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Does higher population matter for labour market? Evidence from rapid migration in Canada

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ABSTRACT

Canada has been a host country to migrants for decades through its attractive immigration policy. To enrich the literature, this article analyses the impact of immigration on the Canadian labour market at the regional level. For this purpose, 10 provinces of Canada have been selected for this study with the data spanning over 12 years from 2006 to 2017. Through the empirical analysis, the article finds there is a significant negative impact of immigration on the native employment level. Whereas the opposite results are found on the national level and the impact on the income of native workers is found to be negative and significant. The employed natives are also found to be migrating to other states at a higher rate in regions where immigration is higher. These results show that natives employees in the labour market tend to migrate and immigration hence offsetting the wage effects on the regional level.

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1. Introduction

Migration is a natural phenomenon and has been prevalent since the beginning of time. People have migrated in history to survive and settle in new regions. As time moves on, migration has become more widespread due to faster communication and shorter travel times between countries. The introduction of new, more advanced technologies has provided a platform for individuals and families to travel abroad more easily. However, all migrants cannot be assigned to a single category. Some people migrate voluntarily for different purposes (education, family reunification, work, etc.) while others are forced to migrate to protect themselves and survive because of persecution or war in their home countries. Migration, whether voluntary or forced, can

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have a profound impact on the sending and receiving country. Respective of the number of migrants arriving in a country, the labour market can be affected as a result. In the case of forced migration, the receiving country may have to spend a large sum of money to help those arriving by providing them their basic needs (accommodation, health and educational services).

Migration can lead to both advantages and disadvantages for the sending and receiving countries. The sending countries are usually the recipients of remittances, the money that migrants send back to the home country for their family. Remittances make up large parts of the funds entering developing countries and accounted for an estimated $441 billion in 2015 (World Bank, 2010). However, sending countries are also at the forefront of brain drain, bright minds, and high-skilled workers, especially from developing countries, end up moving to more developed economies. A large amount of literature exists on the brain drain that arises as a result of high-skilled workers leaving their home countries and moving to more developed countries with higher opportunities (Docquier et al., 2007; Todaro & Smith, 2006). The destination country also faces some tough situations as the arrivals of immigrants increases, the labour market is affected as a result. The arrival of skilled labour in certain industries may result in the displacement of locals. In literature, there has been a focus on the impact of immigrants on the local labour market outcomes as well as their impact on the wage levels. Some studies find there to be a positive impact of migration on natives' wages (Peri et al., 2015) while other studies have found a negative impact of migration on the wages of low-skilled labour (Borjas, 2003; Del Carpio & Wagner, 2015). Much of the literature has conducted these analyses on a national level, excluding the regional work done in the USA, while creating a comparison among different countries (mostly for developed nations). However, regional analysis within countries has not gained much attention. It is just as important to see the regional impact whether that be state-wise or city-wise to see how the local labour markets respond at that level.

This study is an attempt to enrich the limited literature available on the regional impacts of migration. Through an exploration of the study variables, including employment levels, wage levels and immigrant flows, at the state/regional level. This study able to provide valuable insights into the way migration inflows and impact the local populace as well as the possible explanations into how different employees may react and handle such scenarios. This study uses a local labour market approach to analyse the impact of immigration on the labour market. The local labour market approach is chosen because it can provide a more in-depth analysis of cities within a country or region.

The importance of doing a city-level or region-level study is that immigrants may be clustered in different regions or cities across a country. Hence, an overall study of a country may not paint the full picture. Besides, there is evidence that networks play an important role in determining the location of the migrants (Munshi, 2003). Migrants tend to cluster with other migrants as a result of different factors, such as common language, culture and traditions. Therefore, it would be more useful to study the impact of migration at a local level, providing greater insight into different states/cities. To bring more depth to the literature of immigration and labour markets at a regional level, this study is proposed to study the 10 provinces of Canada. This study focuses on the labour market impact of immigration within the different regions of

Canada. However, descriptive analysis is used to get a better understanding of the labour market through indicators, such as participation rates, employment levels and wages. It is hypothesised that immigrants have a positive impact on the labour market through higher employment rates among locals and higher wages among locals due to immigration.

2. Literature review

The impact of immigration on the labour market has been well documented with studies focusing on different aspects of immigration and their impact on the overall labour market, the employee wages and the regional impacts of immigration. Immigration can have different effects on the local labour market depending on the type of migrants arriving in the country. The immigrant skill level is key in determining their entry into the labour market. While a country's pull factors will also determine the type of migrants that will arrive in that country. For example, Canada will be subject to receiving migrants that are rather highly educated whereas the UAE is more attractive for low skill labour and migrants.

