Citizenship and Immigration Canada | Citoyenneté et Immigration Canada

Economic Integration of French-speaking Immigrants Outside Quebec: A Longitudinal Approach

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April 2015

Canada

Research and Evaluation

This project was funded by the Research and Evaluation Branch at Citizenship and Immigration Canada that receives funding from the *Roadmap for Canada's Official Languages 2013-2018: Education, Immigration, Communities* to support research on immigration in official language minority communities.

Ci4-150/2016E-PDF
978-0-660-05049-2
Reference Number: R7-2014

Table of contents

Summary ii
Introduction 1
Data, methods and variables 5
Data and methods 5
Variables 8
Life table 10
Descriptive results 14
Multivariate analysis 35
Economic immigrants 46
Conclusion 49
Annexe A. Illustration of methodological options 52
Annexe B. Theoretical framework of Chiswick and Miller (1995) 58
Annexe C. Références bibliographiques 60

Summary

This study presents an analysis of the economic integration of French-speaking immigrants to Canada who live outside Quebec, based on the longitudinal approach of survival analysis. It stems from the large body of work that has looked at the issue of immigrant integration in Canada. Those studies adopted a longitudinal method as well, but were based on the analysis of synthetic cohorts constructed in most cases from Canadian censuses.

Our study uses administrative data, namely from the Longitudinal Immigration Database (IMDB). The IMDB contains information on the income of all immigrants who have come to Canada since the early 1980s. This information comes from tax data linked to the permanent resident file of Citizenship and Immigration Canada (CIC). For this study, we selected French-speaking immigrants who arrived in Canada between 1983 and 2010 and who were living outside Quebec.

Using survival analysis enabled us to construct extinction tables (or life tables) that take the economic integration of immigrants into account. These tables are based on the probability of an immigrant reporting employment income that is equal to or higher than the employment income of persons born in Canada (reference income) in a given province and year and for each sex, knowing that the individual has not reached this level of employment income since becoming a permanent resident. This is the independent variable that we are seeking to explain. The baseline probabilities function—or baseline function—is calculated on the basis of the duration of residence in Canada, in years. The reference income was also calculated using tax data from the Longitudinal Administrative Databank (LAD).

In addition to income, the IMDB sheds light on certain characteristics of immigrants. Most of the data on these characteristics are collected when an immigrant arrives in Canada. For example, we know the immigrant class, mother tongue, knowledge of official languages, highest diploma or degree earned, and country of birth. Data on other characteristics can be acquired from tax data, which include information on the province of residence and marital status. These characteristics are likely to change over time.

Our study focused on immigrants' language characteristics, other characteristics that could have an influence on language abilities and, in general, factors that affect income. The results of our analyses are presented two ways. First, from the life tables, we calculated a central tendency indicator—the median time it takes to reach the reference income—and reproduced elements from the tables, such as cumulative percentages of immigrants who reached the reference income for given durations of residence.

Second, multivariate analyses performed using discrete-time proportional hazards regression enabled us to substantiate the results produced from the life tables and to measure the impact in the context of a statistical model that isolates the effect of the length of residence in Canada and the compositional effects from the distribution of the population based on the different individual variables.

The main findings from our study are as follows:

First, a difference between men and women was noted. Women reached the reference income more quickly than men. One of the explanations for this finding relates to the definition of the independent variable, which was calculated separately for each sex. It appears to be easier for female immigrants to reach the average income of women born in Canada than for male

immigrants to reach the average income of men born in Canada. The reason for this is that Canadian-born men are more likely to report high incomes than Canadian-born women, which pushes upward the average income of Canadian-born men compared with Canadian-born women. This means that female immigrants were able to reach the average income of Canadian-born women more quickly than male immigrants were able to reach the average income of Canadian-born men.

We found that the length of time it took to reach the reference income varied little by arrival cohort, for both men and women. However, this finding changes when we isolate the effect of individual variables. Through multivariate analysis, we observed a decrease in the probability of reaching the reference income from the oldest to the most recent cohort. Most of this decrease occurred during the first 10 years of residence. In other words, the oldest cohorts took less time to reach the reference income than the most recent cohorts.

Age at arrival and characteristics relating to human capital had the expected effect on attainment of the reference income. Age at arrival, immigrant class, language characteristics and education level are all strongly associated with attainment of the reference income. Age at arrival and education level emerge as gradients: the younger the age at arrival, and the higher the education level, the more quickly the reference income is reached. Immigrant class plays a significant role in this phenomenon. Skilled workers stand out from the other groups in that they were more likely to reach the reference income. In this respect, they are joined only by immigrants recruited under the Provincial Nominee Program—female immigrants in particular, who are even more likely to do so. There is a possibility that provinces and territories are more successful in selecting immigrants suited to the particular needs of their own labour markets.

Language group, established on the basis of language characteristics (mother tongue and knowledge of official languages), has a strong influence on the economic 'success' of French-speaking immigrants. There are two findings here. Knowledge of both official languages at the time of entry to Canada—in reality, knowledge of English—is positively associated with attainment of the reference income for men and for women. French-speaking immigrants who knew only French at the time of entry are at a disadvantage compared with those who are bilingual.

We also determined that unilingual women—who reported speaking only one official language, i.e., French, at time of entry—experienced a substantial progression in their economic integration as of the fifth year of residence in Canada.

French-speaking immigrants who settled outside Quebec come from all over the world. Our findings showed that immigrants born in Europe and Oceania displayed better economic integration than other groups. This is a very general observation, given the significant differences among particular regions and even countries of birth. Furthermore, the effect of an immigrant's birthplace is not exactly the same for men and for women.

Immigrants from the major Anglo-Saxon countries, such as the United States, the United Kingdom and Australia, reached the reference income quickly, and this is especially true for men. However, this group is few in numbers. Immigrants from European countries such as France, Germany and Romania also experienced rapid economic integration. However, our findings indicate that coming from a French-speaking or English-speaking country located outside Europe and Oceania is not associated with better economic integration. Nevertheless, there are differences between men and women when the effects of other individual variables are isolated. The findings from the regression models indicated that the probability of French-

speaking women from Sub-Saharan Africa and the Americas reaching the reference income is comparable to that of French and European female immigrants in general. One of the factors contributing to their economic success is their high level of integration as of the fifth year of residence in Canada.

Our final conclusion relates to research topics that warrant further study. The first of these is clearly the economic integration of female immigrants, which has been less studied than that of men. Another avenue of research could involve comparing the longitudinal approach chosen for this report against a longitudinal approach based on synthetic cohorts. Such research should not be confined to French-speaking immigrants outside Quebec but should include all immigrants living in official-language minority communities, including English-speaking immigrants living in Quebec.

The matter of economic immigrant classes could also be explored in greater depth, once again including all immigrants. Is the economic success of immigrants admitted under the Provincial Nominee Program seen in other immigrant groups and in all provinces and territories where this program is in place?

Introduction

The population of French-speaking immigrants[1] who have chosen to settle in Canada in a province other than Quebec is relatively small. In 2011, the National Household Survey (NHS) revealed that the number of immigrants outside Quebec whose mother tongue is French was 65,700. Using the most inclusive criterion of the definition of first official language spoken (FOLS)[2], there were 153,900 French-speaking immigrants outside Quebec, of whom 74,500 had French as the only FOLS and 79,400 (in the absence of sufficient information) were assigned both French and English as dual first official languages spoken. In 2011, French-speaking immigrants composed just under 12% of the total French-speaking population (immigrant and non-immigrant) outside Quebec—a percentage that has been rising since the 1990s (Houle and Corbeil 2010; Houle et al. 2014)—and 2% of the total population of immigrants outside Quebec.[3]

In September 2006, the Citizenship and Immigration Canada – Francophone Minority Communities Steering Committee released the Strategic Plan to Foster Immigration to Francophone Minority Communities. The Plan's main objectives were to increase the number of French-speaking immigrants in francophone minority communities and to facilitate their intake and their social, cultural and economic integration in such communities. This report addresses the Plan's second objective and looks at the economic integration of French-speaking immigrants living outside Quebec.

To that end, we look at the employment income of French-speaking immigrants compared with that of non-immigrants as a whole and at the variations in such income based on different demographic, migratory and socioeconomic characteristics, using a longitudinal approach. We use the Longitudinal Immigration Database (IMDB), which contains information on the income of all immigrants entering Canada since the early 1980s. A 2010 Statistics Canada report shed light on the characteristics of French-speaking immigrants, including characteristics relating to their labour force participation. However, it did not contain any analysis of income (Houle and Corbeil 2010). This study therefore represents an initial contribution towards addressing a gap in knowledge relating to this subpopulation.

The economic integration of immigrants in Canada has been widely studied, and the major trends relating to recent changes in income are known. A number of articles published in the wake of Borjas's seminal work (1985) looked at the income trajectories of immigrants over the past few decades in Canada. Borjas's main contribution was to highlight the importance of adopting a longitudinal perspective to look at immigrants' income in studying the effect of

[1] In our study, we use the terms 'French-speaking immigrants' and 'francophone immigrants'. The first term refers to the population of interest for our study, i.e., the population whose mother tongue is French, which reports knowing only French and which reports knowing both official languages (with the exception of immigrants whose mother tongue is English). We use the second term for immigrants whose mother tongue is French.

[2] This definition (based successively on knowledge of official languages, mother tongue and language spoken most often at home) makes it possible to attribute to the majority of people whose mother tongue is neither French nor English an FOLS that is the one most likely to be used by such individuals in the public space and therefore to evaluate the demand for services in each official language (Statistics Canada 1989).

[3] In these two calculations, French-speaking immigrants are defined as all immigrants whose FOLS is French only plus half of those whose FOLS is English and French. The number of such immigrants was 114,200, rather than the figure of 153,900 that is obtained if we simply add the two numbers. In the first instance, we are referring to the population before redistribution of the 'English and French' category, while in the second we are referring to it as the population after redistribution.

duration of residence on changes in income. Borjas uses an approach involving synthetic cohorts[4] followed between two censuses and analyzes the absolute income of immigrants as well as their relative income compared with people born in Canada.

Many Canadian studies (Aydemir and Skuterud 2004; Grant and Sweetman 2004; Green and Worswick 2004; Hum and Simpson 2004; Frenette and Morissette 2003, 2005; Picot and Sweetman 2005) have taken up Borjas's methodological approach. These studies show that the relative incomes of immigrants have declined since the 1970s. According to Frenette and Morissette's calculations (2003, 2005) based on five censuses of synthetic cohorts of immigrants, the relative income of immigrants at the time of entry to Canada—those with between one year and five years of residence—declined from one cohort to the next from the cohort of immigrants who entered Canada between 1975 and 1979 up to that which entered between 1990 and 1994. It is the 'cohort' effect that accounts for the change in the average 'quality' of the successive cohorts of immigrants entering Canada. Quality is assessed primarily on the basis of educational attainment as well as other characteristics such as knowledge of official languages and age at arrival.[5]

Frenette and Morissette's study also indicates that, as duration of residence in Canada increases, immigrants' incomes tend to grow closer to those of people born in Canada. This is the 'assimilation' effect. The 1975-1979 cohort, the oldest one included in the analyses, surpassed the average income level of people born in Canada after roughly 15 years of residence. For subsequent cohorts, however, the catch-up effect is not sufficient to fully close the gap between the two groups. On the contrary, the gap compared with people born in Canada tends to widen from one cohort to the next.[6]

Employment income is not the only indicator of the economic integration of immigrants. Picot and Hou (2003) studied the issue of low-income immigrant families through the 1981 to 2001 censuses using the same synthetic cohort approach. They were able to identify an upward trend in low-income rates among immigrants during the study period, while there were no significant changes in people born in Canada. Altogether, both the absolute and the relative rate of low income among immigrants rose during the period, a finding consistent with the changes in income.

To our knowledge, this type of analysis has not been performed by language group, and most of the studies use census data. Few are based on data from the Longitudinal Immigration Database (IMDB), although we note those of Green and Worswick (2004) and, more recently, Picot et al. (2014).

The factors associated with the economic integration of immigrants—the primary ones at least—are known. With regard to factors that explain trends in the incomes of different cohorts, three of them are well documented (Picot and Sweetman 2005). The first is tied to the changes in the source countries of new immigrants, of whom the majority now come from non-

[4] A synthetic cohort (or pseudo-cohort) is constructed from aggregate populations observed at different points in time. For example, immigrants who had accumulated 0 to 4 years of residence in 2006 and those who had accumulated 5 to 9 years of residence in 2011 make up a synthetic cohort (incomplete) in that they are essentially the same individuals observed five years apart.

[5] The 'qualities' referred to here are those that are conducive to labour market integration.

[6] Picot and Sweetman (2005) and Hum and Simpson (2004) provided a good summary of these results. Hum and Simpson's main conclusion is summarized as follows: "[A]nalysis of successive Canadian Censuses suggests that earlier cohorts of immigrants may have readily achieved parity with their native-born counterparts, but recent cohorts likely have not, and will not, in their lifetimes." (p. 55).

European countries (in Asia, the Middle East, Africa, the Caribbean and Latin America). These changes affect the characteristics typical of such immigrants, in particular with regard to their knowledge of Canada's official languages and the difficulties they encounter in having their foreign academic credentials and work experience recognized (Mata 1999).[7] The second factor is the decline in the value attributed to foreign work experience that has been observed for immigrants from these new source countries of immigration. One of the consequences of this decline in the recognized value of foreign work experience is that age at immigration has become a decisive factor in economic integration (Picot and Sweetman 2005): entering Canada at a younger age increases economic adaptability because these young immigrants will acquire their first work experience in Canada, among other factors.[8] Also noted was an overall decline in wages for new workers, immigrants and people born in Canada, for men in particular. This is the third factor.

In a more general sense, the economic integration of immigrants in Canada at a given point in time depends on the characteristics of those immigrants, such as their knowledge of Canada's official languages, their level of education and skills, their age, the immigration program under which they were admitted as permanent residents and their country or region of origin. All of the studies cited take these characteristics into account in their models and analyses.[9] These characteristics are not necessarily independent of one another. For example, immigrants admitted as skilled workers present a higher educational profile (a larger proportion hold a university degree) than other classes. Immigrants from certain parts of the world, such as nationals of France, the United States, the Philippines or the Maghreb, have French or English as a mother tongue or have a very good knowledge of one of those two languages. Geographic origin also has an influence on recognition of foreign credentials and work experience (Houle and Yssaad 2010; Zietsma 2010).

Certain characteristics are acquired or change over time, i.e., as the number of years of residence in Canada increases. This is especially true with regard to acquisition of proficiency in the official languages, along with family status and place of residence (city, province), which can change as a result of internal migration. Skills can be upgraded in Canada by attending educational institutions, and recognition of foreign credentials and experience may be pursued and ultimately achieved. In addition, knowledge of the labour market generally improves the longer the duration of residence in Canada.

This study is resolutely longitudinal and draws on all of the relevant information contained in the IMDB. The main objective is to identify the observable factors associated with the economic integration of French-speaking immigrants who live in Canada outside Quebec. These immigrants face a special challenge: that of being French speaking in an environment that is largely English-speaking. This consideration warrants special attention. The variables that serve to define the language characteristics of French-speaking immigrants are our main variables of interest, and we can better determine their scope if we take into consideration the other characteristics of these immigrants, such as immigrant class, age at arrival, education level and place of residence.

