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Characterization of the Recent Immigration to Chile

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Characterization of the Recent Immigration to Chile *

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Abstract

This paper documents the rapid increase in immigration to Chile experienced in the past few years. Our main purpose is to characterize the immigrant population and to analyze their assimilation into the local labor market. We find that immigrants are on average younger than the native-born and have higher labor force participation rates, revealing that foreign-born population in Chile comprises mostly of economic migrants. We also find that foreign-born are distributed across all skill levels, unlike other countries that have received larger shares of low-skilled immigrants. However, most of the foreign-born are overqualified for the jobs they hold despite being on overage more educated than the native-born. Even though immigrants face an adjustment period upon arrival into the country, their unemployment rate does not differ substantially from that of the native-born. Additionally, foreign-born and native-born have a similar distribution of employment across economic sectors, employment status and informality. We conclude that immigrants have integrated well into the labor market, suggesting immigration could be a factor contributing to long term economic growth in Chile.

Resumen

Este trabajo documenta el rápido aumento de la inmigración experimentado en los últimos años en Chile. Nuestro objetivo es ofrecer una caracterización demográfica de la población inmigrante en Chile, así como analizar la inserción de inmigrantes en el mercado laboral local. Encontramos que los inmigrantes son más jóvenes y tienen tasas de participación más altas que los chilenos, revelando que la migración hacia Chile ha sido por razones económicas. También encontramos que los inmigrantes se distribuyen en todos los niveles educacionales, a diferencia de otros países a los que han llegado inmigrantes de bajo nivel educacional. Sin embargo, la mayoría de los trabajadores inmigrantes está sobre calificado para su puesto de trabajo, pese a que, en promedio, son más educados que los trabajadores locales. A pesar que los inmigrantes experimentan un período de ajuste tras su llegada al país, la tasa de desempleo agregada es similar a la de los chilenos. Además, trabajadores inmigrantes y locales son similares en cuanto a la distribución del empleo a nivel de

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sectores económicos, categoría ocupacional e informalidad. Concluimos que los inmigrantes se han integrado bien al mercado laboral, lo que sugiere que la inmigración podría ser un factor que contribuya al crecimiento económico de largo plazo en Chile.

1. Introduction

In the past few years Chile has experienced a significant international migration influx. According to data from the Alien Status and Immigration Department (DEM by its Spanish acronym), between January 2015 and December 2017, approximately 700 thousand immigrants arrived into the country. As such, the share of foreign-born residents increased from 2.3 to 6.1% within three years. Large inflows of immigrants can have important economic consequences for the host country. As mentioned in the Report on Trend Output (Central Bank of Chile, 2017), immigration can give an important boost to economic growth in Chile, by partially offsetting the population ageing process taking place in the country.

This paper presents a demographic characterization of the immigrant population in Chile and analyzes their assimilation into the local labor market. We use microdata from the 2017 Chilean Census and two surveys: the National Employment Survey applied by the National Statistics Institute (INE by its Spanish acronym) and the Socioeconomic Characterization Survey (CASEN by its Spanish acronym) carried out by the Ministry of Social Development. Our main findings are as follows: first, foreign-born are on average younger than the native-born and have higher labor force participation rates, revealing that foreign-born population in Chile comprises mostly of economic migrants. Second, immigrants are distributed across all skill levels. This evidence differs from that of other countries that have received a larger influx of low-skilled workers, who earn on average lower wages compared to native workers and are employed in certain economic sectors (Dustmann et al., 2016). In the third place, most of the foreign-born population works in jobs where they are overqualified despite being on overage more educated than the native-born. Fourth, even though immigrants face an adjustment period upon arrival into the country, their unemployment rate does not differ substantially from that of the native-born. Finally, the distribution of employment across economic sectors is similar for foreign-born and native-born. Our results concerning immigrant's age, level of education and distribution of employment across sectors are in line with the evidence presented by Contreras et al. (2013) for the country.

Despite the magnitude of the recent immigration in Chile, there is almost no evidence on this event and its characteristics. The main contribution of this paper is to fill this gap.

The rest of this paper is organized as follows. Section 2 offers a review of the literature on the economic effects of immigration. Section 3 documents immigration dynamics in Chile, placing this event in an international context. Section 4 compares the demographic characteristics and educational level of immigrants and the native population. Section 5 compares both groups in relation to several labor market outputs. Section 6 concludes and discusses questions for future research.

2. Literature Review

There is an extensive literature on the impact of immigration on the local labor market. The impact of immigration on wages and employment of native workers has received particular attention. The canonical model used for this analysis assumes a closed economy, with a two-tier labor market composed of high skilled and low skilled workers, where labor and capital are employed as inputs for the production of goods. This model and variants of it have been the basis for much of the analysis in this area (Johnson, 1980; Altonji and Card, 1991; Dustmann et al., 2007). Assuming a perfectly elastic supply of capital and an inelastic labor supply, this model predicts that, a migration shock that increases the labor supply of workers of a determined skill level, will lower the equilibrium wages of native workers with the same skills as foreign-born workers. On the other hand, the equilibrium wages of native workers with complementary skills will increase. If labor supply is somewhat elastic, this mechanism will trigger involuntary unemployment among workers not willing to work for lower wages (Dustmann et al., 2007).

There are several challenges in estimating the impact of immigration on labor market. Among others, there is a selection effect in the immigration decision. Thus, for many immigrants, the decision to migrate is related to the economic performance of the host country. For this reason, estimates that do not account for this effect will be biased. Additionally, there are general equilibrium adjustments with repercussions in all markets taking place after an immigration shock.

Production functions are among the first empirical approaches used to assess the impact of immigration on the labor market. They are used to estimate the elasticity of substitution between immigrants and native workers, in order to gauge the impact of relative changes in labor supply (Grossman, 1982; D'Amuri et al., 2010; Ottaviano and Peri, 2012).[1] Other methodology is spatial correlation analysis, which uses variation in the proportion of immigrants of different regions to study the effect of immigration on wages and employment (Card, 1990; Altonji and Card, 1991; Butcher and Card, 1991). A third approach is the use of instrumental variables to solve the endogeneity problem of the migration decision (Cortes, 2008; Peri, 2012; Smith, 2012). Finally, natural experiments are other identification strategy as, for example, episodes such as wars or repatriation, which are exogenous events that affect migration flows (Hunt, 1992; Friedberg, 2001).

To date there are no conclusive results with respect to the impact of immigration on the labor market of the host country. The evidence suggests that the economic impact of immigration depends on the time and place of analysis (Borjas, 1994) and the prevailing institutions (Angrist and Kugler, 2003).