The labour market literature has found mixed results for the impact of immigrants. Many studies have been completed within the USA, given the availability of the data and the immigration flows at different times of history. Several studies in the 90s found there to be no or very little adverse effect of immigration on the wages of the natives (Card, 1990; Butcher & Card, 1991; Saleem, Shabbir, Bilal Khan, et al., 2020; Kaushal & Lanati, 2019). Whereas, Card (1990) analysed the impact of a mass immigration influx of Cubans in the 1980s in Miami, which was later extended to a wider geographical area of 24 cities in another study (Butcher & Card, 1991). While national-level analyses in the USA completed by Borjas (1992) and Borjas et al. (1996) found there to be a negative impact of immigration on the wages and employment opportunities for high school dropouts in the USA during the 1980s.

Other literature complements these findings that immigrants are responsible for the displacement of low skill labour in destination countries (Özden & Wagner, 2014). However, the same cannot be said for skilled jobs, where immigrants do not have a substitution but rather a complementary effect on the natives. Similarly, in some studies conducted in the case of Europe, some findings support the claim that immigrants have a rather negligible impact on the employment levels in the local labour market. Immigrants that do not have a perfect substitution effect on the natives in the local market do not worsen the wages for that job group (Ottaviano & Peri, 2006). This may be also due to underemployment, as has been evidenced in different countries. Immigrants are not employed according to their educational level, hence they hurt natives in low-skilled positions (Barrett et al., 2005).

Some recent studies have also focused on the impact of immigrants not only on the labour market but also on the growth of the economy. There is evidence that the EU economy has benefitted from increased immigration, an increase in GDP is associated with increased immigration in EU countries (Boeri & Brücker, 2005). While similar effects have been found at the country level for Austria and Germany (Heijdra et al., 2002; Shabbir & Wisdom, 2020; Brücker & Kohlhaas, 2004). Though

immigrants have a positive impact on the economy, wage gaps persist between the immigrants and natives. Immigrants with same or higher education levels as the natives are paid lower than the natives. There may be several reasons for this such as underemployment, holding foreign education to be of lesser value and quality than the home country, language and cultural barriers, etc. Beyer (2016) finds that new immigrants with identical characteristics as locals are paid on average 20% lower than their native counterparts in Germany. Similar is the case on a national level in Canada, where a 38% difference in average earnings was observed between immigrants and non-immigrants in 2006 (Akbari, 2011).

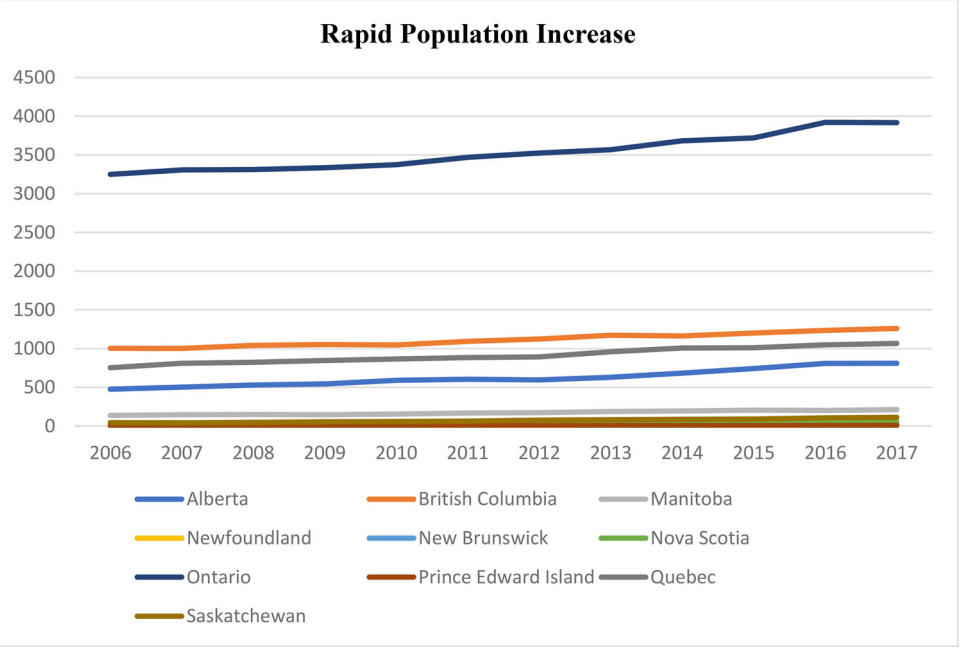
Several studies have been conducted within Canada and the impact of immigration. A study on the impact of immigration on the labour market between 1991 and 2001 showed no significant impact on the wages of natives, neither is there an impact of the immigration in the 1980s a decade later (Tu, 2010). Interestingly, Aydemir and Borjas (2006) found that immigration led to a narrowing of wage inequality in Canada due to a large number of high-skilled immigrants entering the country. Kaushal and Lanati (2019) studied the earnings growth of immigrants in Canada and find there to be evidence of no relative earnings growth for immigrant men when compared to Canadian born.