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[7] Using data from the Longitudinal Survey of Immigrants to Canada (LSIC), Houle and Yssaad (2010) calculated that, after four years in Canada, 28% of immigrants had obtained recognition of their academic credentials in Canada and 39% of their work experience.

[8] Immigrants entering at a young age generally pursue their education in Canada, and their proficiency in one of the two official languages can be assumed to be equivalent or comparable to that of native-born Canadians.

[9] With the notable exception of immigrant class, which is not available in the censuses and the NHS.

The first chapter pertains to the data used, the variables selected for the analyses and statistical methods. The second chapter presents detailed descriptive results. In that chapter we propose life tables (or elements of such tables) or a summary indicator (median time) for all of the variables selected. Multivariate analysis—discrete-time proportional hazards regressions using logistic regression—is addressed in Chapter 3. A fourth chapter takes a brief look at the economic success of various economic immigrant classes. The final chapter presents the study's conclusions and suggests some potential research avenues arising from the main findings from this work.

Data, methods and variables

This chapter begins by presenting the data and the methods used in this study, including definition of the dependent variable, which is a crucial element of the actual method, i.e., survival analysis. The independent variables are then introduced and explained. Language group (or subgroup) is the subject of special attention. Lastly, the life table is explained.

Data and methods

We applied survival analysis to the question of the economic integration of immigrants.[10] Survival analysis is widely used in epidemiology, demography and all of the social sciences. The IMDB data are amply suited to this type of analysis in that they make it possible to follow annual trends in income and secondary migration of new immigrants through record linkage between CIC's data on new immigrants and tax data, taken mainly from the T1 Family File. The overall linkage rate is approximately 80%.[11] The IMDB covers the entry period from 1980 to 2011, with each year representing an observation panel.

We defined our 'economic integration' variable as the time (year) when an immigrant's employment income reaches the average income of people born in Canada—or reference income—for the first time. In making this calculation, we therefore had to turn to another data source to obtain the employment income of people born in Canada. To that end, we considered two sources. The first was the 1981 to 2006 censuses of Canada and the 2011 NHS, and the second was the LAD. The LAD is a subset of the T1 Family File (T1FF) that represents 20% of tax returns, i.e., an annual cross-sectional file of all taxfilers and their families.[12] Quand aux données de recensement et de l'ENM, elles sont basées sur un échantillon aléatoire tiré auprès de 20 % des ménages et de 33 % des ménages respectivement.

As for the census and NHS data, they are based on a random sample taken from 20% of households and 33% of households respectively.

The variable to be explained (the dependent variable) is a transition 'rate', more specifically a proportion. Immigrants are followed over time from their entry into Canada as permanent residents until their individual employment income reaches the average employment income of people born in Canada, where applicable. Immigrants who reported an employment income equal to or greater than the 'reference' average employment income of people born in Canada are therefore undergoing a transition from a state x to a state y. A certain number of immigrants will not reach this level between the year of their arrival and the last year they are observed, either because they are deceased, have left the country or have stopped earning employment income or because they still had not reached the reference income as of the last panel available in the IMDB, i.e., in 2011. These immigrants are said to be right censored. In addition, some immigrants may temporarily 'disappear' from the IMDB for one reason or another and may reappear later, in another year. Cases of truncation that can be attributed to the fact of having reached the last year of observation (2011) do not present any difficulties because they are independent of the process under study; they take place randomly. The same does not hold true

[10] We thank Michael Wendt and Suzanne Crompton of Statistics Canada for proposing this original idea.

[11] For more information on the IMDB, see the following page on the Statistics Canada website: http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=5057&lang=fr&db=imdb&adm=8&dis=2

[12] Thanks to a unique individual identifier, LAD can also be used to follow taxfilers over time.

for other forms of truncation, which are probably not random and therefore not independent of the process. It is possible, for example, that immigrants who leave the country have characteristics that are different from those of other immigrants. They may leave Canada if they are not satisfied with their economic progress. In that case, estimates are biased and the picture they present is more positive than it is in reality in the absence of attrition. Values missing from the data produce similar biases. These cases of selection bias present problems and they are difficult to correct (Blossfeld and Rohwer 2002). In this study, there is no attempt to correct them.[13] The 'transition rate' is composed of two elements: a numerator, i.e., the number of events or transitions during a given year (since we calculated annual probabilities), and a denominator, i.e., the number of immigrants who did not experience the event in the past but were likely to experience it during the same period of time. The latter condition is crucial given that immigrants who had experienced the event stop being part of the 'at-risk' population after that point.

In a recent study, Picot and Piraino (2012) looked at the question of selection bias present in the income trajectories calculated on the basis of synthetic cohorts. Although the research question raised in their study is different from the more general question of attrition in longitudinal data, the main conclusions remain relevant to our study, albeit incomplete. Picot and Piraino in fact show that 'exits' from the sample involve both immigrants and people born in Canada. For example, growth in the income of immigrants and people born in Canada over time is overestimated, but the two effects cancel one another out. Therefore, there is little if any bias in the relative incomes of immigrants as a result of these exits. The method adopted by these authors is based on comparison between longitudinal follow-up of cohorts that reported an income in the last year available in the database and the income trajectories of synthetic cohorts. For this reason, their conclusion cannot be generalized to all immigrants who have entered Canada.

Immigrants are part of the 'at-risk' population as long as they have reported employment income. However, the analysis period (time counter), which is defined by the number of years since an individual's arrival in Canada as a permanent resident, does not stop until attainment of the reference income or truncation. Even if an immigrant does not report employment income during a given year, the time counter continues to run for that individual from one year to each calendar year.

We chose to calculate the average employment income of people born in Canada, or reference income, through the LAD base, which is the same data source on income as for the IMDB. The reference income (average employment income of people born in Canada) was calculated by gender, province of residence and calendar year and applies to immigrants on the basis of this profile.[14] For example, for a female immigrant living in Ontario in 2005 to be considered as having reached the reference income, and thus having made the transition between state x and state y, her reported employment income in 2005 must be equal to or higher than the average female employment income in Ontario in 2005. This reference income could have been defined differently: we could have taken the median income, for example, or, rather than consider employment income, we could have taken only income from wages. We also could have been

[13] Researchers have proposed techniques for correcting selecting bias, but Blossfeld and Rohwer (2002) remain ambivalent towards (and critical of) these techniques because it is not possible to make valid hypotheses regarding what cannot be observed.

[14] We note that neither the IMDB nor the LAD indicates the number of weeks worked during the year or whether the employment was full time or part time.

stricter regarding the definition of state y: for example, rather than confine ourselves to the first year in which the reference income is reached, we could have 'required' that the reported income reach or surpass the reference income for two years in a row. The rationale would be that we are trying to define a state that denotes the probability of future income stability.

The reference income corresponds to that of people aged 25 to 59 born in Canada. Although sex, province and calendar year are taken into account, education level is not included in the calculations. It would have been possible to do so with the census and NHS data, but not with the LAD base. The question that arises is which income should be used for the purposes of comparison with the income of immigrants, although it is difficult to answer this question without undertaking more specific research. In the case of education level, we can ask whether the formal education received abroad, postsecondary education in particular, is truly comparable with that obtained in Canada and whether it can really constitute a standard of comparison. To our knowledge, this question has never been addressed in the Canadian studies on income trajectories cited earlier. Different approaches were tested and some of them are illustrated in Annex A.

In this study we confine ourselves to immigrants who arrived at age 25 or older and whom we are following up to the age of 59. The main reason is that we want to accurately measure education level, an essential component of human capital. Since the IMDB contains information on education level at time of entry, and since the data do not allow for this information to be updated on the basis of the educational history in Canada, we wanted to ensure that the education level reported by immigrants was generally definitive (for the majority) at the time of entry into the labour market. The education level reached before age 25 could change with age for a number of immigrants; in the extreme case of immigrants who arrived as children, it is obvious that the education level reported at time of entry is no longer meaningful at the time when the immigrant reaches the age of entry into the labour market. Similar reasoning applies to immigrant class, an important selection factor that plays a role in the economic success of immigrants. Immigrant class is less significant for immigrants who arrived at a young age since they all entered as dependants.[15]

In our study we follow immigrants up to age 59 at the oldest. As a result, immigrants who have not attained state y or who have not been truncated along the way before age 59 are automatically truncated at that age limit. This random truncation is not affected by the process being studied.

We allowed the transition or the truncation to take place even if the individuals were temporary residents living in Quebec. Such cases are not part of our research and we took them into account so as to avoid introducing bias into our analyses. We were interested in the transitions of immigrants (not temporary workers) who live outside Quebec. For example, there is a strong likelihood that an immigrant who made a transition in Quebec and who migrates to another province will report a high income after migration; otherwise, that individual undoubtedly would not have migrated. The case of women who are married or in a relationship is different, in that the reasons for the internal migration are not necessarily the same as for men. For example, a woman may decide to migrate for family reasons or to follow her husband or partner in his migration as part of a family economic strategy (Morokvasic 1984).

[15] In their case, however, the child's immigrant class provides us with indirect information concerning the circumstances of the parents' immigration.

We looked at cohorts of immigrants who arrived between 1983 and 2010. We did not select the 1980 and 1981 cohorts, for which we did not have complete information on income given that such information was not available until 1982. We did not use the 1982 cohort either, because there was no way of knowing whether or not immigrants who arrived in 1982 were temporary residents[16] before becoming permanent residents (since we had no information on income prior to 1982). However, we did have this information for all cohorts that arrived after 1982.

Variables

The variables included in the analyses or used to construct other variables are relatively small in number, and some of them present limitations. It is possible to distinguish three types of variables: the baseline probabilities function (or baseline function), variables set when permanent residence is obtained and variables that change (or are likely to change) over time.

The baseline probabilities function corresponds to the curve of transition probabilities for the analysis period, i.e., the duration of residence in Canada. The baseline hazard function is expected to be similar on a multiplicative scale, through its form, from one population group to the next. It must therefore describe an underlying probabilities function that populations are subject to and that varies according to duration of residence.

Among the variables set at the time of arrival in Canada, sex is treated as a stratification variable, with all of the analyses being presented separately for men and women. Men and women constitute two distinct subpopulations, and sex often interacts with other variables.

Other variables that do not change over time are year of arrival, age at arrival, experience of temporary residence, immigrant class, highest degree earned, mother tongue, knowledge of official languages, country of birth and country of last residence.

The variables that can change over time, which can be updated each year on the basis of information obtained from tax data, are marital status, interprovincial migratory status and province of residence.[17]

Language variables are essential in this work. Mother tongue and knowledge of official languages at time of entry to Canada initially served to identify the French-speaking population.[18] We cross-tabulated these two variables to obtain the following categories, which will thus define our four French-speaking subpopulations of interest:

1. mother tongue French and knowledge of French only
2. mother tongue French and knowledge of French and English

[16] Or, more specifically, whether or not they reported income in 1982 as temporary workers (or other temporary resident status, such as foreign student).

[17] To these variables we could add calendar year and age, which change predictably with time. However, they are not used in our study given that arrival cohort and age at arrival are already taken into account along with duration of residence.

[18] In our study, we use the terms 'French-speaking immigrants' and 'francophone immigrants'. The first term refers to the population of interest for our study, i.e., the population whose mother tongue is French, which reports knowing only French and which reports knowing both official languages (with the exception of immigrants whose mother tongue is English). We use the second term for immigrants whose mother tongue is French. The terms 'anglophone immigrants' and 'allophone immigrants' are used in the same way: they respectively designate immigrants whose mother tongue is English and those whose mother tongue is other than French or English. We note that the concepts of 'mother tongue' and 'knowledge of official languages' do not correspond precisely to the concepts used by Statistics Canada in censuses and surveys.

3. mother tongue other than French and knowledge of French only [19]
4. mother tongue other than French and English and knowledge of French and English

There is also a population that has English as the mother tongue and that knows both official languages. This subpopulation is not part of our French-speaking population of interest, but it serves as a point of comparison on occasion.

The first three language groups can roughly be equated with people who have only French as their FOLS, while the fourth can be equated with people who have French and English as their FOLS.[20]

Age at arrival, immigrant class and the level of the highest degree obtained (or education level) are all associated positively with both the linguistic and the economic integration of immigrants. In the case of age at arrival and education level, we limited ourselves to four categories for each. For age at arrival, we focused on immigrants who arrived at younger ages (the first three age groups are 25 to 29, 30 to 34 and 35 to 39), while for education level we focused on university education (undergraduate studies were distinguished from post-graduate, masters and doctoral studies).

We identified five immigrant classes, focusing on the skilled workers program. Immigrants entering Canada under this program were split into two subgroups: principal applicants in one, and spouses and dependants in the other. Principal applicants were selected for the characteristics deemed most appropriate for succeeding economically in Canada on the basis of various criteria, including education level, level of skills and knowledge of official languages. The profile of spouses and dependants is similar to that of principal applicants owing to the homogamous nature of the couples (Kalmijn 1991; Schwartz and Mare 2005).[21]

A certain number of temporary foreign residents obtain permanent residence in Canada. The IMDB can be used to identify these immigrants if they reported an income when they were temporary residents. We created a dichotomous variable that indicates whether or not an immigrant was a temporary resident before becoming a permanent resident. This situation can be associated with better economic integration in that it could have enabled a future immigrant to acquire greater official language proficiency, work experience in Canada and a better knowledge of the labour market during the time when he or she was a temporary resident. For students who have made the transition to permanent resident status, the issue of recognition of academic credentials does not arise since those credentials would have been obtained from an educational institution in Canada.

The IMDB data indicate the province of residence at the time each tax return was filed. We used this information to derive two new variables that can be updated each year. The first variable is province of residence. The second is an immigrant's interprovincial migratory status. Immigrants

[19] This category includes a small number of immigrants whose mother tongue is English and who reported knowing only French.

[20] Our analyses of the effect of language on economic integration are inspired to a large extent by the theoretical framework proposed by Chiswick and Miller (1995). See Annex B for a presentation of this theoretical framework.

[21] Among the francophone immigrants looked at in our study, we calculated that 75% of principal applicants under the skilled workers program had a university degree upon arriving in Canada (for years of entry from 1983 to 2010). Among spouses and dependants admitted under this program, 61% held a university degree. For immigrants admitted under the family program, refugees and other immigrants, the corresponding percentages are 40%, 28% and 43%, respectively

are classified as internal migrants if they have made a change in their province of residence in the interval between two consecutive reporting years.[22] This variable serves to identify three different situations: since entering Canada, the immigrant has never changed province of residence; has changed province of residence only once; or has changed province of residence more than once. A particular immigrant may be a non-migrant in the initial years of his or her time here, but once moving to another province of residence that immigrant becomes an interprovincial migrant. Most immigrants did not migrate during the observation period.

Immigrants who move to another province do so for different reasons, although considerations relating to work (and education for the youngest ones) outweigh other reasons, which primarily involve the presence of friends and family members at the destination (Dion, 2010). Internal migration should therefore accelerate economic integration since the main reason that immigrants decide to migrate is to improve their economic situation.[23]

An immigrant's marital status also has an effect on economic integration and is normally included in the controls used in studies on this subject (Aydemir and Skuterud 2004; Frenette and Morissette 2005). Married men tend to have higher incomes than single men, while the opposite is true of women. The reasons are partly related to the traditional roles associated with men and women. In many cases the man is the main breadwinner of the family, while the woman's career develops in parallel with (or may even be in competition with) family life and the care of young children; a women's income may in fact play a supplementary role or be tied to the fact that she holds part-time employment. Married men are therefore inclined to put more into their careers than married women. Single women have a more stable presence on the labour market than married women, while widows and women who are separated or divorced are often prompted to join the labour force because of the precariousness created by their new marital status as a result of a breakup. The information on marital status is updated each year given that such information is required on the tax return. We have established three different categories: persons who are married or living in a common-law union, single people, and situations in which a relationship has broken down (separation, divorce, widowhood).

