-2014
(G): General education
(V): Vocational education
(a): Data not applicable because the category does not apply,
(c): There are too few observations to provide reliable estimates *(i.e.,* there are fewer than five schools or fewer than 30 students with valid data for this cell),
(m): Data not available,
(n): Magnitude is either negligible or zero,
(x): Data included in another category or column of the table (e.g., x(2) means that data included in column 2 of the table),

Annex 20. Combined (school-and work based) Vocational Enrolment (%) of Upper Secondary Education in Selected OECD Countries (1996-2012)

Country	Year															
	1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Australia	x	m	m	x	x	x	x	m	m	m	m	m	m	m	m	m
Austria	34	34,5	35,8	36,4	36,2	35,8	34,7	33,6	32,7	33	34,3	35	35,9	34,6	35	34
Belgium	3	4	4	2,80	2,50	2,5	3,4	2,6	3,3	3,5	3,4	3,2	1,8	3,1	3	3
Canada	m	n	a	a	a	m	m	m	a	a	a	a	a	a	a	a
Denmark	48	51,3	52,5	54,1	53,5	53	53,3	46,1	47,7	47,6	47,2	47,5	46,5	45,3	45	44
Finland	5	10,5	14	10,7	10,3	10,8	10,9	11,2	10,5	10,9	11,5	13,4	14,7	13,4	12	11
France	11	11,2	20,2	11,7	12,0	11,8	11,7	11,4	11,3	11,6	12,1	12,4	12,4	12,2	12	12
Germany	52	49,1	48,7	48,7	51,2	50,8	49	47	45	44,2	42,2	42,8	45,3	45,5	43	42
Greece	n	a	a	a	a	a	a	a	a	5,1	a	a	a	a	a	a
Ireland	5	x	x	a	a	a	a	a	3,8	2,4	2,2	2,1	1,5	5	a	a
Italy	a	x	a	m	a	a	a	a	a	a	a	a	a	a	a	a
Netherlands	23	19,7	a	20,4	a	23,5	23,6	22,9	20	18,3	18,5	20,2	21,5	20,9	m	18
New Zealand	8	m	m	m	m	a	a	m	m	m	m	m	m	a	a	a
Norway	x	x	x	m	a	a	m	m	13,3	13,9	14,9	15,9	16,6	15,3	15	15
Portugal	a	x	a	m	m	m	m	m	m	m	m	m	a	a	a	a
Spain	2	2,7	4,7	5,8	5,1	4,8	4,3	3,8	2,8	2,2	1,9	1,8	1,7	2,2	2	1
Sweden	x	n	m	m	n	n	a	a	a	n	n	n	n	n	n	m
Switzerland	60	57,9	56,8	57,9	57,3	58,6	58,9	58,7	58,3	57,8	59	n	60,1	60,6	60	60
United Kingdom	x	a	x	x	x	x	a	m	m	m	m	m	m	m	m	17
United States	m	m	m	m	m	a	a	a	x	x	x	x	m	m	m	m

Ref: Education at Glance-OECD-1998-2014

(a): Data not applicable because the category does not apply,

(c): There are too few observations to provide reliable estimates (i.e., there are fewer than five schools or fewer than 30 students with valid data for this cell),

(m): Data not available,

(n): Magnitude is either negligible or zero,

(x): Data included in another category or column of the table (e.g., x(2) means that data included in column 2 of the table),