However, national-level analysis can only show the national performance and provide a general situation of the country, but they do not necessarily pinpoint the regions where there are higher gaps in wages and higher impacts on employment. Some studies have been completed on a local or regional level within countries; one such study is done in South Africa. They show mixed findings of the study in that immigration harms the employment rates of natives on a district level whereas, a negative relationship exists among increased immigration and income levels of natives on a national level (Biavaschi et al., 2018). Akbari (2011) highlights the importance of regional analysis since most of the studies evaluate national performance. Whereas immigrants may be attracted to particular regions due to the number of opportunities, availability of social networks or professional networks or more diverse and concentrated international communities.

3. Trends of immigration to Canada

Graph 1 shows the progression of immigration into the different provinces of Canada over 12 years starting from 2006. The graphs are separated according to the provinces in which the highest number of immigrants have arrived and provinces where a lower number of immigrants have arrived. This distinction is made to see the differences because some states had a very high amount of immigrant arrivals hence keeping them all in the same graph did not show a clear picture of the situation on hand. Whereas (thousand) denotes the number of people who got immigration in one year regarding 10 states of Canada.

There has been a large influx of immigrants in Canada due to its friendly policies towards migrant settlement. Canada adopted a point system in 1967 to attract highly skilled migrants towards settling in different regions of Canada. The system was designed to meet shortages in the labour market and to stimulate growth in different



Graph 1. Immigration to Canada by year (number of people in thousands).
Source: Statistics Canada (2018).

provinces especially those where there was low economic activity and growth such as British Columbia and the Atlantic regions. In the 1980s, Canada's immigration policy not only captured the economic side of things but also focused on creating diversity. According to the Migration Policy Institute, there have been approximately 250,000 immigrants arriving in Canada on an annual basis since the mid-1980s. Currently, Canada employs an improved version of a similar point system to meet the labour market and skill shortages. As a result of this policy, Canada has been a country of destination for skilled immigrants from around the globe. It continues to attract high skilled workers and as grown immensely due to this immigration policy. In 2011, 21% of Canada's population was foreign-born while another 17% had at least one foreign parent. As shown in Graph 1, the population of immigration towards Canada is increasing rapidly. Canada continues to promote multiculturalism through their immigration policies, the impact of which can especially be seen in metropolitan areas.

4. Data and methodology

This study highlights an important issue of population increase and its effect on labour market of 10 states of Canada. The data for this study is collected from the Statistics Canada database. It provides data on various indicators including the immigrant population in different regions of Canada. The Organisation for Economic Co-operation and Development (OECD) data is used to identify the overall immigrant data in Canada according to their education level, employment and unemployment

status, gender and place of birth. This data is gathered and analysed to generate the national level analysis for the labour market.

Annual data on immigrants is collected through the Statistics Canada database. This data shows the number of immigrants residing in different regions across Canada. The population of Canadian citizens is also collected from the same data source. The employment data of immigrants and citizens is collected from the same database as well. This data is collected for a period of 12 years from 2006 to 2017. This study adopted the methodology of Borjas (2006) and Biavaschi et al. (2018). This study uses the 10 provinces of Canada as regions, such as Alberta, British Columbia, Manitoba, Newfoundland, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan for analysis. The wage data is collected from the National Household Survey (NHS) with four data points over 16 years. The NHS is a comprehensive survey that is completed every five years; hence the wage data has been collected in that format. The NHS surveys used for this study include 2001, 2006, 2011 and 2016. However, it should be noted that the data on these surveys are different from the previous years, therefore, the actual wage data is from 2000, 2005, 2010 and 2015.