There are few papers on the impact of immigration in Chile. Using the CASEN Survey for the years 2006 and 2009, Contreras et al. (2013) do not find significant effects of immigration on the labor market. The authors attribute this result, to some extent, to the low share of immigrants in each economic sector. However, due to the time frame of analysis, the authors cannot foresee the rapid growth of inflows of immigrants occurred from 2015 onwards, which we document in this paper. In a study of the labor market effects of net migration in OECD countries for the period 1990-2000, Docquier et al. (2014) do not find a significant impact of immigration on the wages or employment of native-workers in Chile.

To estimate the economic impact of immigration in Chile goes beyond the scope of this paper. Nonetheless, the characteristics of the recent immigration event in Chile are, in light of the evidence gathered by the economic literature on migration, suggestive of possible effects of immigration in the country. In the next sections we examine this further.

[1] See Borjas (1994), Friedberg and Hunt (1995), Borjas (2000), Dustmann et al. (2007), Okkerse (2008) for an extensive literature review on methodologies and related problems of statistical inference.

3. The Immigration Influx in Chile

To date, there are no official records in Chile about the number of foreign-born residents between the last two population Censuses of 2002 and 2017, both conducted by the National Institute of Statistics. For this reason, we must resort to different data sources in order to construct estimates of the total number of immigrants living in Chile.

In addition to the Census data, we use estimates of the Alien Status and Immigration Department (DEM by its Spanish acronym). Before 2017, the DEM estimated the stock of immigrants taking the 2002 Census as a starting point and adding the permanent residence permits to date (plus assumptions about mortality and irregularity).[2] After the immigration wave was evident, the DEM changed their methodology, taking their 2014 estimate and adding immigrants according to the their last administrative record at the DEM signaling an intention to stay in the country (application or granting of a visa or a residence permit).[3] Neither the old methodology (using permanent residence permits) nor the new one (using the last administrative record) take into account that immigrants may have left the country after getting a visa or permit.[4]

Additionally, we use estimations of the UN's Population Division and the CASEN Survey conducted by the Ministry of Social Development, a nationally representative household survey that collects data on poverty, education, employment, earnings and other socioeconomic indicators.[5] Figure 1 shows estimates of the total number of immigrants in Chile using different data sources. As it can be seen, the inflow of immigrants has been continuously rising since 2000, with a notorious increase in the years

[2] Using this methodology, they counted 416 thousand immigrants in December 2014. Later, this estimate was validated by the results of the 2015 CASEN Survey that estimated 465 thousand immigrants.

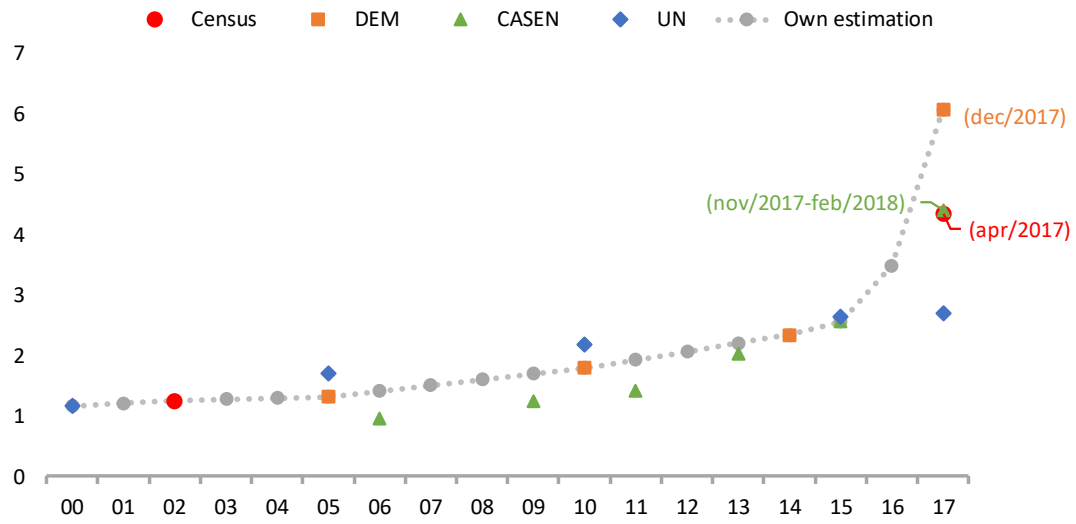
[3] https://www.camara.cl/pdf.aspx?prmID=129706&prmTIPO=DOCUMENTOCOMISION estimates 966,363 immigrants in Chile in June 2017. This number was updated to 1,119,267 as of December 2017. http://www.emol.com/noticias/Nacional/2018/04/09/901867/Extranjeros-en-Chile-superan-el-millon-110-mil-y-el-72-se-concentra-en-dos-regiones-Antofagasta-y-Metropolitana.html.

[4] This would require the official records of exits collected by Immigration Police (PDI by its Spanish acronym), information that is not matched with DEM's dataset.

[5] The CASEN Survey with questions about nationality is available for the following years: 2006, 2009, 2011, 2013, 2015, and 2017.

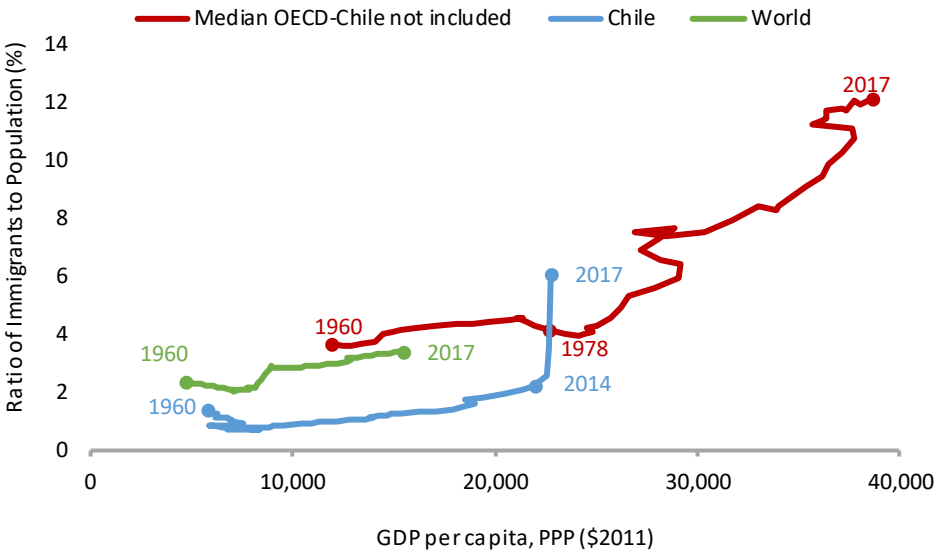
2016 and 2017. According to Census data, the share of foreign-born reached 4.4% in April 2017 and according to DEM's records, it picked up to 6.1% in December 2017.