Life table

We begin by looking at the basic life table (Table 1). The probabilities calculated between time t and t+1 correspond to the transition rates. The survivors shown in the table are derived as follows. At time 0, it is assumed that there are 100 survivors, i.e., S(0)=100. Survivors at t for t(1), t(2), … t(n) are calculated as $S^t = S^{t-1} - (p^{t-1,\,t} * S^{t-1})$. The C^t cumulative proportions are the result of the difference at 100 for the survivors, i.e., $C^t = 100 - S^t$. Table 1 shows that, after 20 years of residence in Canada, 38% of men and 23% of women still have not reached the reference income. These percentages are very general in that they do not take into account the effect of variables that are equally as significant as period of arrival and age at arrival in Canada, education level or immigrant class on the variable to be explained. The cumulative proportions do not add any new information to the survivors series, although they do make them easier to interpret. It can thus be said that, after 20 years of residence in Canada, 62% of men and 77% of

[22] Here we considered only migrations that took place as of age 25. Therefore, some immigrants may have moved to another province of Canada before that age.

[23] The decision to migrate may also stem from a work-related transfer. In other cases the decision to migrate is not made until a new job is found or anticipated. Such situations highlight the potentially endogenous nature of the relationship between migration and income.

women reached the reference income. The median time for reaching the reference income[24] is 11.4 years for men and 6.7 years for women.

Table 1: Life table, all cohorts of French-speaking immigrants outside Quebec, by gender

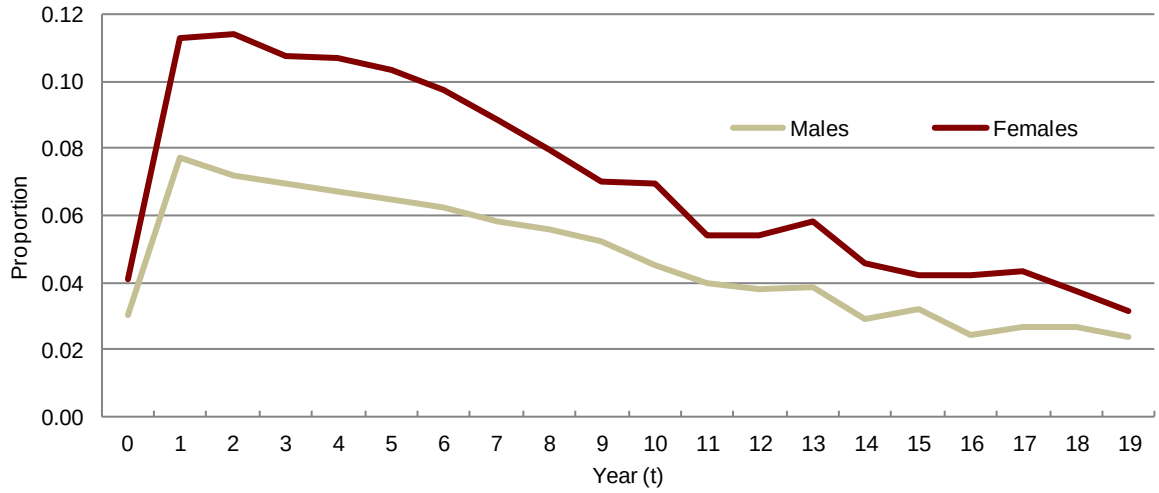
	Probability between t and t+1		Survivors in t (%)		Cumulative proportion in t (%)	
Year t	Males	Females	Males	Females	Males	Females
0	0.030	0.041	100.0%	100.0%	0.0%	0.0%
1	0.077	0.113	97.0%	95.9%	3.0%	4.1%
2	0.072	0.114	89.5%	85.1%	10.5%	14.9%
3	0.069	0.108	83.1%	75.4%	16.9%	24.6%
4	0.067	0.107	77.3%	67.2%	22.7%	32.8%
5	0.065	0.103	72.1%	60.1%	27.9%	39.9%
6	0.062	0.098	67.4%	53.9%	32.6%	46.1%
7	0.058	0.088	63.2%	48.6%	36.8%	51.4%
8	0.056	0.080	59.6%	44.3%	40.4%	55.7%
9	0.052	0.070	56.2%	40.8%	43.8%	59.2%
10	0.045	0.069	53.3%	37.9%	46.7%	62.1%
11	0.040	0.054	50.9%	35.3%	49.1%	64.7%
12	0.038	0.054	48.9%	33.4%	51.1%	66.6%
13	0.038	0.058	47.0%	31.6%	53.0%	68.4%
14	0.029	0.046	45.2%	29.7%	54.8%	70.3%
15	0.032	0.042	43.9%	28.4%	56.1%	71.6%
16	0.024	0.042	42.5%	27.2%	57.5%	72.8%
17	0.027	0.043	41.4%	26.0%	58.6%	74.0%
18	0.027	0.037	40.3%	24.9%	59.7%	75.1%
19	0.023	0.031	39.3%	24.0%	60.7%	76.0%
20			38.3%	23.2%	61.7%	76.8%

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Graphic representation of probabilities and cumulative proportions has proven to be an effective way of viewing trends. Chart 1 presents the baseline annual probabilities and Chart 2 the cumulative proportions, both series having been taken directly from Table 1. The annual probabilities curve shows that, with the exception of the first year of residence, the probability of reaching the reference income decreases as the duration of residence increases. This hazard structure appears to be the result of a selection effect: the best candidates, such as immigrants admitted under the skilled workers program or immigrants with a higher education, reach the reference income not long after their arrival. However, the probabilities decrease quickly because other immigrants encounter more constraints in accessing the job market—some must look more intensively for work, obtain recognition of their foreign credentials or upgrade their language skills. The first year of residence is atypical given that most immigrants will have spent only a fraction of the year in Canada.

[24] This refers to the number of years needed for half of the immigrant cohort to reach the reference income. The average time cannot be calculated, because the table is not complete—a complete table would means that all immigrants had reached the reference income. This average time could therefore be estimated on the basis of hypotheses that would make it possible to 'close' the table, but we did not have any information enabling us to properly formulate such hypotheses.

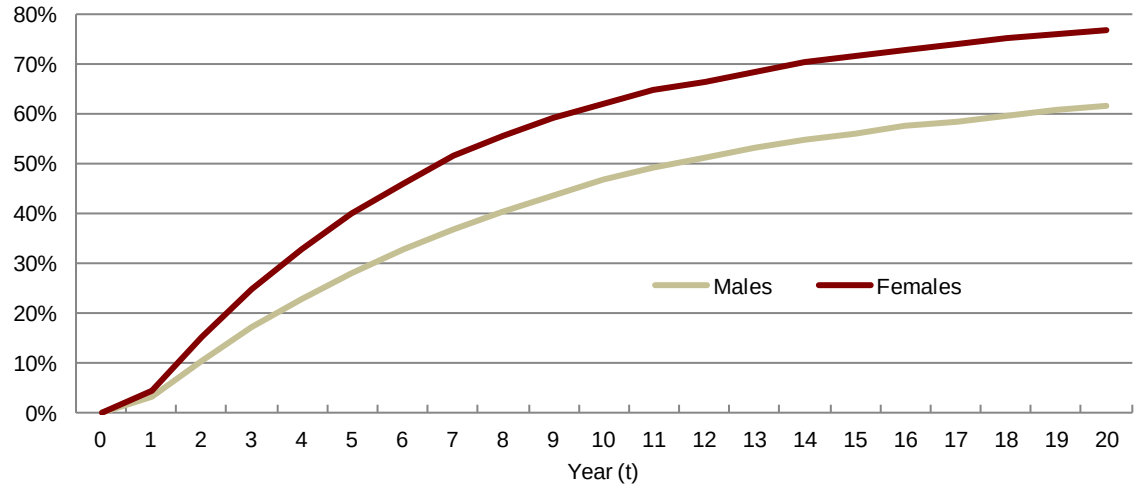
Chart 1: Annual probabilities of reaching reference income (baseline function), all cohorts of French-speaking immigrants outside Quebec, by gender



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The cumulative proportions illustrate the time that a cohort of immigrants needs in order to reach the reference income. Charts 1 and 2 clearly show that, although women have lower incomes, they are in a more favourable position than men. After 20 years of residence in Canada, more women than men (a difference of 15 percentage points) reached the reference income. The difference between the two groups remains to be explained, but one plausible hypothesis is that, on a proportional basis, Canadian-born women report fewer high incomes than Canadian-born men. Accordingly, female immigrants appeared to reach the average income of Canadian-born women more quickly than male immigrants reached the average income of Canadian-born men. This question should definitely be studied further.

Chart 2: Cumulative proportions for attainment of reference income, all cohorts of French-speaking immigrants outside Quebec, in percentage

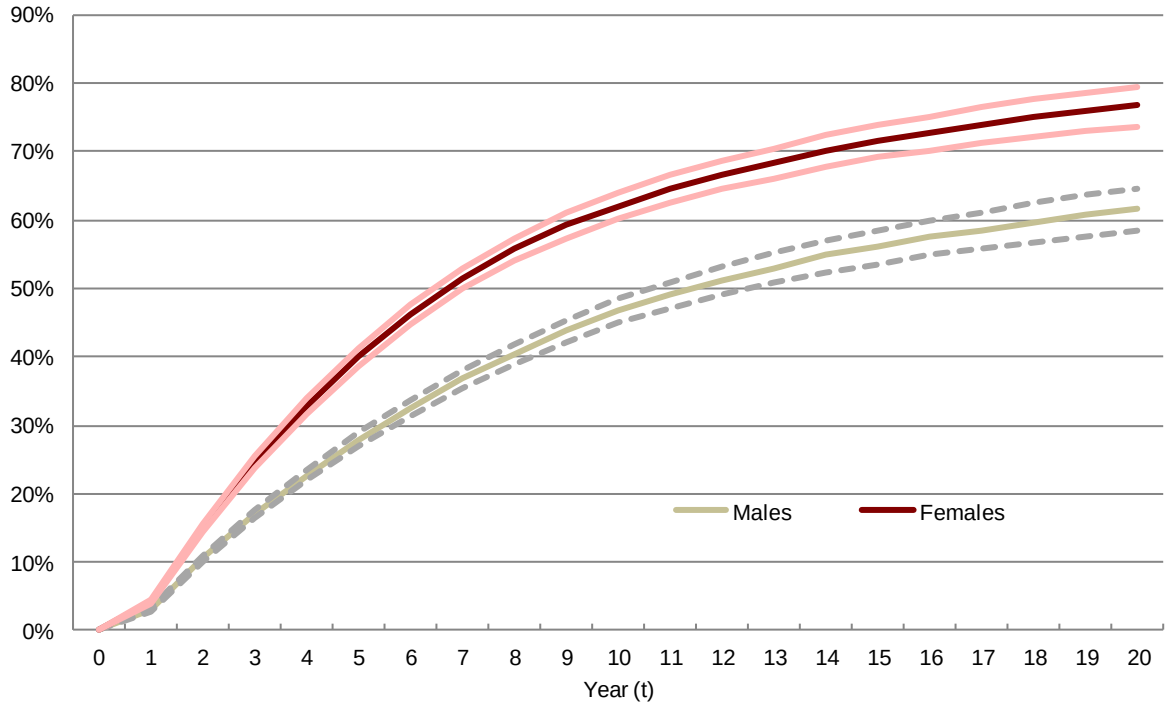


Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Chart 3 shows the cumulative proportions with the confidence intervals around the estimated values. The values for the confidence intervals range from approximately three percentage points

around the estimated cumulative proportions after 20 years of residence in Canada.[25] Chart 3 confirms that women reached the reference income more quickly than men in that the value of the lower limit for women (74%) is much higher than the value of the upper limit observed for men (65%) The difference is 9 percentage points in favour of women after 20 years of residence in Canada. The maximum difference was 21 percentage points, i.e., the difference between 79% for women and 58% for men.

Chart 3: Cumulative proportions for attainment of reference income with 95% confidence intervals, all cohorts of French-speaking immigrants outside Quebec, by gender, in percentage



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

[25] Through the IMDB, we studied all French-speaking immigrants outside Quebec who had completed a tax return. In these circumstances, hypothesis testing should not be necessary given that we were looking at an entire population rather than a statistical sample of it. However, the indicator we estimated was based on calculation of a reference income estimated on the basis of a sample, that of the LAD, which represents 20% of the population of native-born Canadians who had completed a tax return.

Descriptive results

In this section, we look at the effect of the chosen variables on the probability of reaching the reference income, i.e., the average employment income of people born in Canada. We begin by presenting the results for the variables of period and age at time of entry to Canada, as well as for the fact of having been a temporary resident before obtaining permanent residence. We then look at three variables directly associated with human capital: immigrant class, language group and highest level of educational attainment. Geography of origin and country/region of birth or last residence are analyzed through a third block of variables that pertain to the effect of various geographical groupings on attainment of the reference income. The final group of variables studied is composed of province of residence, interprovincial migratory status and marital status. These three variables can be updated each year; they are variables that change over time.

Table 2 presents the distribution of French-speaking immigrants outside Quebec in relation to the different variables that are analyzed. In total, the population of interest that is the subject of this study is composed of 58,050 male French-speaking immigrants and 46,300 female French-speaking immigrants aged 25 to 59 who entered Canada between 1983 and 2010, for a total of 104,350 immigrants. More than half (55%) of these immigrants entered Canada in the 2000s. Just over 60% were under age 35 when they obtained permanent residence and just under one-quarter were temporary residents before becoming permanent residents.

The principal language group is made up of 'allophone' immigrants (whose mother tongue is neither French nor English) who reported being able to speak both official languages at the time of entry. This group, which can roughly be equated with immigrants whose FOLS is French and English, represents over 60% of our population of French-speaking immigrants outside Quebec. The second largest group is that of non-francophones (Anglophones and allophones) who reported speaking only French at time of entry. Francophones who reported speaking only French were the smallest group (less than 5% of the total population), while bilingual francophones (mother tongue French) made up less than 10% of the population of French-speaking immigrants. The two groups whose mother tongue was French therefore comprised less than 15% of the population of interest represented by the four language groups.[26]

The majority of immigrants entered Canada as skilled workers, either as principal applicants or as spouses or dependants. For men, there are far more applicants than spouses or dependants, while for women the two groups are comparable in size. Women are divided more evenly among the first three immigrant classes (skilled workers – applicants, skilled workers – dependants, and family), whereas men are strongly over-represented in the first. The smallest class is the 'other' class, which encompasses a fairly disparate population primarily composed of economic immigrants (investors, self-employed workers, live-in caregivers, immigrants admitted under the Provincial Nominee Program, etc.). The majority of immigrants in the study population (both men and women) had a university degree when they entered Canada: 60% for men and 57% for women.