Descriptive analysis is used to get a better understanding of the labour market through indicators, such as participation rates, employment levels and wages over time from 10 provinces of Canada. The employment rate and labour market participation rates are compared among immigrants and non-immigrants from 2006 to 2017 in all 10 provinces. In addition, the wage data is compared for all 10 provinces from 2000 to 2015.

$$SS_{ijt} = \sum M_{ot}\ £_{oj}\ €_{oit} \tag{1}$$

The above Equation (1) indicates (M_{ot}) as several of migrant's sources (M) in different countries (o) and states of Canada (t) in the entire period. Whereas $(£_{oj})$ share of immigrants from the country (o) who were observed living in 10 states of Canada (j) in a previous period. Finally $(€_{oit}A)$ fraction of immigrants from origin country (o) in the year (t) belong to skill group as (i).

This study investigates the impact of immigrants on the local labour market of Canada. To carry out the empirical analysis this study exploits the attractive variation in the data set. The immigrants in the local market are donated by P_{ijt}, the male labour force as foreign-born is contributed as M_{ijt}, several natives as corresponding defines as N_{ijt}. Whereas i as skill group, j defines as provinces and t period.

$$P_{ijt} = \frac{M_{ijt}}{(M_{ijt} + N_{ijt})} \tag{2}$$

Furthermore, the empirical analysis describes association among foreign workers, different skill levels and the domestic labour market in 10 different provinces of Canada.

$$L_{ijt} = x_i + y_j + z_t + (x_i * y_j) + (x_i * z_t) + (z_t * y_j) + \beta_p P_{ijt} + \mu_{ijt} \tag{3}$$

Equation (3) explains as L_{ijt} labour market outcome (dependent variable), x_i vectors of fixed effects in control, y_j vectors of fixed effects in skill levels and z_t vectors of fixed effects in provinces level. Whereas, interaction terms, such as $(x_i * y_j)$ identify the coefficient of interest, $(x_i * z_t)$ and $(z_t * y_j)$ both describe the control in labour market outcomes concerning skill levels and different provinces in the entire sample, β_p defines the rate of immigrants and changes in labour market consequences over the period within the list of provinces (Shabbir & Muhammad, 2019).

Immigration may have a diversity of effect on the native labour force, while some may be immediately displaced, others may decide to migrate to other regions that are less affected by immigration. The movement of natives into regions of lower immigration or displacement into the informal market are some of the indirect effects of immigration (Biavaschi et al., 2018). The following framework, formed by Borjas (2006), gives us a better understanding of the effects of immigration. The model formed by Borjas (2006), focuses on the movement of native workers to other labour markets that are less affected by immigration. These offsets the impact of immigration on the wages of the locals which is well documented in the literature (Biavaschi et al., 2018).

In the following model, i represents a certain skill level, j represents the local labour market and t represents a specific period. The demand for labour is represented by π which is a constant elasticity function within the model. The N_{ijt} represents the native population in the labour market at time t, *while* m_{ijt} represents the migrant influx into the labour market. As a result of the migrant influx into a labour market, the wages are predicted to decrease leading to internal migration of the native workers (Shabbir and Yaqoob, 2019). This change in wages is a change in factor prices, the native's reaction to this occurs with a delay, a lag of one period, leading to a native labour supply elasticity given by a. A one-period lag is necessary because the natives will not migrate immediately therefore, the effects of the migration influx must be measured with a lag. Solving the model gives us two main equations, the first (Equation (4)) which represents the natives employed, and the second (Equation (5)) that represents the corresponding wages.

$$\begin{aligned} \text{Log } N_{ijt} = \log N_{ij,-1} + \left[(1+\pi a)^{t+1} - 1\right] \pounds_{ij} + t\ m_{it} \\ - \left[\frac{t}{t+1} + \frac{(1+\pi\alpha)}{\pi\alpha}\frac{1-(1+\pi a)^{t}}{(t+1)}\right] m_{ijt} \end{aligned} \tag{4}$$

The term $\pounds_{ij} = \log\frac{(N_{ij,-1})}{N_i^*}$ and N_i^* represents the number of native workers with skill i that will live in a region in the long-run equilibrium.

$$\begin{aligned} \text{Log } W_{ijt} = \log W_{ij-1} + \pi\left[(1+\pi a)^{t+1} - 1\right]\pounds_{ij} \\ + \pi\left[\frac{t}{t+1} + \frac{(1+\pi\alpha)}{\pi\alpha}\frac{1-(1+\pi\alpha)t}{(t+1)}\right] m_{it} \\ + \pi\left[\frac{t}{t+1} + \frac{(1+\pi\alpha)}{\pi\alpha}\frac{1-(1+\pi\alpha)t}{(t+1)}\right] m_{ijt} \end{aligned} \tag{5}$$