Figure 1: Estimates of the Total Number of Foreign-born in Chile
(percentage of total population)



Note: The estimates of the ratio of immigrants in Chile are obtained with data from the following sources: UN for the year 2000, Census for the year 2002, DEM for years 2005, 2010 y 2014, and the CASEN Survey for the year 2015. Data for the year 2016 is obtained as the average of the years 2015 and 2017 of the CASEN Survey. The estimates for 2017 is obtained using the number of immigrants from DEM as a percentage of the population of the 2017 Census Conciliation. We use a lineal interpolation for the years with no data. Source: Authors' calculations based on data from the National Statistics Institute (Census), Ministry of Social Development (CASEN Survey), Alien Status and Immigration Department, and United Nations (Department of Economics and Social Affairs, Population Division, 2017).

Figure 2: Immigration and per capita GDP in Chile, OECD countries and the World



Sources: Authors' calculations based on based on data from the Ministry of Social Development (CASEN Survey), United Nations, and World Bank (World Development Indicators).

Over the past three years, there were large inflows of immigrants to the country. This episode transformed Chile into a country of high immigration levels. While the percentage of immigrants in Chile is still below the OECD median (12.2%), it is above the world average (3.4%). In the past few years, Chile became a country of high immigration stock controlling for GDP per capita (at PPP) (Figure 2).

According to data provided by the United Nations, since 1960 few OECD members have experienced such massive increase in immigrant flows.[6] However, in such cases, the share of foreign-born did not surpassed 3% of the population, while in Chile this share is above 6%. As we previously discussed, given the demographic changes experienced in Chile in the recent decade (Central Bank of Chile, 2017), immigration could have positive effects on long term economic growth via increases in the labor force. Nevertheless, we have to be cautious with this channel, since this effect requires large and permanent immigration flows (UN, 2000; Coleman, 2002). If the magnitude and characteristics of the recent immigration flows are maintained or increased in the next years, immigration could have a positive impact on the economy.

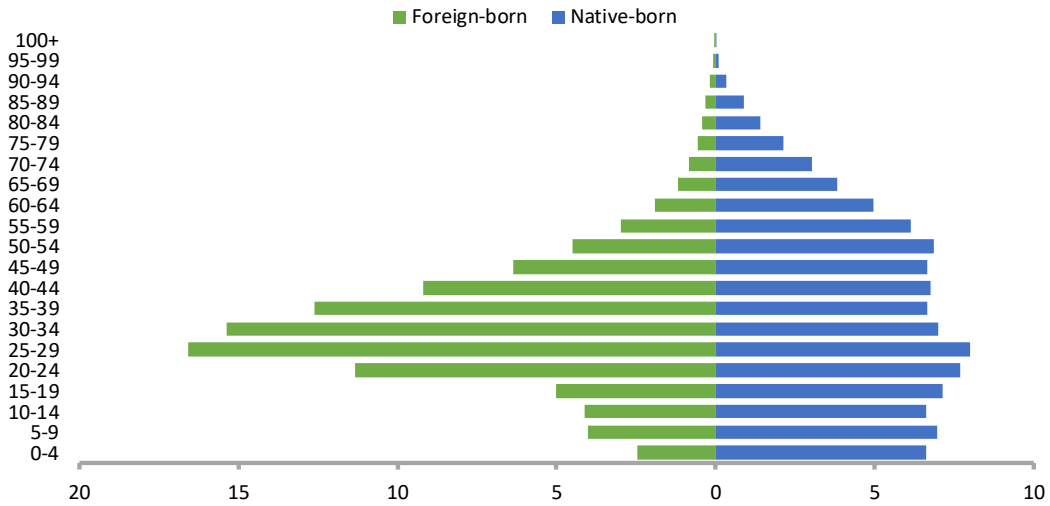
4. Socio-demographic characteristics of immigrants in 2017

Census data indicates that foreign-born account for 4.4% of the population in Chile by April 2017. This share increases to 4.9% if we consider the economically active population and to 7.2% if we consider the group aged 25 to 50 years. This is due to the fact that the foreign-born are on average younger than the native-born (Figure 3). While 60% of foreign-born are aged 25 to 50 years, only 35% of the native-born belong to this age segment. In addition, only 4% of immigrants are 65 years or older, compared to 12% of the native-born. This result is in line with international evidence showing that immigrants tend to be younger than the native-born population (OECD, 2015).

[6] Republic of Korea between 1990-1993 and Turkey between 1974 and 1977 are the only countries where the share of foreign-born has more than doubled within three years.

Additionally, more than 75% of immigrants aged 25 to 50 years are Spanish speakers and come from countries culturally and geographically close. This cultural proximity should be a factor helping immigrants to integrate more easily into the country and into the local labor market. This latter fact is an important condition for the contribution of immigrants to the economic growth of the host country. In fact, Muysken and Ziesemer (2013) provide evidence of the positive contribution of foreign-born to employment, wages, and GDP per capita in the host country, due to the increase in the economically active population, when immigrants can enter the local labor market.

Figure 3: Distribution of Foreign-born and Native-born by Age
(percentage of the population)



Source: Authors' calculations based on National Statistics Institute (2017 Census) data.