Just under 45% of French-speaking immigrants were born in Europe. Just over 20% (22%) were born in Asia and a comparable proportion in Africa (23%), albeit with certain variations by gender. French-speaking countries supplied 37% of male French-speaking immigrants and 31% of women. Romania is the main country of birth for immigrants, at 17%, followed by Lebanon

[26] The group whose mother tongue is English and has a knowledge of both official languages is shown for comparison purposes only. This group was not part of the study population.

and France. The latter two countries each contributed 6% to the French-speaking immigrant population as a whole.

The distribution of the population for the marital status and province of residence variables corresponds to an immigrant's status at the time when the first tax return was filed. That distribution changes over time as individuals migrate from one province (or territory) to another or as they change their marital status as a result of marriage, widowhood, separation/divorce or remarriage. The majority of French-speaking immigrants—66% of men and 71% of women—were married or in a relationship. Two-thirds of them lived in Ontario and just over 25% in Alberta or British Columbia.

The median time needed to reach the reference income for the first block of variables is presented in Table 3. The median time is the time required for half of an immigrant cohort to reach the reference income. Illustration 1 below indicates how median time can be read on the chart showing cumulative percentages. The first step is to identify the cumulative proportion at the 50% level on the ordinate. A red line is then drawn vertically to read the number of years corresponding to the 50% value on the time axis. In the illustration, the median time is 11.4 years.[27] The median is a measurement of central tendency in the same way as the average.

The shorter the median time, the more quickly the reference income is reached. As we have already seen, women reached the reference income more quickly than men. In terms of median time, they attained the reference income nearly five years before men, i.e., after 6.7 years of residence in Canada, compared with 11.4 years for men.

[27] The illustration represents the cumulative proportions for all French-speaking male immigrants living outside Quebec.

Table 2: Distribution of the population of French-speaking immigrants outside Quebec by various migratory and sociodemographic characteristics, all cohorts of French-speaking immigrants outside Quebec, by gender, in percentage

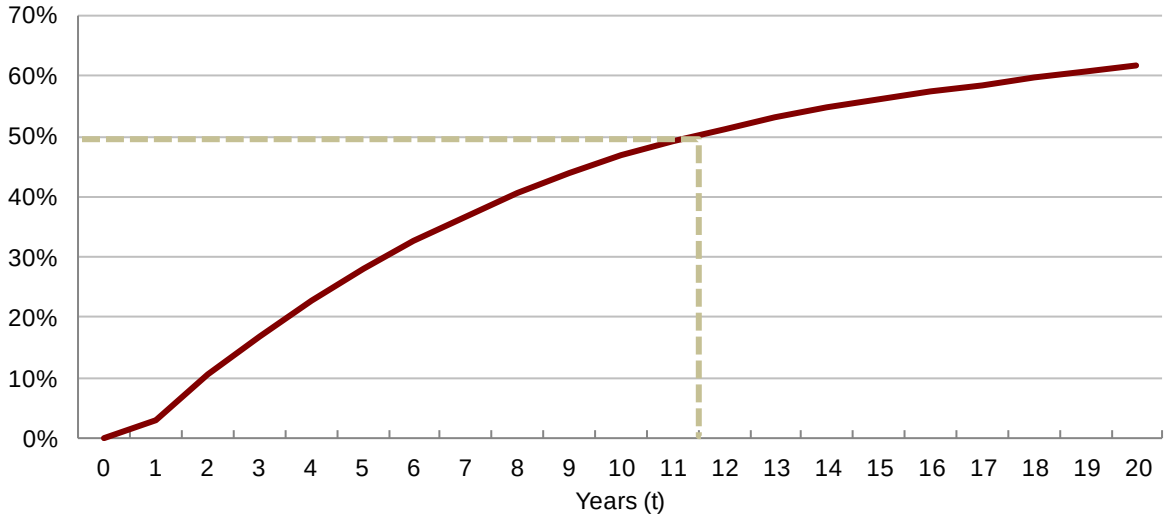
Variable	Value	Males	Females	Total
Total population (number)		**58,048**	**46,295**	**104,343**
Total population (percentage)		**100.0%**	**100.0%**	**100.0%**
Period of arrival	1983-1985	3.0%	3.0%	3.0%
	1986-1990	10.8%	10.0%	10.4%
	1991-1995	15.6%	14.4%	15.0%
	1996-2000	16.5%	16.8%	16.6%
	2001-2005	25.5%	27.0%	26.2%
	2006-2010	28.7%	28.9%	28.8%
Age at arrival	25-29 years of age	28.5%	33.6%	30.7%
	30-34 years of age	30.4%	29.7%	30.1%
	35-39 years of age	20.3%	19.2%	19.8%
	40-59 years of age	20.9%	17.5%	19.4%
Was a temporary resident	No	75.5%	78.2%	76.7%
	Yes	24.5%	21.8%	23.3%
Language group *(Mother tongue - knowledge of official languages)*	French - French only	4.6%	4.3%	4.5%
	French - knowledge of English	9.1%	7.9%	8.5%
	Non-French - French only	16.3%	18.7%	17.4%
	Other language - English and French	63.8%	61.4%	62.7%
	English - English and French	6.3%	7.7%	6.9%
Immigrant class	Skilled worker - applicant	58.3%	36.3%	48.5%
	Skilled worker - dependant	9.6%	28.7%	18.1%
	Family	12.6%	17.9%	14.9%
	Refugee	14.1%	11.1%	12.8%
	Other	5.5%	6.0%	5.7%
Education	High school or less	12.5%	14.4%	13.3%
	College, university not completed	27.3%	28.7%	28.0%
	Bachelor's degree	40.3%	41.7%	40.9%
	Masters, doctorate	19.8%	15.1%	17.8%
Continent of birth	America	10.9%	12.3%	11.5%
	Europe	42.2%	45.4%	43.6%
	Africa	25.0%	20.8%	23.1%
	Asia	21.7%	21.4%	21.6%
	Oceania	0.2%	0.1%	0.2%
Geo-linguistic origin	English-speaking country	10.1%	9.5%	9.8%
	French-speaking country	37.3%	30.5%	34.3%
	Western European country	7.0%	7.8%	7.4%
	Other country	45.6%	52.2%	48.5%

Table 2: *Continued*

Variable	Value	Males	Females	Total
Country of birth	Romania	16.1%	18.2%	17.0%
	Lebanon	6.7%	5.2%	6.0%
	France	6.4%	6.2%	6.3%
	Egypt	3.2%	3.3%	3.2%
	Iran	3.0%	3.7%	3.3%
	Mauritius	3.0%	3.1%	3.0%
	Congo (Democratic Republic)	4.1%	3.7%	3.9%
	Morocco	4.1%	2.6%	3.4%
	Haiti	2.4%	3.0%	2.7%
	China (People's Republic)	2.2%	2.8%	2.4%
	Algeria	3.3%	2.0%	2.7%
	Germany	1.3%	2.3%	1.8%
	Other country	44.3%	44.1%	44.2%
Breakdown of geo-linguistic origin	English-speaking country: U.S., Europe, Australia and New Zealand	0.2%	0.3%	0.3%
	English-speaking country: Africa, Central and South America, Caribbean	5.1%	4.9%	5.0%
	English-speaking country: Asia and Pacific	4.8%	4.3%	4.6%
	France	6.5%	6.2%	6.3%
	French-speaking country: Maghreb	8.6%	5.1%	7.1%
	French-speaking country: Sub-Saharan Africa	11.6%	9.7%	10.8%
	French-speaking country: Middle East and Asia	8.1%	6.4%	7.4%
	French-speaking country: Central and South America, Caribbean, Pacific	2.5%	3.1%	2.8%
	Western European country	7.0%	7.8%	7.4%
	Other country	45.6%	52.2%	48.5%
Geographic origin	Birth, English-speaking country: U.S., Europe, Australia and New Zealand	0.2%	0.3%	0.3%
	Birth, western European country (except France)	7.0%	7.8%	7.4%
	Birth, France	6.5%	6.2%	6.3%
	Birth, French-speaking country, Maghreb	7.3%	4.5%	6.1%
	Birth, French-speaking country, Sub-Saharan Africa	10.1%	8.6%	9.4%
	Birth, other French-speaking country	9.7%	8.8%	9.3%
	Birth, other country	51.8%	57.7%	54.4%
	Last residence, English-speaking country: U.S., Europe, Australia and New Zealand	1.2%	1.2%	1.2%
	Last residence, France	3.8%	3.0%	3.4%
	Last residence, western European country	2.5%	2.0%	2.2%
Marital status	Single	24.3%	17.3%	21.2%
	Married/in relationship	65.8%	70.7%	67.9%
	Widowed, divorced/separated	10.0%	12.0%	10.9%
Province of residence	Nova Scotia	1.3%	1.2%	1.3%
	New Brunswick	1.9%	1.3%	1.6%
	Ontario	65.6%	67.7%	66.5%
	Manitoba	2.4%	2.0%	2.2%
	Saskatchewan	1.0%	0.8%	0.9%
	Alberta	13.3%	11.6%	12.5%
	British Columbia	13.8%	14.8%	14.2%
	Rest of Canada outside Quebec	0.8%	0.6%	0.7%

Source: Longitudinal Immigration Database (IMDB).

Illustration 1: Reading of median time on cumulative proportion curve



The situation with regard to period of arrival in Canada does not present any clear trends, as the median time varies little according to arrival cohort. We were unable to calculate the median time for the most recent cohorts because they did not have time to reach this value given the short length of time spent in Canada.

The effect of age at arrival is associated with attainment of the reference income: the younger the age at arrival, the more quickly the reference income is reached, for both men and women. The median number of years of residence that male immigrants entering Canada between the ages of 25 and 29 needed to reach the reference income is just under 10, but it takes close to 20 for those who arrived between the ages of 40 and 59.

The fact of having been a temporary resident before becoming a permanent resident tends to increase the length of time needed to reach the reference income. However, temporary residents who did so before becoming permanent residents were truncated, and it can thus be risky to compare the two groups for this study. Only if a study were to look specifically at these two groups of temporary residents could they be compared properly.

Table 3: Median time needed to reach reference income by three migratory variables, all cohorts of French-speaking immigrants outside Quebec, by gender

Variable	Value	Years	
		Males	Females
Total		**11.4**	**6.7**
Period of arrival	1983-1985	9.3	5.5
	1986-1990	12.4	5.0
	1991-1995	9.8	6.4
	1996-2000	10.0	5.8
	2001-2005	--	7.1
	2006-2010	--	--
Age at arrival	25-29 years of age	9.6	5.9
	30-34 years of age	10.3	6.2
	35-39 years of age	12.6	7.4
	40-59 years of age	19.8	10.2
Was a temporary resident	No	11.1	6.7
	Yes	13.4	7.1

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Table 4 presents the cumulative percentages of immigrants who reached the reference income at different durations of residence, i.e., after or at 5 years, 10 years, 15 years and 20 years. This table distinguishes between the cohort effect (measured here by the cumulative proportion after five years of residence) and the economic assimilation effect on attainment of the reference income. The cohort effect represents the relative income of successive cohorts at the time when they joined the labour force, while the assimilation effect represents the changes in the relative income of each cohort as the duration of residence increases (Frenette and Morissette 2005, p. 241).[28]

The data presented in Table 4 show that after five years of residence in Canada the most recent cohorts, both male and female, reached the reference income later than the older cohorts. For men, more than one-third of the 1983-1985 cohort reached the reference income after five years of residence in Canada compared with less than one-quarter for the last two cohorts, i.e., those of 2001-2005 and 2006-2010. We observed the same trend for women: for the first cohorts, close to half of the female immigrants had reached the reference income after five years of residence in Canada (50.2% for the 1986-1990 cohort) compared with less than 40% for the last two cohorts (one-third for the 2006-2010 cohort).

[28] This definition of cohort effect (cumulative proportion after five years of residence) is nonetheless somewhat arbitrary.

Table 4: Percentage of immigrants who reached reference income for different durations of residence in Canada, by cohort of arrival for French-speaking immigrants outside Quebec, by gender

	1983-1985	1986-1990	1991-1995	1996-2000	2001-2005	2006-2010
Males						
After 5 years	34.5%	31.1%	32.8%	32.8%	24.0%	24.1%
After 10 years	52.0%	45.9%	50.4%	50.0%	45.7%	
After 15 years	59.5%	54.1%	58.6%	60.4%		
After 20 years	65.4%	59.6%	63.9%			
Females						
After 5 years	46.4%	50.2%	42.1%	44.9%	37.2%	33.9%
After 10 years	69.7%	65.9%	63.9%	65.4%	60.5%	
After 15 years	76.3%	74.8%	72.8%	74.2%		
After 20 years	82.0%	79.2%	77.6%			

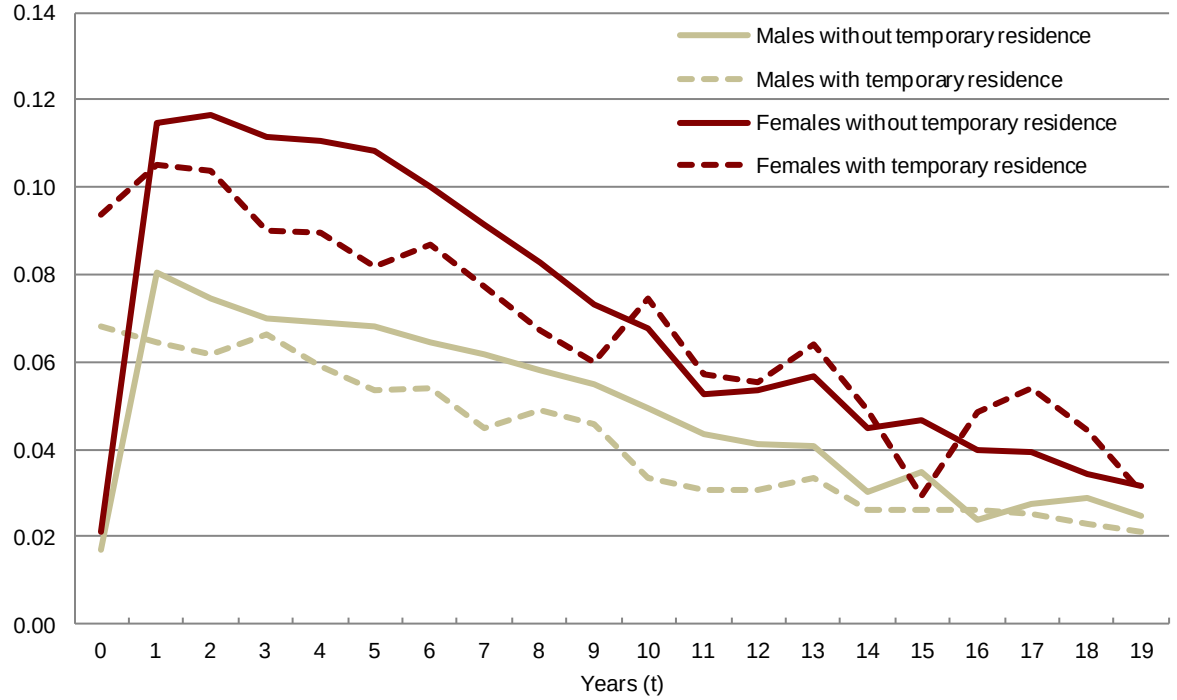
Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

We observed a positive trend after the first five years of residence, but the effect is essentially the same from one cohort to the next and decreases as the duration of residence increases. After 10, 15 or 20 years of residence, there is not much difference among cohorts in terms of attainment of the reference income. After 15 years of residence, for example, around 60% of men in the 1983-2000 cohorts (except for the 1986-1990 cohort) reached the reference income. For the 1983-2000 cohorts, over 70% of women reached the reference income after 15 years of residence.