In each of the two equations, the first part represents the current condition of the native works and the next two parts demonstrate how the native's employment and their wages react to the presence of immigrants. The region-specific shock (represented by m_{ijt}), in the long run, the coefficient for native employment converges to -1 whereas, the coefficient for wages converges to 0. This means that as the time from immigration and the time at which the variables are recorded increases, the results offset the labour supply shock and neutralise any impact that immigration makes in the short run. Therefore, no change in wages is observed in the long run.

$$\text{Log } N_{ijt} = \log N_{ij-1} + \pi\alpha\pounds_{ij} + \pi\alpha\ (t\pounds_{ij}) - \pi\alpha\ m_{it} + \pi\alpha m_{ijt} \tag{6}$$

$$\text{Log } W_{ijt} = \log W_{ij-1} + \pi^2\alpha\ \pounds_{ij} + \pi^2\alpha\ (t\pounds_{ij}) - \pi^2\alpha\ m_{it} + \pi^2\alpha\ m_{ijt} \tag{7}$$

Equations (4) and (5) are simplified into the two equations stated above (Equations (6) and (7), respectively). It is important to note that $\pi < 0$ and $\alpha > 0$ as is in the article of Borjas (2006) and Biavaschi et al. (2018) where we have adopted the model from. When analysing the spatial correlation, the higher the α, the estimated native employment becomes more negative whereas, wages respond opposite becoming less negative (Nguyen et al. 2020). This means that the spatial correlation between the native employment and immigrant stock will be more negative when the model is applied to a small labour market, whereas the same will hold for wage and immigrant stock in a model applied to larger markets (Borjas, 2006).

5. Empirically findings

This study considers three different measures of native employment, such as a self-employed share in the labour force, employees share in the labour force and total employment rate as reported results in Table 1. The result of this table reveals with this remark that immigrants have an insignificant impact on the native employment rate. Moreover, in column (1) estimated coefficient β_p (0.020) with standard error as (0.039) show economically minor and insignificant for all conventional levels. However, the result regarding employee shares and self-employed in the labour force shown in columns (2) and (3), respectively. It is noted that there is no effect on immigrants across different types of employment as well as the total employment rate.

The first three Equations (1)–(3) check the employment levels of the natives, the first equation giving an overall native employment view of the market while the second equation only shows the employed individuals and the third equation shows the self-employed individuals. Similarly, Equations (4)–(7) show how the income level of the natives is affected by immigrants entering the labour market. Equation (5) shows the overall income of total employed individuals in the labour market corresponding to Equation (1). Equation (6) shows the income of employed in the labour market corresponding to Equation (2). Equation (7) shows the income of self-employed individuals in the labour market corresponding to Equation (3).

Table 1. Effect of the immigrants labour market on native's employment and income.

	Employment			Income			
Description	(1) (E + SE + Oth)/LF	(2) E/LF	(3) SE/LF	(4) Log total income (LF)	(5) Log total income (E + SE + Oth)	(6) Log total income (E)	(7) Log total income (SE)
Migration share	0.0198	0.0576	−0.0003	−0.1378	−0.0653	−0.0567	0.1405
	−0.0386	−0.0487	−0.0297	−0.1354	−0.1254	−0.1385	−0.4126
Constant	0.7147***	0.4973***	0.0784***	7.985***	8.463***	8.764***	9.325***
	−0.0021	−0.0023	−0.0014	−0.0066	−0.0068	−0.0071	−0.0187
Skill, provinces, years and two-way interaction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.97	0.95	0.94	0.98	0.99	0.97	0.93
N	3360	3360	3360	3360	3360	3360	3360

Note: ***, results are significant at 1 percent.
Source: Author's own estimation.

Table 2. Population increase of immigrants on natives employment and income.

	Employment			Income			
Description	(1) (E + SE + Oth)/LF	(2) E/LF	(3) SE/LF	(4) Log total income (LF)	(5) Log total income (E + SE + Oth)	(6) Log total income (E)	(7) Log total income (SE)
Migration share	0.0187	0.0536	−0.0004	−0.1359	−0.0636	−0.0543	0.1436
	−0.0354	−0.0443	−0.0276	−0.1343	−0.1237	−0.1357	−0.4164
Constant	0.712***	0.493***	0.0765***	7.954***	8.496***	8.245***	9.341***
	−0.0019	−0.002	−0.0016	−0.0062	−0.0061	−0.0046	−0.0142
Skill, provinces, years and two-way interaction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.96	0.95	0.93	0.97	0.97	0.96	0.95
N	3360	3360	3360	3360	3360	3360	3360

Note: ***, results are significant at 1 percent.
Source: Author's own estimation.