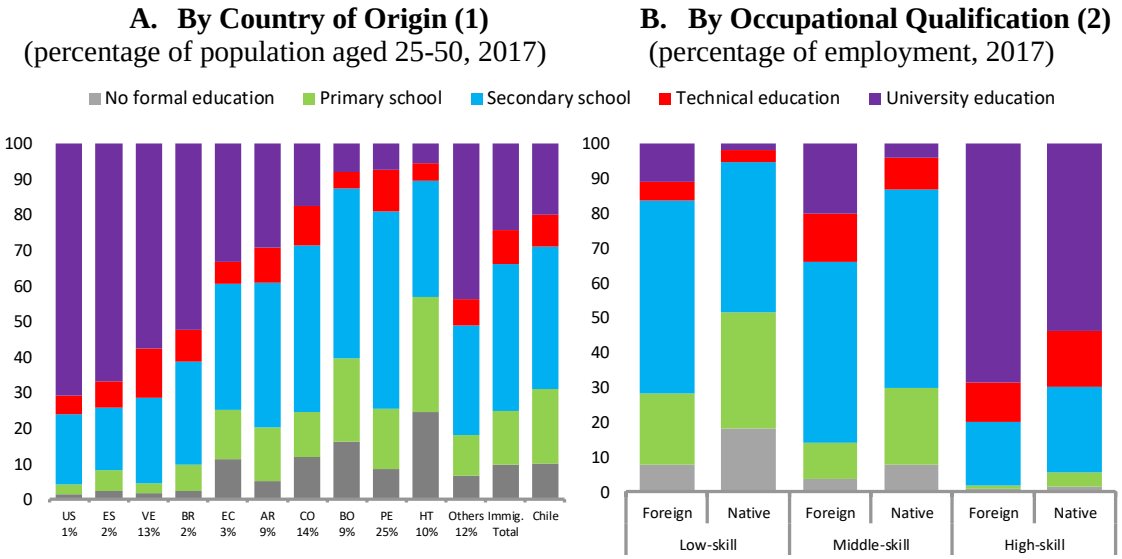
The educational level of immigrants is, on average, higher than that of local population.[7] Comparing the educational level of people aged 25 to 50 years,[8] we find that the share of foreign-born with tertiary education is 36%, compared to 31% among the native-born (Figure 4, Panel A).[9] There are, however, important differences in educational attainment by country of origin. While more than 60% of immigrants from United States, Spain, and Venezuela have university level studies, less than 10% of immigrants from Bolivia, Peru, and Haiti have reached this educational level. There is evidence of productivity increases stemming from broader diversity of the productivity

[7] On average, the educational level of immigrant workers is also higher than that of the local population.
[8] We consider the group of 25-50 year to isolate the effect of demographic composition shown in Figure 3.
[9] The educational attainment of foreign-born that arrived after 2016 is similar to that of previously settled immigrants.

capacity and innovation produced by the arrival of high skilled immigrants (Ortega and Peri, 2014). This mechanism is relevant for countries that receive high skilled immigrants, as we document in this paper (Dolado et al., 1994; Boubane et al., 2016).

In addition, data from the CASEN Survey reveals that immigrant workers have a higher educational level than the local population at all levels of occupational qualification (Figure 4, Panel B). The greatest educational gap is observed between workers in middle-skill jobs, where 34% of immigrants have tertiary education, compared to 13% of Chileans.

Figure 4: Educational Level of Foreign-born and Native-born

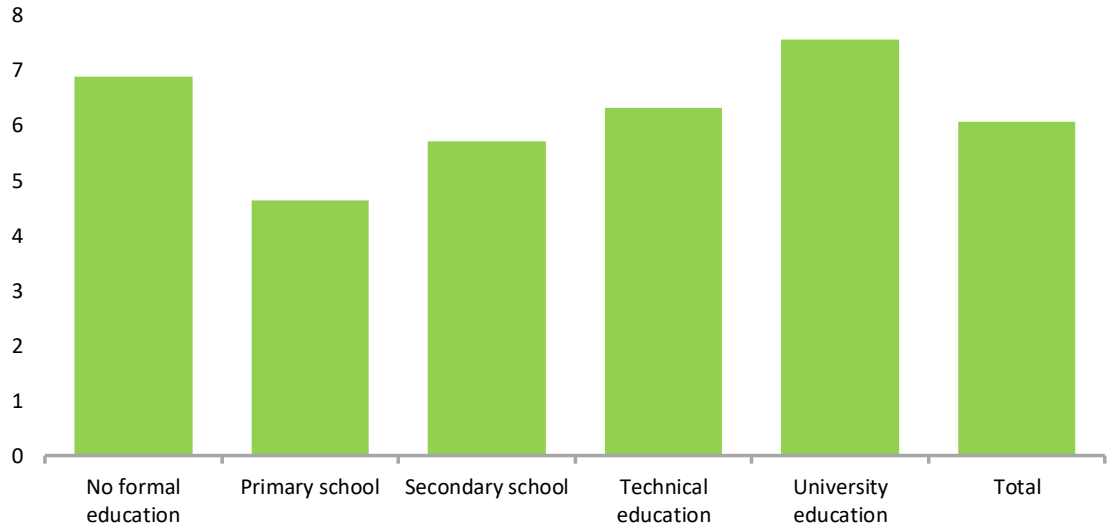


Note: (1) The ratio of immigrants to population aged 25 to 50 years by country of origin is denoted below each country. Each country is referred as follows: United States (US), Spain (ES), Venezuela (VE), Brazil (BR), Ecuador (EC), Argentina (AR), Colombia (CO), Bolivia (BO), Peru (PE), and Haiti (HT). (2) Classification of occupations by Lagakos et al. (2018), following ISCO-08. High-skill occupations include managers, professionals, technicians and associate professionals (codes 1-3). Middle-skill occupations comprise clerical support workers, service and sales workers and, craft and related trades workers (codes 4, 5, 7). Low-skill occupations comprehend agricultural, forestry, and fishery workers, plant and machine operators and assemblers and, elementary occupations (codes 6, 8, 9). Workers with missing occupations or employed in the armed forces are not included. Source: Authors' calculations based on data from Ministry of Social Development (CASEN Survey) and National Statistics Institute (2017 Census).

While the distribution of immigrants across educational attainment is fairly homogeneous, there is a relatively larger share of foreign-born with no formal education (6.9%) and with university level education (7.6%) (Figure 5). This fact distinguishes the immigration episode in Chile from that of other countries that have received larger shares

of low-skilled immigrants (Dustmann et al., 2016). In fact, the inflow of immigrants that have on average higher educational attainment than the native-born population could have positive effects at enhancing technology and innovation in the host country (Hunt and Gauthier-Loiselle, 2010; Ortega and Peri, 2014). These technological improvements could lower costs on research and development (Bretscher, 2001). In addition, the arrival of high-skilled immigrants could contribute to human capital accumulation, compensating the negative effect of capital dilution associated to population growth (Dolado et al., 1994), which in turn could have a positive impact on GDP per worker (Boubane et al., 2016).

Figure 5: Distribution of Foreign-born by Educational Level
(percentage of population aged 25-50 years)



Source: Authors' calculations based on National Statistics Institute (2017 Census) data.