These results are significantly different from those obtained through synthetic cohorts, as in Frenette and Morissette's study (2005). The two methodological approaches are obviously different, as are the populations studied and the time window under consideration. Any comparisons must therefore be made carefully. A comparative study using the two methods applied to populations defined in the same way and followed during the same period of time would nevertheless be worthwhile.

The fact of having been a temporary resident in Canada before becoming a permanent resident does not decrease the length of time it takes to reach the reference income. On the whole, immigrants who entered Canada directly as permanent residents are more likely to reach the reference income for each duration of residence, aside from the entire first year (because those immigrants were present in Canada for only half a year on average) (Chart 4).

Chart 4: Baseline hazard function for immigrants who arrived directly as permanent residents and for immigrants who had been temporary residents, all cohorts of French-speaking immigrants outside Quebec, by gender



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The second block of results pertains to the variables related to human capital: language group, immigrant class and education level. For the language variable, in addition to the four categories that define the French-speaking population, we included immigrants whose mother tongue is English and who reported knowing English and French at time of entry for comparison purposes.

The value of the median time indicates that knowledge of both official languages at time of entry is associated with more rapid attainment of the reference income (Table 5). Among bilingual francophones,[29] 50% of men reached the reference income after 7.5 years of residence, compared with 4.2 years for women. For bilingual allophones, the median number of years is 10 and 6 respectively. For bilingual anglophones, the reference income was reached quickly as well, with a median time of 4.5 years for men and 4.4 for women. For French-speaking immigrants who knew only French at time of entry, the median time is equal to or higher than 9.5 years. Non-francophone men who did not know English at time of entry were unable to reach the 50% level during the observation period.

Skilled workers, applicants in particular, reached the reference income more quickly than immigrants in other immigrant classes. The median time needed to reach the reference income was 8 years for men and 5 years for women. Conversely, refugees and, in the case of women,

[29] In the text, the terms 'unilingual' and 'bilingual' are reserved for people who know only one official language (in this case, French) or both official languages. An immigrant classified as unilingual may naturally be able to speak not only French, but another language such as Spanish or Wolof. The same holds true for so-called bilingual immigrants: in addition to the two official languages, they may be able to speak other languages.

refugees and the 'other' class, posted the longest times. For male refugees, the median time was more than 27 years; for female refugees, 11 years.

There is a clear difference in terms of the median time required to reach the reference income between immigrants with a university degree and those without one. For men, the median time for university graduates (6 to 8%) is one-third that of those who had a college diploma or who attended university but did not graduate (23%).

Charts 5, 6 and 7 show the cumulative proportion curves for these three variables, by gender. The three series of charts indicate that differences among female populations are less pronounced than differences among male populations. This is partly because the reference income for women is reached more quickly than the reference income for men, given that the reference income for Canadian-born women is more evenly distributed than that of men, among other reasons. As a result, the smaller differences observed for women may merely be a methodological artifact relating to the nature of the calculation of the reference income.

Table 5: Median time needed to reach reference income according to three variables related to human capital, by gender, all cohorts of French-speaking immigrants outside Quebec

		Years	
Variable	**Value**	**Males**	**Females**
Language group *(Mother tongue - knowledge of official languages)*	French - French only	14.5	9.5
	French - knowledge of English	7.5	4.2
	Non-French - French only	>20.0%	12.5
	Other language - English and French	10.0	6.0
	English - English and French	4.5	4.4
Immigrant class	Skilled worker - applicant	8.1	5.0
	Skilled worker- spouse and dependant	14.6	7.1
	Family	18.2	8.6
	Refugee	27.5	11.0
	Other	19.5	12.0
Education	High school or less	>25.0%	16.6
	College, university not completed	22.6	8.8
	Bachelor's degree	8.2	5.6
	Masters, doctorate	6.0	4.4

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Chart 5 shows that knowledge of both official languages at time of entry accelerates attainment of the reference income, while Table 6 reveals that the cohort effect is significant: after five years of residence in Canada,[30] the difference between the proportions of immigrants who reached the reference income varies by a factor of two when bilingual immigrants are compared with non-bilingual immigrants. Among French-speaking immigrants whose mother tongue is French and who knew both official languages at the time of entry, the percentage of those who reached the reference income after five years of residence is 40%, compared with only 21% for francophones who knew only French at time of entry. The group that showed the lowest cumulative proportion at time of entry was that whose mother tongue was not French and who knew only French, at 13% for men and 21% for women. The group with the highest cumulative proportion at time of entry was that composed of immigrants whose mother tongue is English and who knew both official languages at time of entry.

[30] This definition of the cohort effect (cumulative proportion after five years of residence) is somewhat arbitrary.

English-French bilingualism seems to make a significant contribution towards reaching the reference income. The effect of bilingualism is even more significant if one of the two languages is also the immigrant's mother tongue. However, there is another effect that is specifically associated with having French as the mother tongue (being francophone), irrespective of whether an immigrant knows only French or both official languages. For both men and women, immigrants whose mother tongue is French reached the reference income more quickly than non-francophones, regardless of whether they are bilingual or unilingual. For example, for immigrants who are unilingual French (i.e., those who reported speaking only French), the proportion of male francophones who reached the reference income after 20 years of residence is 58%, compared with 44% for non-francophones. For bilingual immigrants whose mother tongue is French and those whose mother tongue is a language other than English or French, these percentages are 75% and 65% respectively in favour of immigrants whose mother tongue is French (Table 6). It is difficult to say whether this is an effect of proficiency in French (since it could be assumed that francophones' knowledge of French is greater than that of non-francophones who know this language), a selection effect associated with the various immigration programs, or a discrimination effect based on geographic origin.

Table 6 reveals a significant economic assimilation effect among francophone women who knew only French at the time of entry to Canada. We calculated this assimilation effect as being the difference between the cumulative probability after 20 years of residence and that after 5 years of residence. This value appears under 'between 5 and 20 years' in Table 6. For women, the two groups of unilingual French-speaking immigrants (who knew only French) experienced a significant assimilation effect. After five years of residence, the difference in the cumulative percentages between unilingual francophone women and those who are bilingual was 25 percentage points; after 20 years of residence, the gap narrowed to 10 percentage points. The assimilation effect for unilingual francophone women, compared with those who were bilingual, therefore corresponds to a net increase of 15 percentage points in the cumulative proportion in 15 years, although this assimilation effect is not sufficient to totally offset the difference between unilingual and bilingual immigrants at time of entry. For unilingual men, an assimilation effect comparable to that noted for unilingual women was not observed.

Table 6: Percentage of immigrants who reached reference income after 5 and 20 years of residence in Canada, by language group and sex, all cohorts of French-speaking immigrants outside Quebec

	French - French only	French - English and French	Non-French - French only	Other language - English and French	English- English and French
Males					
After 5 years	20.6%	39.9%	13.4%	29.9%	52.6%
After 20 years	58.1%	74.8%	43.6%	65.1%	79.9%
Between 5 and 20 years	*37.5%*	*35.0%*	*30.2%*	*35.3%*	*27.3%*
Females					
After 5 years	30.0%	55.1%	21.3%	43.0%	58.4%
After 20 years	74.7%	84.7%	61.8%	80.3%	85.7%
Between 5 and 20 years	*44.8%*	*29.6%*	*40.5%*	*37.4%*	*27.4%*

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The calculations in Table 6 are based on three different aggregated cohorts: those from 1983-1989, 1990-1999 and 2000-2010 (Table 7).[31] Those results not only confirm the trend for all of the cohorts combined but also show that this trend can be generalized to the entire unilingual female population, both francophone and non-francophone, at time of entry.[32] These women experienced the strongest growth in the probability of reaching the reference income as of the fifth year of residence in Canada. There is reason to wonder whether these results reflect a positive effect of progressive acquisition of English, as the cumulative nature of exposure to and acquisition of English are particularly effective in this respect for women. It does in fact seem that women find it easier to learn a second language than men given that the learning strategies they use are more appropriate and more varied (Ehrman and Oxford 1989; Green and Oxford 1995; Kobayashi 2002).[33]

The cumulative percentages reveal substantial differences among groups of immigrants for both immigrant class (Chart 6) and education level (Chart 7). These differences are not as pronounced for women. Leaving aside the 'other' immigrant class, Chart 6 confirms the fact that skilled workers, principal applicants in particular, reached the reference income more quickly than other groups. Refugees reached it the least quickly.

The differences according to education level highlight the importance of having a university degree in reaching the reference income. The gap between those who held a university degree and others is significant, regardless of the duration of residence, and did not really decrease over time. After 20 years of residence in Canada, 74% of men with a bachelor's degree and 81% of those with a masters degree or doctorate reached the reference income; for the other two groups of French-speaking immigrants, the percentages are 34% for those with a high school diploma or less and 48% for those with a college diploma (or equivalent) or who attended university but did not graduate. The situation for women is similar to that of men. After 20 years in Canada, 84% of women with a bachelor's degree and 91% of women with a masters degree or doctorate reached the reference income, compared with 55% and 72% respectively for those with a high school diploma or less and those who attended college or university but did not graduate.

In contrast with unilingual French-speaking women, no particular group defined by immigrant class or education level stands out from any other by virtue of an especially significant assimilation effect (Tables 8 and 9, which deal with the 1983-1999 cohorts). This finding supports the hypothesis that unilingual French-speaking women (both francophone and non-francophone) seem to have an advantage compared with men because of their stronger abilities to learn English and/or more intensive exposure to English, which accelerate economic integration in an English-speaking environment. This area appears to warrant further study, not only with regard to unilingual French-speaking women but also unilingual English-speaking women who settle in Quebec and those who knew neither English nor French at time of entry.

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[31] For the 2000-2010 cohort, we had to limit the assimilation effect to growth in the cumulative proportion between the fifth and tenth year of residence since we were unable to follow this cohort much beyond 10 years.

[32] The effect of including cohorts that can be observed over a short period of time only skews the results presented in Table 5, in that it reduces the assimilation effect for unilingual non-francophones compared with bilingual non-francophones.

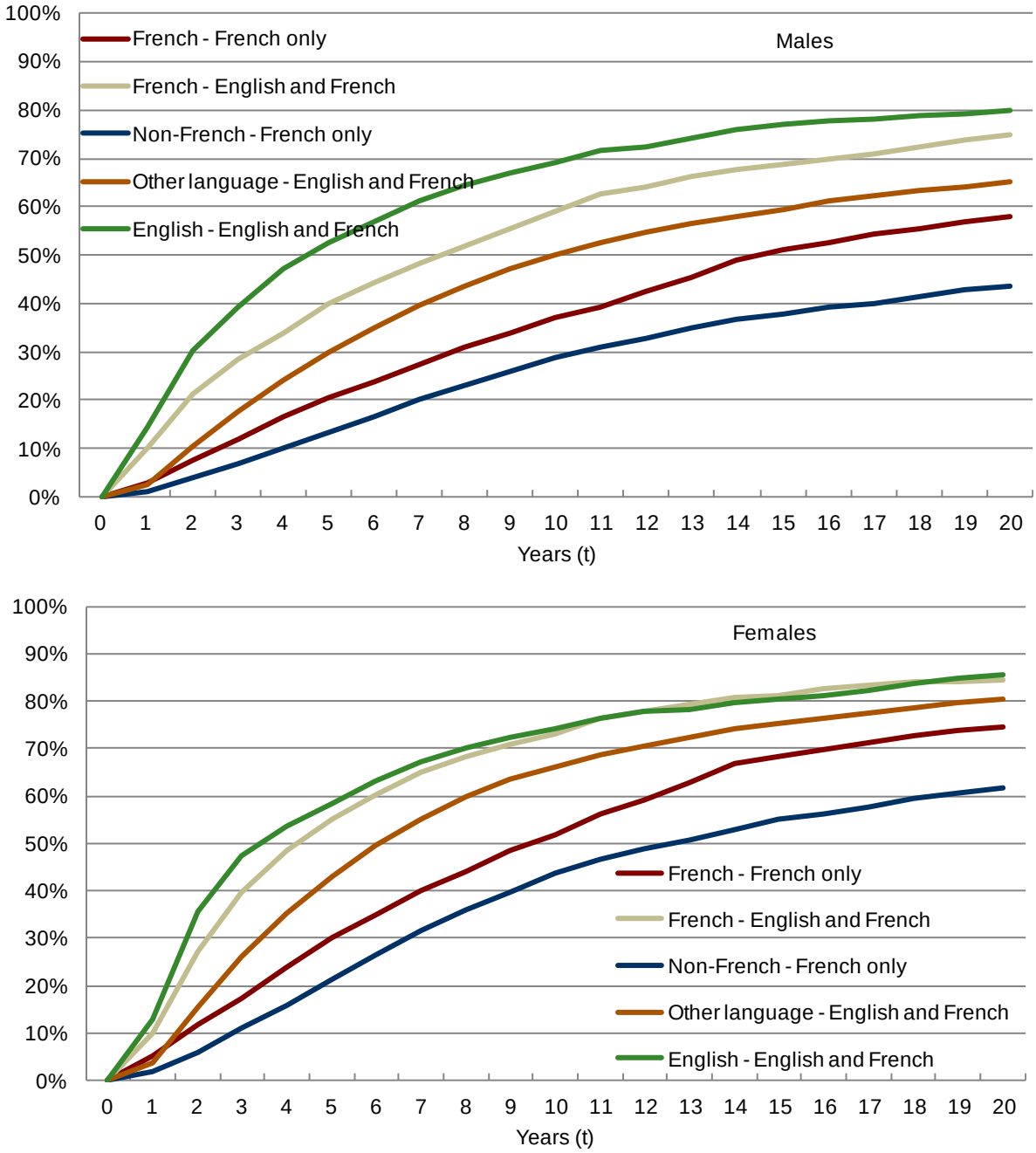
[33] This result could also be attributed to the nature of women's employment (stronger presence in the service sector, in which interpersonal contact is more frequent because of the nature of the work), which is different from male employment (work in construction and manufacturing). Women therefore have a greater capacity to learn a new language, and their employment places them in more frequent contact with the language. These two factors reinforce one another. This hypothesis would be worth exploring.