The impact of a population increases among the immigrants entering Canada is one of the main aspects that is to be analysed within this study. As shown in Table 2, we find that both the migration share and the fixed effects are insignificant when testing for a population increase. However, the *R*-squared value found for all of the different aspects of the model is quite high, ranging between 0.93 and 0.97. This goes to show that our model can explain a majority of the variability of the response data around the mean values. According to the *R*-squared values obtained, the data is a good fit for the model that is being used within this study.

Tables 3 and 4 provide the results of the labour market effects of immigrants on the natives in the local market. An overall negative impact of immigrants is found in the local labour market. A significant negative impact of immigrants is found on the native employment rate. That is, a 10% increase in the number of immigrants in a specific skill group leads to a 3.46% decline in native employment. A negative impact is also found on the different measures of the native household income (4–7).

Table 3. Labour market effect of immigrants on native employment and income.

	Employment			Income			
Description	(1) (E + SE + Oth)/LF	(2) E/LF	(3) SE/LF	(4) Log total income (LF)	(5) Log total income (E + SE + Oth)	(6) Log total income (E)	(7) Log total income (SE)
Migration share	−0.3468**	−0.4219**	−0.0358	−0.7435	−0.6582	−0.0396	2.493
	−0.1743	−0.2134	−0.0592	−0.4381	−0.4643	−0.5428	−2.285
IV	0.2176***						
	−0.0478						
F-test	21.451***						
p Value	.000						
Skill, provinces, years and two-way interaction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3360	3360	3360	3360	3360	3360	3360

Note: **, results are significant at 5 percent and ***, results are significantat 1 percent.
Source: Author's own estimation.

Table 4. Effects of immigrant's population on native employment and income.

	Employment			Income			
Description	(1) (E + SE + Oth)/LF	(2) E/LF	(3) SE/LF	(4) Log total income (LF)	(5) Log total income (E + SE + Oth)	(6) Log total income (E)	(7) Log total income (SE)
Migration share	−0.4762**	−0.5113**	−0.0419	−0.8431	−0.6481	−0.0412	2.175
	−0.1431	−0.2375	−0.0482	−0.3851	−0.5173	−0.6358	−2.079
IV	0.2259***						
	−0.0512						
F-test	19.921						
p Value	.000						
Skill, provinces, years and two-way interaction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3360	3360	3360	3360	3360	3360	3360

Note: **, results are significant at 5 percent and ***, results are significantat 1 percent.
Source: Author's own estimation.

However, these results are not significant. These results mean that at the local level, the influx of immigrants in the labour market does not have a significant effect on the income levels of the natives (Saleem, Shabbir, Khan, Aziz, et al., 2020). We also find the results on the impact of immigration on the native employment rate to be significant.

The effects of immigration can only be justified if the model we use for the study is tested and can explain the different variables used for this study. In the table above, we test for the fitness of the model by running an *F*-test. The results show a *p* value of .000 which means that the model used within this study fits the data well. Besides, the *F*-test value (19.921) is quite high, giving us the best fit for the data on hand. Finally, we find there to be a significant negative relationship between the migration share and our overall model. The IV is also found to be significant. Combining these results with the results found in Table 2, we find that the model is best fit to data

Table 5. Labour market effects of immigrants on native employment and income (national level) years.

	Employment			Income			
Description	(1) (E + SE + Oth)/LF	(2) E/LF	(3) SE/LF	(4) Log total income (LF)	(5) Log total income (E + SE + Oth)	(6) Log total income (E)	(7) Log total income (SE)
Migration share	0.3219	−0.0439	0.5123***	−2.6378**	−2.2813**	−2.7615***	−3.0012
	−0.0213	−0.1984	−0.1296	−0.8945	−0.9421	−0.8165	−2.1387
Constant	0.7287***	0.5183***	0.0634***	8.525***	8.183***	9.124***	9.645***
	−0.0015	−0.0019	−0.0057	−0.0039	−0.0051	−0.0083	−0.0174
Skill, provinces, years and two-way interaction FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.99	0.98	0.98	0.99	1	0.99	1
N	40	40	40	40	40	40	40

Note: **, results are significant at 5 percent and ***, results are significantat 1 percent.
Source: Author's own estimation.

Table 6. Effects of immigrants on native mobility years.