5. Labor market outcomes of immigrants

According to the 2017 Census, immigrants account for 6.3% of both the labor force and the total employment. In addition, 6.8% of immigrants are unemployed and 2.5% are inactive. This reveals that foreign-born have higher labor market participation rates than the native-born, while the unemployment rate is similar for both groups (Table 1). We obtain similar results from the 2017 Census and from data of the National

Employment Survey carried out by National Statistics Institute, a nationally representative household survey applied since the first quarter of 2010.[10]

Table 1: Participation of Foreign-born and Native-born in the Labor Market
(percentages)

	Foreign-born		Native-born	
	Census	National Employment Survey (1)	Census	National Employment Survey (1)
Participation rates	80.2	76.8	61.2	59.4
Unemployment rates	7.5	6.6	7.0	7.0

Note (1): Data from the quarter March-April-May 2017.
Source: Authors' calculations based on National Statistics Institute (2017 Census, National Employment Survey) data.

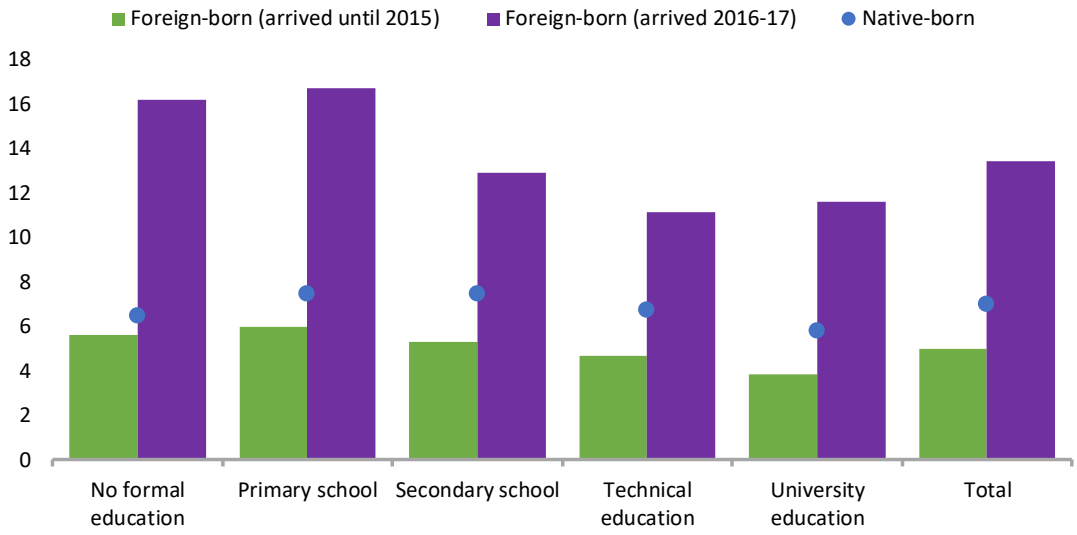
While higher participation rates are partly due to a higher proportion of immigrants of working age, this result also holds if we consider participation rates within different age groups, revealing that most of the foreign-born population are economic migrants.[11] Additionally, while participation rates among immigrants does not vary much depending on the year of arrival, we find important differences in their unemployment rates (Figure 6). Our results indicate that unemployment rate of foreign-born who arrived after 2016 is three times higher than that of immigrants entering the country before.[12] Controlling for age, gender, education, and country of origin, we find that the unemployment rate differential between immigrants who recently arrived (after 2017) and those who have been settled earlier is 20%, with this difference being statistically significant. This result suggests that, upon their arrival, it takes some time until immigrants can enter the local labor market.

An important question regarding the assimilation of immigrants into the labor market of the host country is whether foreign-born are working in jobs that they are

[10] Although, the National Employment Survey has not been designed to be representative of the immigrant population, Table 1 reveals its similarities describing to the actual foreign-born population.
[11] Immigrants participate more in the labor force than native-born regardless of gender and age. The 2017 Census shows that the participation rare for foreign-born younger than 25 years old is 62% and 88% for immigrants aged 25 to 50 years, compared to 35% and 80% for the native-born, respectively.
[12] Additionally, regardless of the year of arrival, the unemployment rate is lower for foreign-born with higher educational attainment.

qualified for. Analysis using data from the CASEN Survey[13] shows a drop in the proportion of immigrants working in job that require skills according to their educational attainment between 2013 and 2017 (Figure 7). In particular, this change is more remarkable among immigrants with tertiary education. In 2013, the proportion of immigrants and native-born with university education employed in high-skill jobs was 88% and 89% respectively. In 2017, these shares are 57% against 87%.

Figure 6: Unemployment Rate of Foreign-born and Native-born by Educational Level
(percentage of labor force)



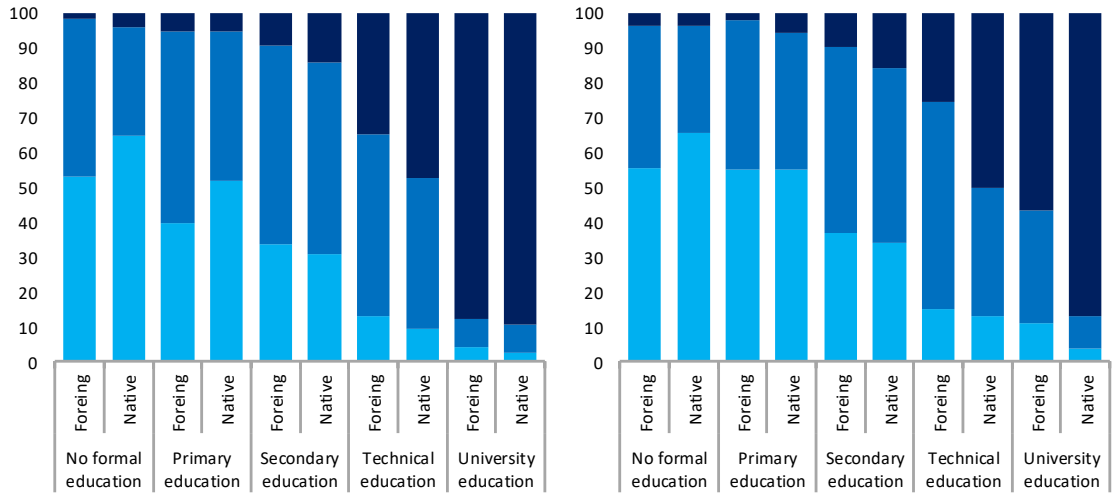
Source: Authors' calculations based on National Statistics Institute (2017 Census) data.