Table 7: Percentage of immigrants who reached reference income after 5 years and 20 years of residence in Canada, by language group, sex and cohort of French-speaking immigrants outside Quebec

	French - French only	French - English and French	Non-French - French only	Other language - English and French	English- English and French
Males					
1983-1989 cohort					
After 5 years	29.6%	51.8%	18.5%	36.6%	65.5%
After 20 years	61.6%	79.5%	44.6%	65.9%	88.0%
Between 5 and 20 years	*32.1%*	*27.6%*	*26.0%*	*29.3%*	*22.5%*
1990-1999 cohort					
After 5 years	22.3%	40.7%	15.3%	37.1%	50.1%
After 20 years	59.8%	75.1%	44.7%	68.9%	76.9%
Between 5 and 20 years	*37.5%*	*34.3%*	*29.4%*	*31.8%*	*26.8%*
2000-2010 cohort					
After 5 years	16.9%	37.1%	9.8%	25.6%	50.2%
After 20 years	34.7%	58.5%	28.5%	48.1%	68.3%
Between 5 and 20 years	*17.7%*	*21.5%*	*18.7%*	*22.5%*	*18.1%*
Females					
1983-1989 cohort					
After 5 years	37.0%	63.5%	30.1%	57.2%	68.8%
After 20 years	72.5%	87.7%	65.5%	85.0%	89.7%
Between 5 and 20 years	*35.5%*	*24.2%*	*35.4%*	*27.8%*	*20.9%*
1990-1999 cohort					
After 5 years	36.7%	55.6%	24.6%	49.2%	63.0%
After 20 years	78.2%	85.3%	63.7%	82.3%	87.5%
Between 5 and 20 years	*41.5%*	*29.7%*	*39.2%*	*33.1%*	*24.4%*
2000-2010 cohort					
After 5 years	23.1%	52.3%	16.7%	38.6%	52.4%
After 20 years	48.3%	70.1%	39.9%	63.9%	69.3%
Between 5 and 20 years	*25.2%*	*17.8%*	*23.2%*	*25.3%*	*16.9%*

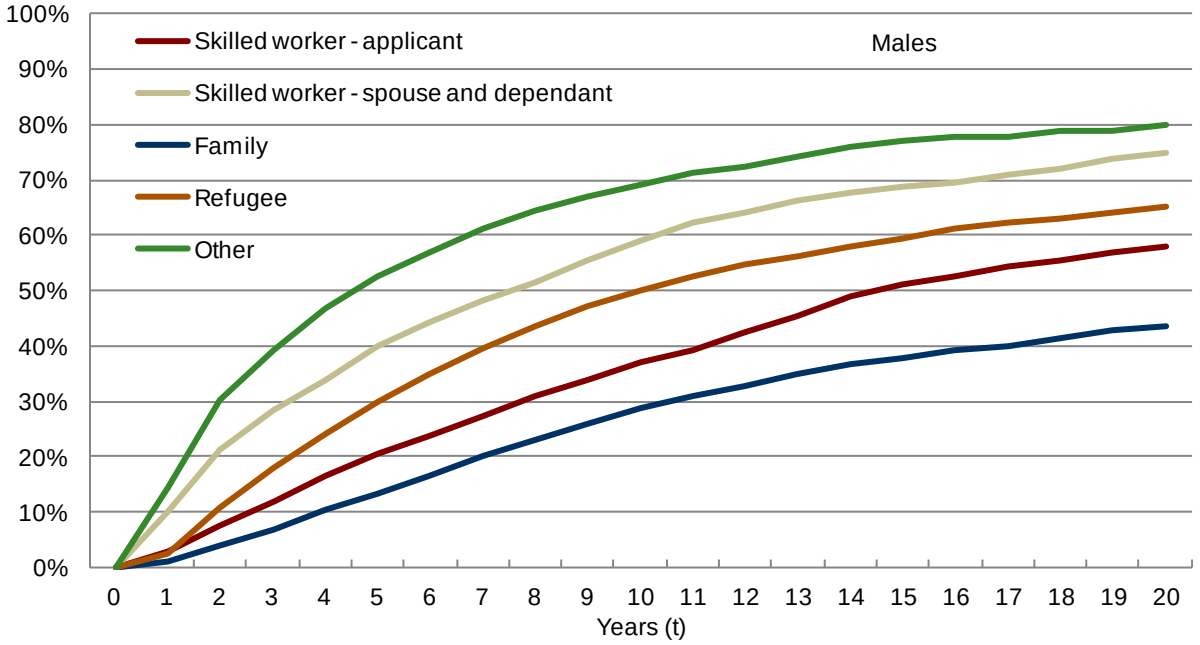
Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

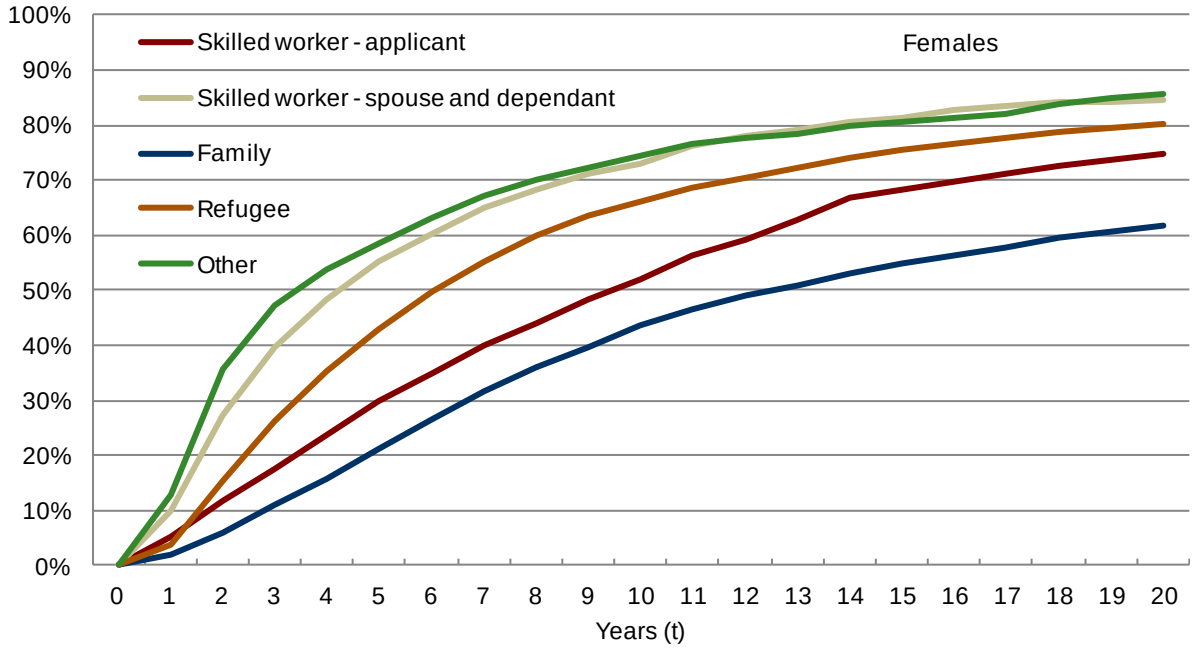
Chart 5: Cumulative proportions for attainment of reference income by language group and sex, all cohorts of French-speaking immigrants outside Quebec, in percentages



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

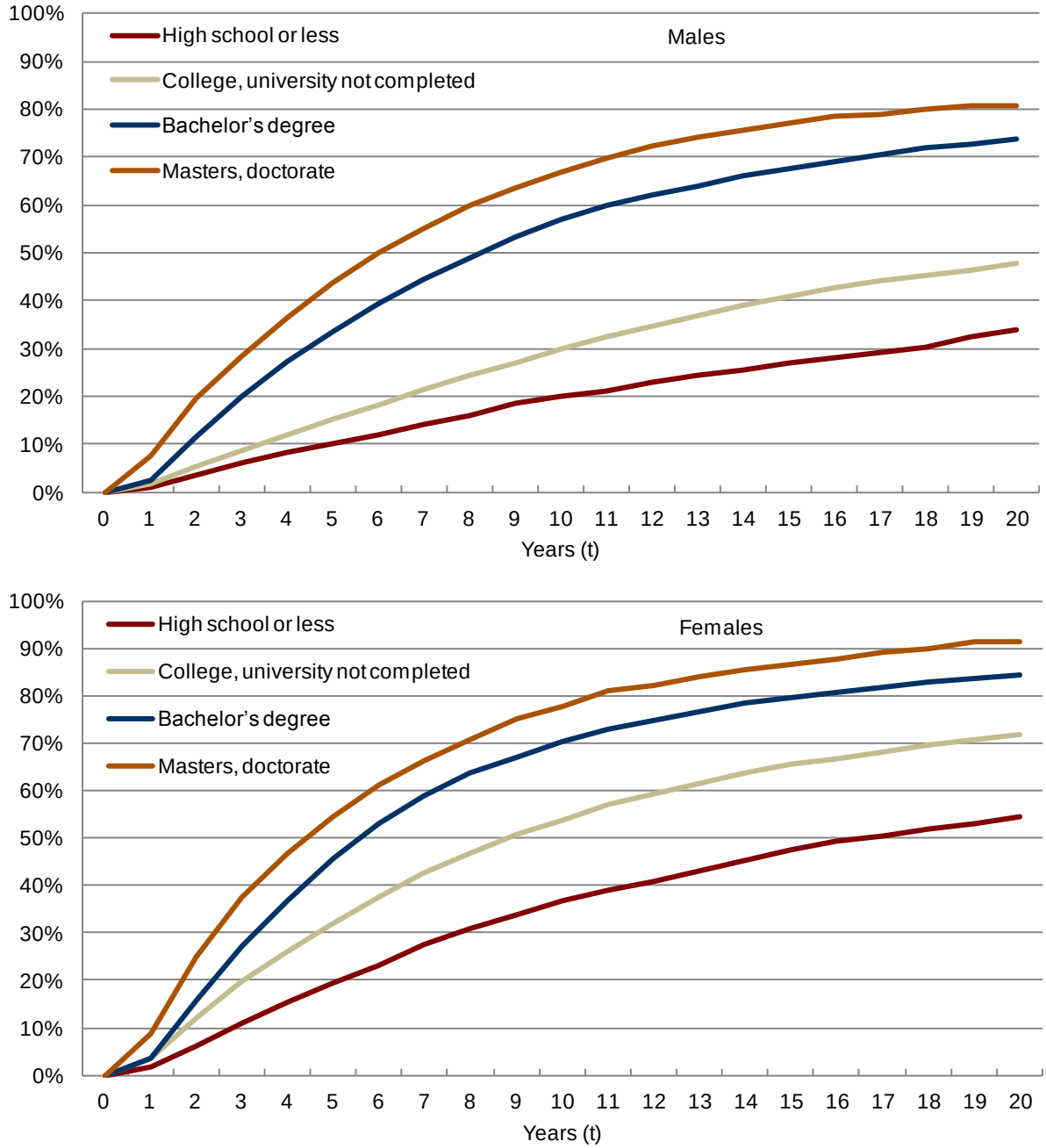
Chart 6: Cumulative proportions for attainment of reference income, by immigrant class and sex, all cohorts of French-speaking immigrants outside Quebec, in percentages





Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Chart 7: Cumulative proportions for attainment of reference income, by education level and sex, all cohorts of French-speaking immigrants outside Quebec, in percentages



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Table 8: Percentage of immigrants who reached reference income after 5 years and 20 years of residence in Canada, by immigrant class and sex, 1983-1999 cohorts of French-speaking immigrants outside Quebec

	Skilled worker - applicant	Skilled worker - spouse and dependant	Family	Refugee	Other
Males					
After 5 years	42.7%	25.5%	21.1%	12.8%	21.2%
After 20 years	72.5%	65.2%	53.3%	44.3%	49.5%
Between 5 and 20 years	*29.8%*	*39.7%*	*32.2%*	*31.5%*	*28.3%*
Females					
After 5 years	58.3%	44.7%	37.8%	30.7%	25.0%
After 20 years	85.6%	79.4%	73.7%	72.0%	62.3%
Between 5 and 20 years	*27.3%*	*34.7%*	*35.9%*	*41.3%*	*37.3%*

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Table 9: Percentage of immigrants who reached reference income after 5 years and 20 years of residence in Canada, by education level and sex, 1983-1999 cohorts of French-speaking immigrants outside Quebec

	High school or less	College, university not completed	Bachelor's degree	Masters, doctorate
Males				
After 5 years	11.5%	18.4%	44.1%	57.7%
After 20 years	34.5%	49.9%	78.0%	86.4%
Between 5 and 20 years	*23.0%*	*31.4%*	*33.9%*	*28.7%*
Females				
After 5 years	23.7%	39.2%	56.8%	67.0%
After 20 years	57.3%	75.0%	88.1%	94.5%
Between 5 and 20 years	*33.6%*	*35.8%*	*31.2%*	*27.6%*

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Geographic origin has an impact on the economic integration of immigrants owing to the 'quality' and status of the human capital associated with it, such as language skills and the value of foreign academic credentials and work experience on the Canadian labour market (Sweetman 2004). French-speaking immigrants are no exception. They come from the four corners of the world, although some regions, such as France and French-speaking Africa (the Maghreb and West Africa in particular), are more heavily represented than others.

We are proposing a number of tables illustrating the effect of various groupings of source countries for French-speaking immigrants on attainment of the reference income. Table 10 presents the median time needed to reach the reference income for three geographical groupings: continent of birth, geo-linguistic origin of birth and the 12 main countries of birth (plus a residual category). Geo-linguistic origin is associated with the classification of countries according to whether they are English speaking or French speaking and, for the rest, whether they are part of western Europe (populations that speak mostly Romance or Germanic languages) or another region. English-speaking countries are defined as countries in which English is the official language or a national language. The same holds true for French-speaking countries.

Attainment of the reference income is fairly uneven from one region to another or one country to another (Table 10). Immigrants from Europe and Oceania are the ones who reached the

reference income most quickly, with a median value of 8 years for men and 4 to 6 years for women. It takes Africans and Asians approximately twice as long. The median time for reaching the reference income for men born in Asia is 19 years of residence in Canada, while it is 15 years for French-speaking immigrants born in Africa.

The fact of having French or English as a geo-linguistic origin is of no benefit in itself in terms of how long it takes to reach the reference income. On the contrary, immigrants—male immigrants in particular—from countries in which French or English has the status of official language or national language take almost twice as long to reach the reference income as immigrants from other regions of the world. The composition of these two geo-linguistic origins by country of birth varies a great deal. Of the 12 main countries of birth that appear in Table 10, half (Lebanon, France, the Congo, Morocco, Haiti and Algeria) are classified as French-speaking countries.[34] Of that group, it is immigrants from France who reached the reference income most quickly: a median value of seven years for men and four years for women. Immigrants from the other five countries posted much higher values: between 9 and 14 years for female immigrants from Lebanon, Congo, Morocco, Haiti and Algeria and much more for male immigrants. Immigrants born in Germany, Romania and, to a lesser extent, Egypt and Algeria are comparable to those from France, with median times of less than 10 years. Of those four countries, only Algeria was classified as a French-speaking country.

Table 10: Median time needed to reach reference income, by three geographic origin variables (A) and sex, all cohorts of French-speaking immigrants outside Quebec

		Years	
Variable	Value	Males	Females
Continent of birth	America	14.3	7.4
	Europe	8.4	5.7
	Africa	15.2	8.6
	Asia	19.0	8.6
	Oceania	8.1	3.8
Geo-linguistic origin	English-speaking country	16.6	5.8
	French-speaking country	15.0	8.7
	Western European country	8.5	6.5
	Other country	9.3	6.2
Major countries of birth	Romania	7.5	5.3
	Lebanon	> 20.0	14.4
	France	6.7	4.0
	Egypt	8.1	7.2
	Iran	13.5	7.7
	Mauritius	13.0	4.7
	Congo (Dem. Republic)	> 20.0	11.7
	Morocco	13.7	10.3
	Haiti	> 20.0	11.0
	China (People's Rep.)	10.5	6.9
	Algeria	9.2	8.5
	Germany	5.4	5.4
	Other country	13.8	7.5

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

[34] Mauritius was put with the group of English-speaking countries (the country's official languages are French and English).