Panel A: OLS province level			
Description	(1) LF	(2) (E + SE + Oth)	(3) U
Migration share	−0.6819***	−0.6935***	−0.5726**
	−0.1653	−0.2104	−0.1296
Education, experience, years and two-way interaction FE	Yes	Yes	Yes
R-squared	0.98	0.97	0.99
N	3360	3360	3360
Panel B: IV province level			
Description	(1) LF	(2) (E + SE + Oth)	(3) U
Migration share	−4.9629***	−5.5385***	−3.1536***
	−1.0253	−1.0106	−1.2967
Education, experience, years and two-way interaction FE	Yes	Yes	Yes
R-squared	0.84	0.72	0.83
N	3360	3360	3360

Note: **, results are significant at 5 percent and ***, results are significantat 1 percent.
Source: Author's own estimation.

and the high *R*-squared values confirm that the majority of the variability can be explained by the variables that are chosen within this model.

The national-level effects are more significant than what we have found on the local level. The Table 5, labour market effect of immigration on native self-employed is found to be positive and significant. A 10% increase in the immigrant population in the labour market would lead to a 5.1% increase in the share of self-employed natives in the labour force. These results on the national level show that an increase of immigrant workers leads to the natives turning towards self-employment. The impact on the income of native workers is found to be negative and significant (4–6). The results found here are the opposite of what we had found earlier on the local level (Table 3). It shows that while at the local level, we found a negative significant impact of immigrants on the native employment rates, on the national level that is not the case (Saleem, Khan, et al., 2020). These results show that to mitigate the

effects of the influx of immigrants into the labour market, the natives tend to move towards self-employment and migrate to other regions hence not begin affected by the immigrants as much. This is in line with the results that are expected from the Borjas (2006) model.

Now, we analyse how the influx of immigrants impacts the movement of natives in other regions, a comparison of the employed and unemployed natives. The above table shows that both the stock of natives (1) and the stock of active natives (2) are negative and significant. The stock of unemployed natives (3) is also negative and significant, but the number is lower. This shows that employed natives tend to migrate at a higher rate from a district/region where there is an influx of immigrants. The unemployed do not migrate as fast since they may not be affected much by the labour market variables. This is in line with what we found earlier in the case of the impact of immigrants on the local market having a negative significant impact on the native employment rate. As the employment rate is affected negatively, the native workers migrate to other regions where there are fewer immigrants.

Similar are the results found for our IV on the local level. The impact of immigration on the native mobility years is significant and negative for all categories of natives, stock of natives in the labour force (1), the stock of active natives in the labour force (2) and the stock of unemployed natives (3). Corresponding to the previous table, the effect of immigrants on the mobility of the unemployed natives is lower than on the employed natives. Since the employed natives are the ones who are displaced as a result of immigration. When checking for the IV, the results show a much higher impact; there is a much more negative impact of migration share on all three equations within this table when compared to the previous Table 6. The intervention of the IV also hurts the *R*-squared values, they are observed to have dropped quite a bit when comparing the values from Panel A and Panel B of Table 6. These results show that at the provincial level where there is an IV intervention, there is a much more negative impact than at the national level. At the provincial level, there is a displacement of native employment which can be also due to the movement of natives into other provinces to find better opportunities. The results on the national level confirm that overall, migration does not have as large of an impact on the labour market as expected through the analysis of the provincial results.

6. Results and discussion

In the case of a single-product economy, it may face adverse effects of immigration (unemployment and wage levels) due to an increase in the supply of labour (Borjas et al., 1997). Whereas an economy that produces a diversity of products should not face such conditions in the long run. Huber and Tondl (2012) state that an industry that faces a surge in labour supply (as a result of migration) will see wages drop, however, those wages will offset once more firms enter that industry to reap the benefits of the abnormal profits (resultant of cheap labour) and converge the wage rate back to the mean. Whereas in the long run there should be convergence to the mean, in the short run wages are bound to be depressed in industries that face an influx of labour as a result of migration (Dustmann et al., 2005; Dustmann et al., 2008). This

short-run shock can be attributed to many factors such as capital which is fixed in the short-run and cannot expand in an instant. The decrease in the capital to labour ratio leads to lower productivity of labour, whereas, the return on capital increases as a result of lower wages (Huber & Tondl, 2012). Besides, in the short run the native migrants may not be able to adjust to the changes due to commitments. However, over time the natives can adjust to the situation through different means including up-gradation of their knowledge and skills or through internal migration into a different region where the labour market demands are more fruitful.