Figure 7: Distribution of Employment of Foreign-born and Native-born by Educational Level and Occupational Qualification
(percentage of employment by education)

A. Year 2013 **B. Year 2017**

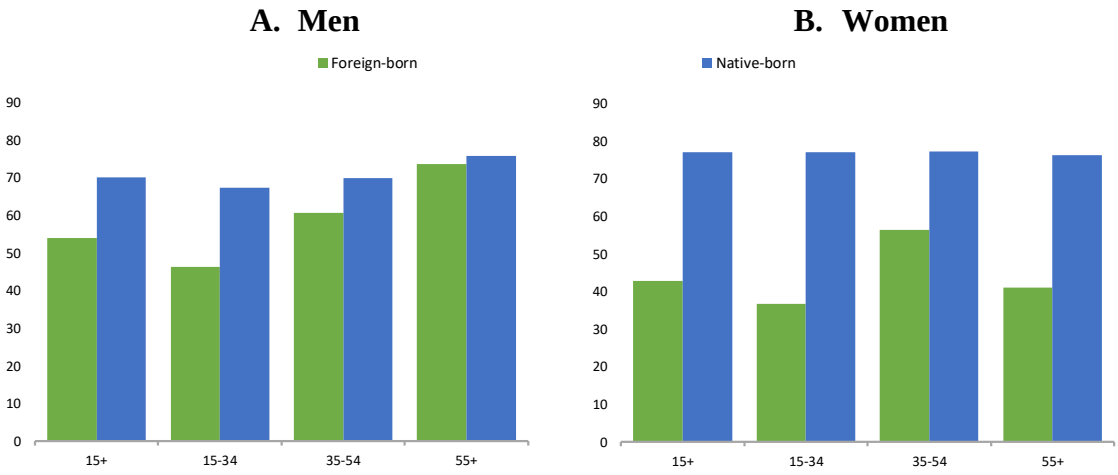
Low-skill Middle-skill High-skill

[13] The last Census did not include questions about occupations, so we had to resort to the CASEN Survey to implement this type of analysis.



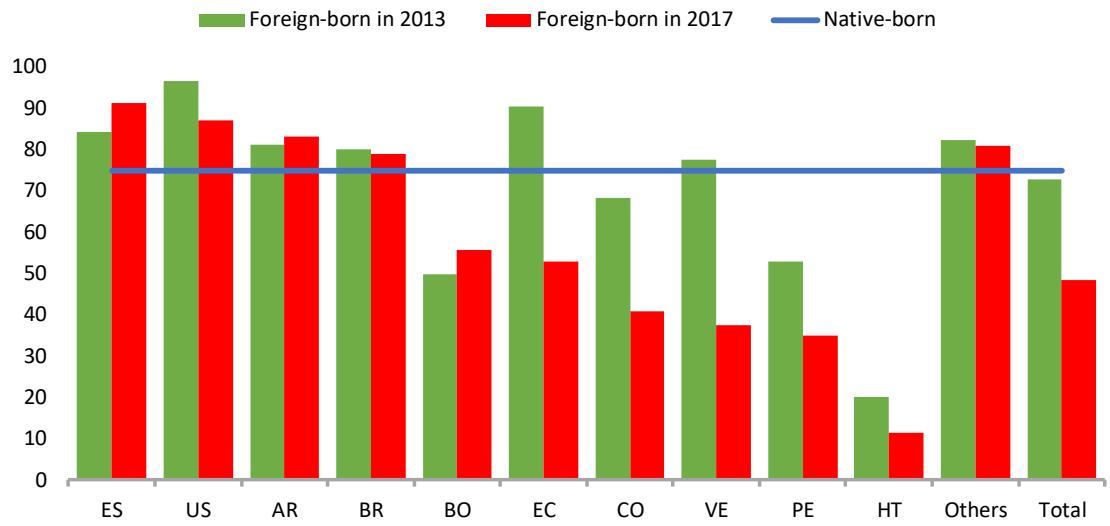
Note: Classification of occupations by Lagakos et al. (2018), following ISCO-08. High-skill occupations include managers, professionals, technicians and associate professionals (codes 1-3). Middle-skill occupations comprise clerical support workers, service and sales workers and, craft and related trades workers (codes 4, 5, 7). Low-skill occupations comprehend agricultural, forestry, and fishery workers, plant and machine operators and assemblers and, elementary occupations (codes 6, 8, 9). Workers with missing occupations or employed in the armed forces are not included. Source: Authors' calculations based on Ministry of Social Development (CASEN Survey) data.

Figure 8: High-skill Jobs of Foreign-born and Native-born with Tertiary Education by Sex
(percentage of employment with tertiary education, 2017)



Note: See figure 7 for more details. Source: Authors' calculations based on Ministry of Social Development (CASEN Survey) data.

Figure 9: High-skill Jobs of Foreign-born and Native-born with Tertiary Education by Nationality
(percentage of employment with tertiary education)



Note: Se figure 7 for more details. Each country is referred as follows: Spain (ES), United States (US), Argentina (AR), Brazil (BR), Bolivia (BO), Ecuador (EC), Colombia (CO), Venezuela (VE), Peru (PE), and Haiti (HT). Native-born represents the average between 2013 and 2017. Source: Authors' calculations based on Ministry of Social Development (CASEN Survey) data.

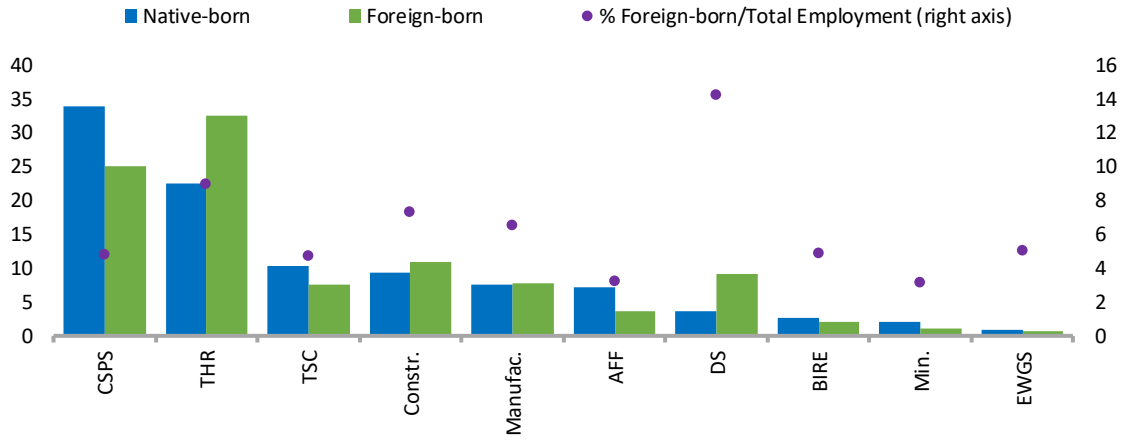
This overqualification of highly educated immigrants is more noticeable among women than men, regardless of their age (Figure 8). For example, among men with tertiary education aged 15 to 34 years, there is a 21% difference between foreign-born and native-born working in high-skills jobs. For women of the same education and age group, this gap amounts to 40%. Furthermore, overqualification of foreign workers is not distributed evenly across different countries of origin. There is a higher proportion of immigrants from Ecuador, Colombia, Venezuela, Peru, and Haiti with tertiary education that are overqualified for the job they hold (Figure 9). While further examination is required in order to explain the factors behind such results, there is an extensive literature documenting immigrants' education-occupation mismatch.[14] There is also evidence that upon their arrival, foreign-born are employed in jobs below their skills and there is some mobility over time to more suitable jobs (Poot and Stillman, 2010; Aleksynska and Tritah, 2013). This movement could have an important impact on the country's productivity.