Two other country groupings are proposed in Table 11. The first section provides a breakdown of geo-linguistic origin. English-speaking and French-speaking countries were split into a number of different categories, depending on the continent or region of the world where the countries are found. In the second section, three categories were added to identify immigrants whose last residence was either a major Anglo-Saxon country, France or another western European country but was not their country of birth.[35]

Table 11 shows that geolinguistic origin has a varying effect on the median time needed to reach the reference income. Immigrants from English-speaking countries in Africa, Latin America, the Caribbean or Asia show higher median times (more than 10 to 15 years) compared with English-speaking immigrants born in the United States, Europe, Australia and New Zealand. We observed the same trend for French-speaking countries: the median time for reaching the reference income is much lower for France (6.7 years for men and 4 years for women) than for other French-speaking counties outside Europe (median time of over 9 years for men and between 9 and 13 years for women).

The fact of having lived in a major Anglo-Saxon country, in France or in another western European country before immigrating to Canada (country of last residence different from country of birth) does not have a significant effect on the median time needed to reach the reference income. For these three groups, which represent less than 10% of French-speaking immigrants, the median time needed to reach the reference income is around nine to ten years for men and five to seven years for women. These values remain higher than the equivalent categories defined by the region or country of birth but are similar to the values associated with 'other countries', which are ten years for men and six years for women.

Table 12 presents the cumulative proportions of immigrants in the 1983-1999 cohorts who reached the reference income after five years and after 20 years of residence in Canada for two selected geographical classifications: continent of birth and detailed geo-linguistic origin. For men, more than 40% of immigrants from Europe (continent of birth), the Anglo-Saxon countries and France (geo-linguistic origin) reached the reference income after five years of residence in Canada. After 20 years, we observed percentages of over 70% for those same origins, as well as for immigrants from 'other countries' (residual category for the geo-linguistic origin variable). Male French-speaking immigrants from developed English-speaking countries (the United States and the United Kingdom, for example) present especially high percentages after five years as well as after 20 years of residence in Canada, at 57% and 91% respectively. The cumulative proportions are lower for immigrants of other origins. Probabilities are lowest, i.e., between 3% and 16%, for immigrants born in French-speaking countries in Sub-Saharan Africa, the Middle East, Asia, the Americas or the Pacific.

The economic assimilation effect (the difference between the cumulative percentages after 20 years and five years of residence in Canada – data not presented) does not vary much from one origin to another: the minimum value is 24% for immigrants from English-speaking countries in Asia and the Pacific, while the maximum value (39%) is observed for immigrants from French-speaking countries in Sub-Saharan Africa. Leaving aside the latter group, the assimilation effect is under 35% for all groups.

[35] This new variable combines the information about country of birth and country of last residence. We initially classified the population of French-speaking immigrants according to region of birth, with seven different categories. We then identified immigrants according to their last residence, but limiting ourselves to a specific group of immigrants, i.e. those who resided in an English-speaking country, in France or elsewhere in western Europe, as long as they were not born there.

Table 11: Median time needed to reach reference income, by two variables geographic origin variables (B) and sex, all cohorts of French-speaking immigrants outside Quebec

Variable	Value	Median time to reach reference income (years) Males	Females
Breakdown of geo-linguistic origin	English-speaking country : U.S., Europe, Australia and New Zealand	5.0	4.1
	English-speaking country: Africa, Central and South America, Caribbean	16.1	5.0
	English-speaking country: Asia and Pacific	19.6	7.2
	France	6.7	4.0
	French-speaking country: Maghreb	10.7	9.4
	French-speaking country: Sub-Saharan Africa	17.4	10.1
	French-speaking country: Middle East and Asia	> 20.0	13.2
	French-speaking country: Central and South America, Caribbean, Pacific	> 20.0	10.6
	Other western European country	8.5	6.5
	Other country	9.3	6.2
Geo-linguistic origin and last country of residence	Birth. English-speaking country : U.S., Europe, Australia and New Zealand	5.0	4.1
	Birth. France	6.7	4.0
	Birth. Other western European country	8.5	6.5
	Birth. French-speaking country : Maghreb	11.6	10.5
	Birth. French-speaking country : Sub-Saharan Africa	18.5	10.6
	Birth. Other French-speaking country	> 20.0	12.2
	Birth. Other country	10.1	6.2
	Last residence. U.S., U.K., Australia and New Zealand	9.1	4.7
	Last residence. France	9.6	5.9
	Last residence. Other western European country	10.5	6.3

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The situation for women is different from that for men in some respects. After five years of residence in Canada, 50% or more of the female French-speaking immigrants from Europe, Oceania and the major developed English-speaking countries and the African and American continents, as well as those from France, reached the reference income. The lowest percentages are found mainly in women from French-speaking countries outside Europe, the lowest level (16%) having been observed for women from Central and South America, the Caribbean and the Pacific. After 20 years of residence in Canada, the majority of origins posted percentages of over 70%, with the exception of female immigrants from the Americas and Asia and those whose geo-linguistic origins are in French-speaking countries in the Middle East and Asia. Female immigrants born on the Asian continent thus appear to be those whose economic success has shown the most mixed results.

Table 12: Percentage of immigrants who reached reference income after 5 years and 20 years of residence in Canada for two geographic origin groupings, by gender, 1983-1999 cohorts of French-speaking immigrants outside Quebec

		Males		Females	
Variable	Value	After 5 years	After 20 years	After 5 years	After 20 years
Continent of birth	America	24.1%	49.6%	32.9%	65.0%
	Europe	41.9%	72.7%	51.3%	78.9%
	Africa	24.7%	60.0%	42.7%	73.3%
	Asia	21.6%	49.9%	39.1%	65.8%
	Oceania	37.3%	63.9%	57.1%	85.7%
Breakdown of geo-linguistic origin	English-speaking country: U.S., Europe, Australia and New Zealand	57.5%	91.4%	51.8%	77.2%
	English-speaking country: Africa, Central and South America, Caribbean	22.5%	54.7%	60.1%	83.9%
	English-speaking country: Asia and Pacific	23.1%	46.7%	49.7%	74.9%
	France	44.7%	75.5%	56.1%	84.8%
	French-speaking country: Maghreb	36.1%	69.4%	36.9%	73.8%
	French-speaking country: Sub-Saharan Africa	16.2%	55.3%	25.3%	75.8%
	French-speaking country: Middle East and Asia	15.1%	43.4%	26.9%	60.3%
	French-speaking country: Central and South America, Caribbean, Pacific	3.4%	34.1%	16.1%	70.1%
	Other western European country	38.4%	65.3%	43.0%	74.3%
	Other country	39.0%	70.0%	49.4%	82.2%

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The assimilation effect for women differs from that for men. There was a notable difference for women of two particular geo-linguistic origins: those from French-speaking countries in Sub-Saharan Africa and those from French-speaking countries the Americas and the Pacific. In their case the assimilation effect is over 50%, well above the values for women of other origins, whose percentages range from 24% to 37% (data not presented).

On the whole, the geographic origin of male and female French-speaking immigrants does not have the same kind of impact on how quickly the reference income is reached. One of the reasons for this is the substantial assimilation effect for two groups of female immigrants from French-speaking countries outside Europe.

The final group of variables to be looked at consists of variables that change over time. Table 13 presents the median time needed to reach the reference income for province of residence, marital status and interprovincial migratory status.

For men, the median time required to reach the reference income of persons who are married or in a relationship is shorter (and thus there is less time to reach the reference income) than for persons who are widowed or separated/divorced: 10 years for the former compared with 16 years or more for the latter. For women, the three marital status groups present similar median times, although women who are married or in a relationship take the longest to reach the reference income.

The situation by province shows that the differences for women are relatively small, while for men the median time varies by a factor of two. The length of time it takes to reach the reference

income is shortest in the two Atlantic provinces of Nova Scotia and New Brunswick, as well as in Saskatchewan, while it is longer in Alberta, Ontario and British Columbia. This situation can be explained by the fact that the latter three provinces have a substantial number of Canadian-born people reporting very high incomes, thus exerting upward pressure on the reference income. In particular, the Atlantic provinces, Saskatchewan and Manitoba have substantial Canadian-born populations in rural areas. In those provinces it is possible that the weight of rural taxfilers exerts downward pressure on the calculation of the reference income compared with the more urban provinces.

Lastly, Table 13 indicates that immigrants who migrated to another province reached the reference income more quickly than non-migrants. The median time for non-migrant males is 12 years, compared with less than 10 years for those who changed their province of residence at least once. For women, there is a smaller difference between migrants and non-migrants: less than six years for the first compared with seven years for non-migrants.

Table 13: Median time needed to reach reference income, by three variables that can change over time and by gender, all cohorts of French-speaking immigrants outside Quebec

		Median time to reach reference income (years)	
Variable	Value	Males	Females
Marital status	Single	16.6	5.9
	Married/in relationship	10.1	7.0
	Widowed, divorced/separated	19.6	6.5
Province of residence	Nova Scotia	6.7	5.8
	New Brunswick	5.8	5.5
	Ontario	11.6	6.9
	Manitoba	9.2	7.1
	Saskatchewan	5.9	5.8
	Alberta	14.5	6.8
	British Columbia	11.4	6.2
	Other regions	4.4	4.6
Interprovincial migration	Non-migrant	11.9	6.8
	One migration	8.9	5.9
	Two or more migrations	9.5	5.5

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Multivariate analysis

In this section, we take a more detailed look at some of the results presented earlier in order to assess their impact in a multivariate context that isolates the influence of the effect of the length of residence in Canada and the compositional effects of population distribution according to the different individual variables. The method we use is survival analysis, more specifically discrete-time proportional hazards regression. The baseline function is described using average proportions calculated on six time intervals: the proportion at one year of residence and after 2 to 4 years, 5 to 9 years, 10 to 14 years, 15 to 19 years and 20 to 29 years of residence. There is a dual baseline function: it includes both a baseline function for immigrants arriving directly in Canada as permanent residents and a baseline function for immigrants entering Canada as temporary residents. As we have seen, the annual probabilities of these two groups are very different in their first year of residence, and the dual baseline function takes this into account.[36]

Our analyses focus on four elements of the question that is the subject of this report. The first element is the effect of immigrant cohort and length of residence on attainment of the reference income. The studies mentioned at the beginning of this report pointed to a decline in the economic situation of new cohorts of immigrants compared with older ones, as a result of which these new cohorts had little chance of achieving parity with people born in Canada, even after 15 or 20 years of residence in Canada. We wonder about the situation of French-speaking immigrants in this regard when the effect of the other variables is taken into account, given that our descriptive findings did not confirm this particular trend on the basis of the arrival cohort. The second element is general in scope and looks at the effect of the eight individual variables (age at time of entry, language group, immigrant class, continent of birth, province of residence, etc.) on attainment of the reference income by arrival cohort. Special attention is given to the effect of the language group to which an immigrant belongs. The third element involves a breakdown of geographic variables, and we explore the question of whether exposure to French or English in the source country (country of birth) has an impact on attainment of the reference income once we have isolated the influence of the other variables. The final analyses centre on a specific group of immigrants: economic immigrants, who are selected to come to Canada to settle. We examine whether the immigrants who come out of these various economic programs have an equal likelihood of reaching the reference income.

At the beginning of the descriptive portion of this report, we showed that the various cohorts of French-speaking immigrants reached the reference income in comparable proportions when the duration of residence was the same. Only the two most recent five-year cohorts (2001 to 2005 and 2006 to 2010) differ from the others in that the percentage of their members who reached the reference income after five years of residence in Canada is much lower than for the other cohorts (Table 4). For the older cohorts that we were able to follow over a longer period of time, the trend indicated that after 15 or 20 years in Canada these immigrants reached the reference income in similar proportions. But what actually happens when we isolate the influence of the compositional effects of the various cohorts?

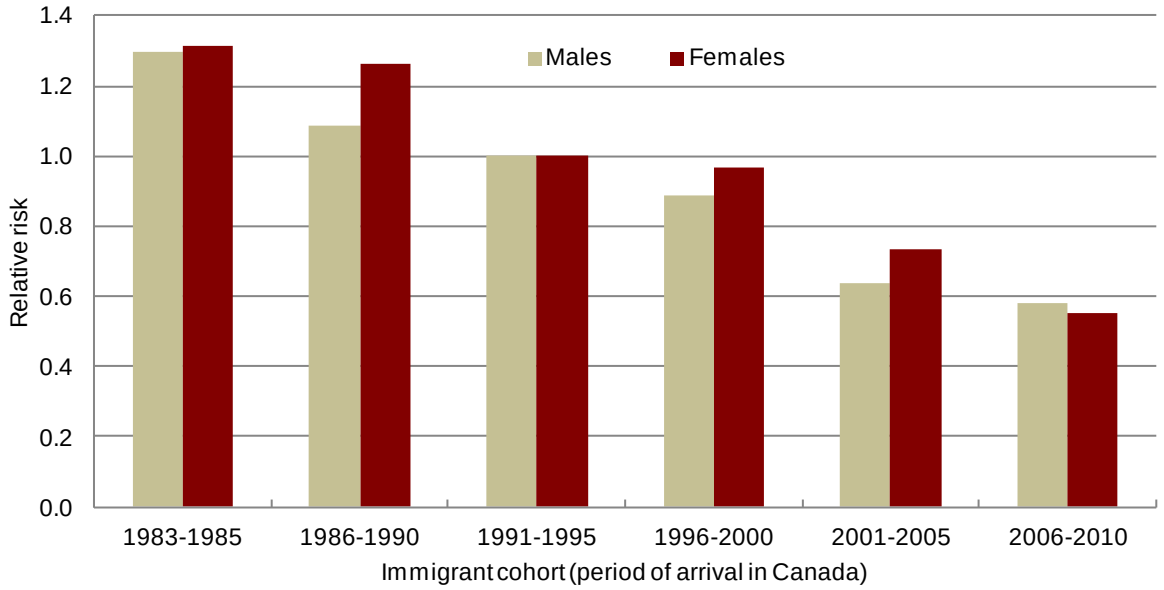
To answer this question, we defined an initial model that isolates the cohort effect and a second one that looks at the interaction between immigrant cohort and baseline function. The two

[36] We could have performed our regressions by excluding the first year of exposure, which is atypical for immigrants arriving in Canada directly as permanent residents. We nonetheless kept the approach using a dual baseline function to maintain consistency with the descriptive results.

models include the same set of individual controls (duration of residence, age at time of entry, language group, education, place of birth, marital status, etc.).

The results of the first model show that the probability of reaching the reference income decreases from one cohort to the next, from oldest to most recent, for both men and women (Chart 8). The change in the odds ratio is roughly the same for both sexes. The odds ratio decreases from approximately 1.3 for the 1983-1985 cohort to less than 0.6 for the last cohort (2006-2010).[37] The confidence intervals associated with these estimates indicate that the differences among cohorts, for men in particular, are significant at the 0.05 level.

Chart 8: Results of hazards regressions (odds ratio) by arrival cohort and by gender, French-speaking immigrants outside Quebec



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The second model involves the duration of residence. Chart 9 shows the odds ratios by cohort and duration of residence for immigrants arriving directly as permanent residents.[38] The trouble spot represented by the "2 to 5 years" time interval for the 1996-2000 cohort identifies the reference category.