Using the empirical model designed by Borjas (2006), this article analyses the Canadian labour market at a local and national level. At the local level, 10 Canadian provinces are analysed for their immigration inflows and labour market outcomes. A 12-year dataset is used that spans from 2006 to 2017, this is used for the immigrant influx data and employment data. Whereas four data points are used for the wage data starting from 2000 to 2015. The model (Borjas, 2006) uses in his study has recently been used in a study by Biavaschi et al. (2018) to study the impact of immigration in South Africa. This article follows this study in analysing since their study focuses on the regional level data similar to the data used in this article. Various factors of importance in this article include the immigrant inflow to different provinces over the studied period, their employment rates, education levels and wage levels.

A study conducted by Longhi et al. (2006) finds that a 1% increase in immigration has only a 0.02% decrease in the level of employment among natives. Several other studies find there to be no adverse effects of immigration on the unemployment levels among natives (Bonin, 2005; Dustmann et al., 2005; Saleem, Shahzad, et al., 2019; Muhammad et al., 2020; Liu et al., 2020; Lemos & Portes, 2008). While no particular overall adverse effects are found, there is evidence for impact based on skill level and age groups where low-skilled workers face some negative impact. Ruiz and Vargas-Silva (2017) studied labour market at the municipal level to analyse the impact of migration. The author finds there to be a very small or negligible effect of migration on the natives' unemployment rates, however, among cities and urban municipalities there is a small negative impact on unemployment rates in the short run which becomes non-existent in the long run. Similarly, a micro-level study was conducted on Russian cities. Among the highly educated individuals, migration has an insignificant effect on their wages while the authors find a complementarity for workers with primary or secondary education (Giltman et al., 2018). The study finds that migrants have a positive impact on low-skilled native workers' wages hence being a complement to these workers.

Through the analysis of different immigrants entering the Canadian labour market, we find that on the local level immigrants do hurt the native employment rates. However, these results are insignificant on the national level as natives migrate to other regions that host a lower number of immigrants. Also, we find that on the local level there is no significant impact on the wages of the native workers. On the national level, we find the opposite results, which is in line with previous research carried out by Borjas (2006) and Biavaschi et al. (2018). The national-level results relate that as immigrants move into a specific region, the wage effects are

insignificant because the employed natives migrate to other regions at a higher rate which offsets the impact of immigrants on the labour market on the local scale.

7. Conclusion

Canada has implemented an immigrant-friendly policy for many years and encourages skilled migration to the country from around the world. As a result, many immigrants migrate to Canada each year for work purposes. This has had a significant impact on the labour market dynamics in the country. Studies in the past have mainly focused on the impact of immigration on the national labour markets while there have been a fewer number of regional studies. This article aimed at enriching the literature on regional studies in terms of the impact of immigration. The authors found that the Canadian labour market had been studied on the national level but not on a provincial level. This article is an attempt at closing this gap in the literature by studying the immigration and labour market in 10 different provinces of Canada.

Migration can have different effects on the labour markets, it can adversely impact the wages or unemployment, it may have no impact at all and in other cases, it may force the native labour force into different geographical regions or sectors in turn improving their wages and skill sets. A difference also exists in the short and long-run effects of migration, where there might be severe short-run effects but in the long-run markets may converge to the norm. Convergence can also occur on a regional level, where wages may converge towards an average within a particular region as a result of migration. The immigration policy for skilled migrants has meant that thousands of new migrants enter the country's labour market each year. As a result, the country has grown, and its labour markets have also expanded over time. While there is an expansion of the economy, a large influx of immigrants can have drastic impacts on the labour market whether that be on the employment rates of the locals or the wage rates. Literature exists on the way labour markets are affected as a result of immigration; however, these effects on a regional level are still not very well documented.

This study has some limitations; likewise, the authors faced different limitations that shaped the outcome and results of the study. Authors often face the limitation of data when doing research; we also faced the same when undertaking this research work. Ideally, the authors would prefer a more elaborate dataset that would help to perform more rigorous research and increase the reliability of the results. Limited data were available at a regional level hence limiting the methodology and the results acquired. While some data was available, it was very difficult to compile the data and make use of it. Nevertheless, the authors were able to find, compile and analyse data that led to concrete results. A more comprehensive data set will improve future studies and lead to better results.

In terms of future research, different paths can be taken based on this research. One, the authors would advise improving on the regional impact of migration. It is important to observe how local governments respond to migration. The local impact is the key for destination countries as they can help to improve new localities or steer migration to specific cities. Besides, the local impact can also be studied across

borders in analysing migration's impact on the labour market among cities across the world that attract a high number of migrants. This would make for an interesting discussion on how different cities are accommodating migrants, their skills and the impact they have made on the local labour markets. The forthcoming researchers may use top 10 cities of the world, where more migration found and check the comparison analysis of these 10 cities.

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