Although there are gaps in the qualification for the jobs that foreign- and native-born hold, we do not find significant differences in the distribution of employment across economic sectors, status of employment, and informality. First, employment by economic sectors reveals a similar distribution for immigrants and native workers (Figure 10). However, employment is relatively higher among the foreign-born in sectors such as

[14] See for example Chiswick and Miller (2008), Wald and Fang (2008), and Piracha and Vadean (2013), among others.

domestic services (14%) and trade, hotels, and restaurants (9%), and relatively lower in agriculture, forestry and fishing and mining and quarrying (3%).

Figure 10: Distribution of Foreign-born and Native-born across Economic Sectors
(percentage, 2017)



Note: The list of economic sectors is the following: Community, social and personal services (CSPS), Trade, hotels, and restaurants (THR); Transport, storage, and communication (TSC); Construction (Constr.); Manufacturing (Manufac.); Agriculture, forestry, and fishing (AFF); Domestic Services (DS); Banking, insurance, and real estate (BIRE); Mining and quarrying (Min.); and Energy, gas, and water supply (EGWS). Source: Authors' calculations based on National Statistics Institute (2017 Census) data.

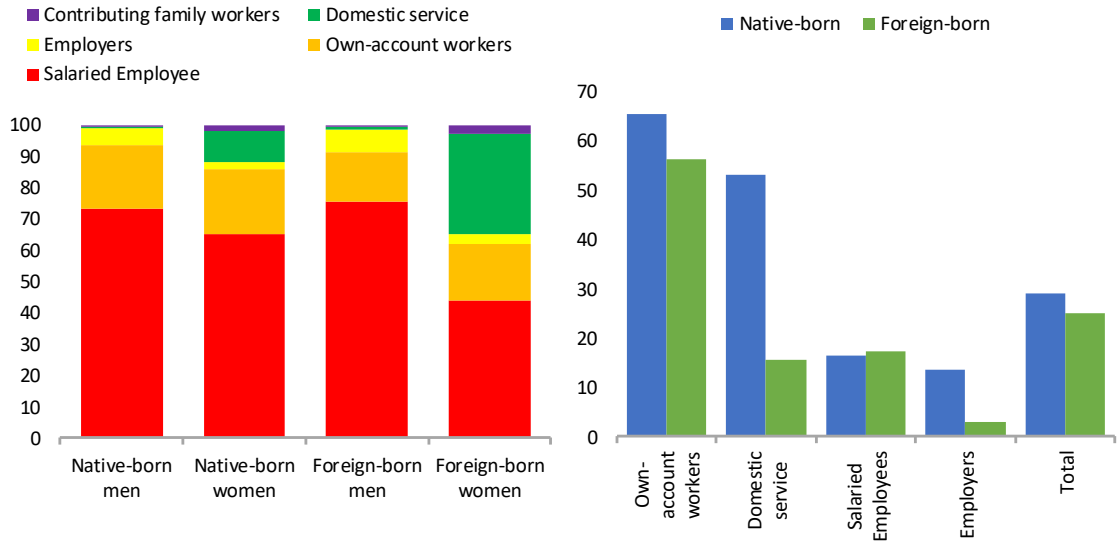
Second, there is a similar distribution of foreign- and native born male workers across different employment status (Figure 11, Panel A). On the other hand, female workers exhibit differences in employment status depending on their country of origin. A higher proportion of female immigrants work in domestic services (17% compared to 9% of native-born) and a lower share as salaried employee (44% against 65% of native-born). Thirdly, we find no significant difference between immigrants and native-born regarding the share of informal employment: it is 25% for foreign-born and 29% for native-born (Figure 11, Panel B).[15]

Figure 11: Distribution of Foreign-born and Native-born Workers by Employment Status

A. By Sex
(% of employment, average 2010-2018)

B. By Informality
(% of employment, average 2010-2017)

[15] Data on formality is only available starting from November 2017.



Source: Authors' calculations based on National Statistics Institute (National Employment Survey) data.

6. Conclusions

The massive migrant inflows that Chile received in the past few years are a relevant economic event that has direct impact on the labor market and the prospects of economic growth.

Our results have shown that immigrants are on average younger than the native-born and have higher labor force participation rates, revealing that foreign-born population in Chile comprises mostly of economic migrants. We also find that foreign-born are distributed across all skill levels, unlike other countries that have received larger shares of low-skilled immigrants. However, most of the foreign-born are overqualified for the jobs they hold despite being on overage more educated than the native-born. Even though immigrants face an adjustment period upon arrival into the country, their unemployment rate does not differ substantially from that of the native-born. Regarding the employment of immigrant workers, this is distributed across all economic sectors, but there is a larger proportion working in trade, hotels, and restaurants and domestic services. Additionally, foreign-born are similar to the native-born regarding their participation in self-employment and employment informality. In summary, we have presented evidence suggesting that the local labor market has absorbed immigrants relatively well in Chile. To some extent, this result could be consequence of the cultural and linguistic proximity of a large proportion of immigrants that have arrived in the past years.

While the purpose of this paper has been limited to document and characterize recent immigration in Chile, our findings are suggestive of several areas where further

research is needed in order to assess the impact of this event on the economy. For example, the transition of the employment of immigrants to more qualified type of jobs could contribute to increase a country's productivity. To quantify this phenomenon would be an important step towards understanding better the channels of output growth in Chile.

References

Aleksynska, M. and A. Tritah. (2013). "Occupation-Education Mismatch of Immigrant Workers in Europe: Context and Policies". Economics of Education Review, 36(C): 229-244.

Altonji, J. and D. Card (1991). "The Effects of Immigration on the Labor Market Outcomes of Less-Skilled Natives". In *Immigration, Trade and the Labour Market*, edited by J.M. Abowd and R.B. Freeman. Chicago, IL: University of Chicago Press.

Angrist, J.D. and A.D. Kugler (2003). "Productive or Counter-Productive? Labour Market Institutions and the Effect of Immigration on EU Natives". *Economic Journal* 113(488): F302–F331.

Borjas, G. (1994). "The Economics of Immigration". *Journal of Economic Literature* 32(4): 1667–717.

Borjas, G. (2000). "Introduction to Issues in the Economics of Immigration". In: *Issues in the Economics of Immigration*: NBER Chapters: National Bureau of Economics Research.

Boubtane, E., J.C. Dumont and C. Rault (2016). "Immigration and Economic Growth in the OECD Countries, 1986-2006". *Oxford Economics Papers* 68(2): 340–60.

Bretschger, L. (2001). "Labor Supply, Migration, and Long-Term Development". *Open Economies Review* 12(1): 5–27.

Butcher, K.F. and D. Card (1991). "Immigration and Wages – Evidence from the 1980s". *American Economic Review* 81(2): 292–6.

Card, D. (1990). "The Impact of the Mariel Boatlift on the Miami Labor Market". *Industrial and Labor Relations Review* 43(2): 245–57.

Central Bank of Chile (2017). *Crecimiento Tendencial: Proyección de Mediano Plazo y Análisis de sus Determinantes*. Banco Central de Chile.

Chiswick, B.R and P.W. Miller. (2008). "Why is the Payoff to Schooling Smaller for Immigrants?", *Labour Economics* 15(6): 1317:1340.

Coleman, D. (2002). "Replacement Migration, or Why Everyone is Going to Have to Live in Korea: A Fable for Our Times from the United Nations". *Philosophical Transactions of the Royal Society*, B357: 583–98.

Contreras, D., J. Ruiz-Tagle and P. Sepúlveda (2013). "Migración y Mercado Laboral en Chile". Serie Documentos de Trabajo N° 376, Facultad de Economía y Negocios Universidad de Chile.

Cortes, P. (2008). "The Effect of Low-Skilled Immigration on U.S. Prices: Evidence from CPI data". *Journal of Political Economy* 116(3): 381–422.

D'Amuri, F. and G. Ottaviano (2010). "The Labor Market Impact of Immigration in Western Germany in the 1990s". *European Economic Review* 54(4): 550–70.

Docquier, F., C. Ozden and G. Peri (2014). "The Labor Market Impact of Immigration and Emigration in OECD Countries". *Economic Journal* 124(579): 1106–45.

Dolado, J., A. Goria and A. Ichino (1994). "Immigration, Human Capital and Growth in the Host Country: Evidence from Pooled Country Data". *Journal of Population Economics* 7: 193–215.

Dustmann, C., T. Frattini and A. Glitz (2007). "The Impact of Immigration: A Review of the Economic Evidence". Report File N° 102, Centre for Research and Analysis of Migration, Department of Economics, University College London, and EPolicy LTD.

Dustmann, C., U. Schonberg and J. Stuhler (2016). "The Impact of Immigration: Why Do Studies Reach such Different Results?" *Journal of Economic Perspectives* 30(4): 31–56.

Friedberg, R.M. and J. Hunt (1995). "The Impact of Immigration on Host Country Wages, Employment and Growth". *Journal of Economic Perspectives* 9(2): 23-44.

Friedberg, R.M. (2001). "The Impact of Mass Migration on the Israeli Labor Market". *Quarterly Journal of Economics* 116(4): 1373–408.

Grossman, J. (1982). "The Substitutability of Natives and Immigrants in Production". *Review of Economics and Statistics* 64(4): 596–603.

Hunt, J. (1992). "The Impact of the 1962 Repatriates from Algeria on the French Labor Market". *Industrial and Labor Relations Review* 45(3): 556–72.

Hunt, J. and M. Gauthier-Loiselle (2010). "How Much Does Immigration Boost Innovation?" *American Economic Journal, Macroeconomics* 2(2): 31–56.

Johnson, G. (1980). "The Labor Market Effects of Immigration". *ILR Review* 33(3): 331–41.

Lagakos, D., B. Moll., T. Porzio., N. Qian and T. Schoellman. (2018). "Life Cycle Wage Growth Across Countries". *Journal of Political Economy*, 126(2): 797-849.

Lubotsky, D. (2007). "Chutes or Ladders? A Longitudinal Analysis of Immigrant Earnings". *Journal of Political Economy* 115(5): 820–67.

Muysken, J. and T.H.W. Ziesemer (2013). "A Permanent Effect of Temporary Immigration on Economic Growth". *Applied Economics* 45(28): 4050–9.

OECD (2015). *Indicators of immigrant integration*. Paris, France: OECD.

Okkerse, L. (2008). "How to Measure Labour Market Effects of Immigration: A Review". *Journal of Economics Surveys* 22(1): 1–30.

UN. (2000). "Replacement Migration: is it a Solution to Declining and Aging Populations?" UN Population Division, New York.

Ortega, F. and G. Peri (2014). "Openness and Income: The Roles of Trade and Migration". *Journal of International Economics* 92(2): 231–51.

Ottaviano, G. and G. Peri (2012). "Rethinking the Effect of Immigration on Wages". *Journal of the European Economic Association* 10(1): 152–97.

Peri, G. (2012). "The Effect of Immigration on Productivity: Evidence from U.S. States". *Review of Economics and Statistics* 94(1): 348–58.

Piracha, M. and F. Vadean. (2013). "Migrant educational Mismatch and the Labor Market". In *International Handbook on the Economics of Migration*, edited by A. Constant and K. Zimmermann. Edward Elgar Publishing Limited.

Poot, J. and S. Stillman. (2010). "The Importance of Heterogeneity when Examining Immigrant Education-Occupation Mismatch: Evidence from New Zealand", *IZA Discussion Papers*, N°5211.

Smith, C. (2012). “The Impact of Low-Skilled Immigration on the Youth Labor Market”. *Journal of Labor Economics* 30(1): 55-89.

Wald, S. and T. Fang. (2008). “Overeducated Immigrants in the Canadian Labour Market: Evidence from the Workplace and Employee Survey”. *Canadian Public Policy* 34(4): 457-479.

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