As we have just seen, the probability of reaching the reference income decreases from the oldest to the youngest cohort, but that decrease is mostly seen at 2 to 5 years and 6 to 10 years of residence (Chart 9). After the first 10 years of residence, the odds ratios for the cohorts converge downward. The two most recent cohorts present a profile by duration of residence that differs from that of the older cohorts. For the latter, the odds ratio decreases with the duration of residence starting with the 2 to 5 years interval. Conversely, for the cohorts that arrived in Canada during the 2000s, the odds ratio does not decrease with duration of residence and even

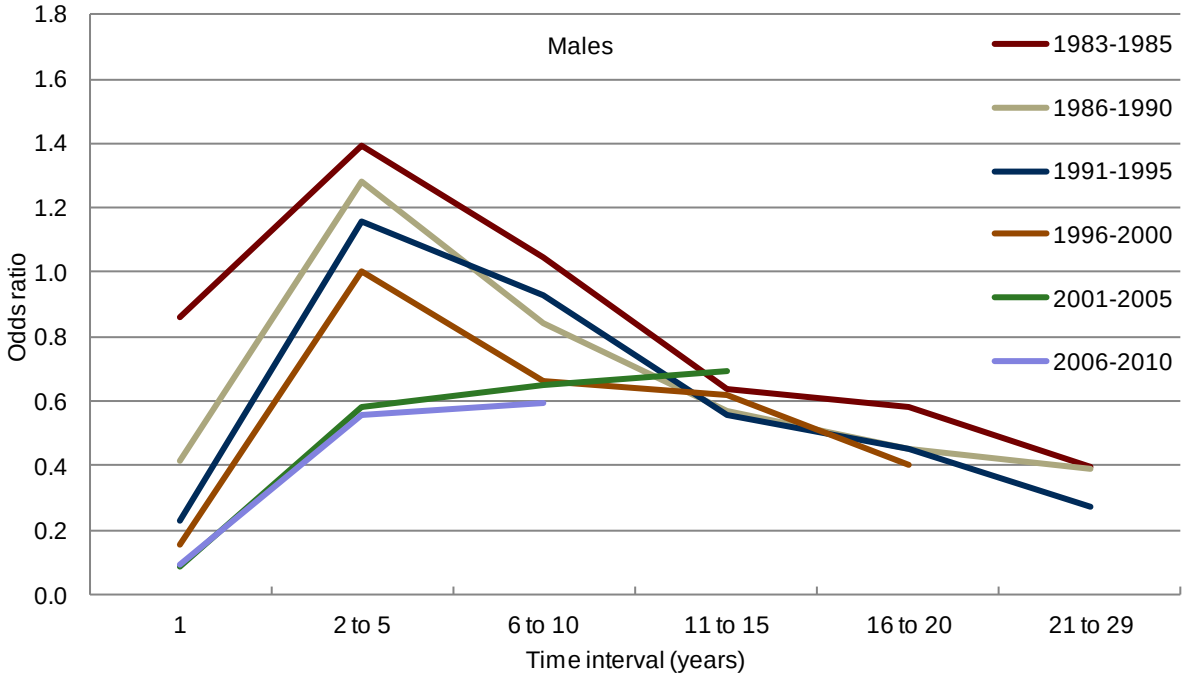
[37] Relative risk is expressed in relation to the reference category, i.e., the 1991-1995 cohort, for which the value is set at 1. For low percentages (20% or less), as in the case of annual risks (proportions), the odds ratio is more or less the same as the percentages ratio.

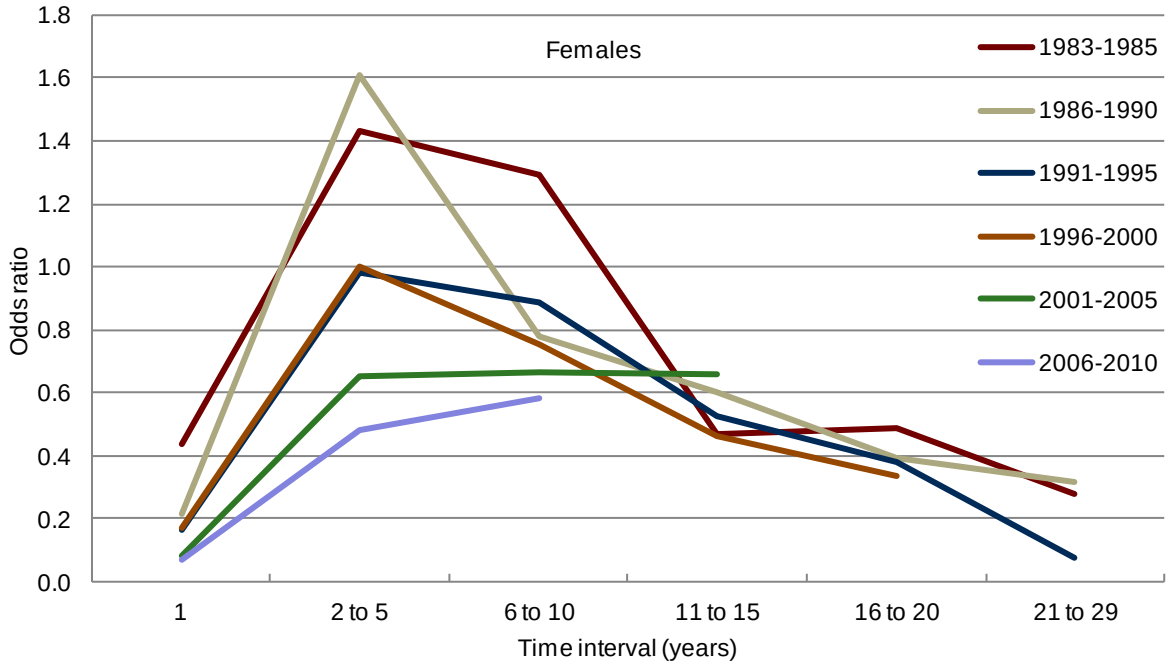
[38] The results for immigrants arriving as temporary residents are similar to those of immigrants arriving directly as permanent residents, except that the curves are more erratic because of the small numbers. These curves are not shown.

increases slightly. These two cohorts are thus slower in reaching the reference income than the older cohorts. The observation period for these cohorts does not enable us to know whether they will reach the cohorts that precede them, but the trend indicates that this could take place if the percentages were to remain at the same level in the coming years. Conversely, if their probabilities starting with the 11 to 15 years interval follow the slightly downward tangent typical of the oldest cohorts, a small percentage of immigrants in the cohorts that arrived during the 2000s would reach the reference income after 20 years of residence in Canada.

Immigrant cohorts therefore differ according to their level of attainment of the reference income during the initial years of residence. As we have just seen, the recent cohorts are the most different from the others, because their baseline function presents a specific profile that departs from the profile of the oldest cohorts. The latter present baseline functions that are comparable in form, and what distinguishes them from one another is the intensity of the proportion observed at the 2 to 10 years of residence interval, which decreases between the 1983-1985 cohort and the 1996-2000 cohort. For women, the two oldest cohorts show similar odds ratios at the 2 to 5 years of residence interval. The same holds true for the two central cohorts.

Chart 9: Results of hazards regressions (odds ratio) by arrival cohort, duration of residence and sex, French-speaking immigrants outside Quebec





Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

We redid the same model for three cohorts, by gender. To streamline the analyses that follow, while continuing our review by cohort, we combined the six origin cohorts in three aggregated cohorts, i.e., those from 1983-1989, 1990-1999 and 2000-2010.

Table 14 presents the odds ratios for each variable, by cohort and by gender. The effect of the different variables on the annual probability of reaching the reference income is fairly consistent

from one cohort to the next, for both men and women. The effect of age at arrival, immigrant class and education level clearly shows the significance of these characteristics in terms of the economic integration of French-speaking immigrants outside Quebec. Age at arrival and education level both emerge as gradients: attainment of the reference income decreases as age at arrival increases, while it increases with education level.

The notion of gradient cannot be referred to in the case of immigrant class, but the general profile indicates that skilled workers—principal applicants and spouses and dependants—are more likely than other groups to reach the reference income. For men, it is noted for the 2000-2010 cohort that the probability is higher for the "other classes" category than for spouses and dependants in the skilled workers class, but without the latter reaching the level of principal applicants in this category. In recent years, a number of economic immigrant classes (such as immigrants admitted under the Provincial Nominee Program) have emerged, and their economic success could account for this result.[39] This matter is dealt with later.

The effect of language group presents a number of variations depending on the arrival cohort. However, Table 14 confirms two facts referred to earlier in the descriptive section. First, knowledge of both official languages at time of entry (compared with knowledge of only French) has a significant and positive impact on attainment of the reference income, while knowing only French at the time of entry increases the amount of time it takes to reach the reference income. This relationship is not stable from one cohort to the next. For example, for the 1983-1989 cohort, unilingual francophones—both male and female—are no different from bilingual allophones, although they were less likely to reach the reference income than bilingual francophones. We made the same observation for women in the 1990-1999 cohort.

Of the four language groups, francophone men and women who were bilingual at the time of entry were most likely to reach the reference income. In most cases this probability is significantly higher than that of bilingual allophones, at the 0.05 level. Furthermore, if unilingual immigrants are compared on the basis of their mother tongue, it can be seen that francophones reached the reference income more quickly than non-francophones, although the difference between the two groups is not always significant at the 0.05 level. It can thus be seen that, for both francophones and allophones, bilingualism at time of entry accelerates attainment of the reference income.

The results shown in Table 14 also indicate that immigrants whose mother tongue is French had an advantage over allophones with a comparable level of bilingualism. The language group that took the longest to reach the reference income is that of allophones who were unilingual French at time of entry, a group that accounts for approximately 20% of the population considered to be French-speaking for the purposes of this study.

The unilingual francophone group saw its relative situation decline over time, for men from the oldest cohort to the most recent cohort and for women from the second-most-recent to the most recent cohort. For the 1983-1989 and 1990-1999 cohorts, the probability of reaching the reference income was comparable or just under that of the reference group (bilingual allophones). The odds ratio decreased for the most recent cohort to approximately 75% of the level of the reference group (0.796 in the case of men and 0.724 in the case of women). This difference is significant at the 0.05 level. Conversely, bilingual francophones saw their relative situation improve from the 1990-1999 cohort to the 2000-2010 cohort, for both men and

[39] Among immigrants admitted under the Provincial Nominee Program, most of the men are principal applicants, while most of the women are spouses and dependants (CIC, 2012. Facts & Figures 2011).

women. Although our model takes continent of birth into account, these results could possibly be attributed to a change in the distribution of the regions of origin of immigrants whose mother tongue is French and who settle outside Quebec.

The continent of birth can be used to assess the effect of an immigrant's birthplace on attainment of the reference income. Europeans tend to be different from the other groups (leaving aside nationals of Oceania, with its small population) by virtue of their high probabilities. The difference between European and non-European immigrants is 30% to 50% in favour of the former. However, there are a number of exceptions. For men in the 2000-2010 cohort, it is the Americans who stand out: their annual probability of reaching the reference income is approximately 40% higher than that of Europeans. For this cohort, the differences between the groups favour nationals of the Americas, but Asians (both male and female) remain the group that is slowest to reach the reference income. We observed the same trend in differences in favour of female American immigrants among women in the most recent cohort. It is noted that African women in the first cohort reached the reference income more quickly than women from any other continent. The difference, which is close to 30%, is significant at the 0.05 level. This could be the consequence of a particularly strong assimilation effect that these women may have experienced.

Table 14a: Results of hazards regressions (odds ratio) for migratory and sociodemographic variables by cohort and sex, French-speaking immigrants outside Quebec - Men

Variable	Category	1983-1989	1990-1999	2000-2010
Number of immigrants		**6,075**	**17,710**	**32,800**
Number of years of exposure (years lived)		**49,555**	**126,035**	**135,080**
Age at arrival	25-29 years	1	1	1
	30-34 years	0.963	0.748 *	0.890 *
	35-39 years	0.849 *	0.619 *	0.733 *
	40-59 years	0.784 *	0.460 *	0.585 *
Immigrant class	Skilled worker - applicant	1	1	1
	Skilled worker - dependant	0.791 *	0.683 *	0.617 *
	Family	0.690 *	0.613 *	0.574 *
	Refugee	0.701 *	0.493 *	0.312 *
	Other	0.588 *	0.474 *	0.700 *
Education level	12 years of schooling or less	1	1	1
	Non-university diploma or less	1.531 *	1.642 *	1.166 *
	Bachelor's degree	2.884 *	3.842 *	2.398 *
	Masters, doctorate	4.805 *	5.566 *	3.157 *
Language group	French - French only	0.978	0.876 *	0.796 *
(mother tongue -	French - English and French	1.445 *	1.097	1.302 *
knowledge of official	Non-French - French only	0.678 *	0.773 *	0.659 *
languages)	Other language - English and French	1	1	1
Continent of birth	America	0.661 *	0.663 *	1.370 *
	Europe	1	1	1
	Africa	0.673 *	0.754 *	0.839 *
	Asia	0.550 *	0.504 *	0.734 *
	Oceania	1.551	0.748	1.612
Marital status	Never married	0.561 *	0.616 *	0.595 *
	Married, in relationship	1	1	1
	Widowed, married/separated	0.580 *	0.745 *	0.662 *
Interprovincial migrant	Non-migrant	1	1	1
	One migration	1.205 *	1.306 *	1.254 *
	Two or more migrations	1.159	1.243 *	1.189 *
Region of residence	Atlantic	2.350 *	2.301 *	2.276 *
	Ontario	1	1	1
	Manitoba	1.119	1.919 *	1.981 *
	Saskatchewan	1.907 *	2.261 *	1.956 *
	Alberta	1.008	0.001 *	0.910 *
	B.C.	0.925	0.842 *	1.155 *
	Territoires	1.893	1.890 *	1.610 *

*Note: The * symbol indicates that the coefficient is signifiant at the 0.05 level.*

Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Table 14b: Results of hazards regressions (odds ratio) for migratory and sociodemographic variables by cohort and sex, French-speaking immigrants outside Quebec - Women

Variable	Catégories	1983-1989	1990-1999	2000-2010
Number of immigrants		**4,790**	**13,700**	**27,230**
Number of years of exposure (years lived)		**30,095**	**82,160**	**99,590**
Age at arrival	25-29 years	1	1	1
	30-34 years	1.018	0.864 *	0.942 *
	35-39 years	0.925	0.720 *	0.810 *
	40-59 years	0.650 *	0.528 *	0.724 *
Immigrant class	Skilled worker - applicant	1	1	1
	Skilled worker - dependant	0.654 *	0.874 *	0.786 *
	Family	0.670 *	0.671 *	0.698 *
	Refugee	0.708 *	0.694 *	0.554 *
	Other	0.462 *	0.511 *	0.602 *
Education level	12 years of schooling or less	1	1	1
	Non-university diploma or less	1.625 *	1.535 *	1.566 *
	Bachelor's degree	2.383 *	2.655 *	2.355 *
	Masters, doctorate	3.048 *	3.666 *	2.933 *
Language group *(mother tongue - knowledge of official languages)*	French - French only	0.818	0.936	0.724 *
	French - English and French	1.227 *	1.115 *	1.364 *
	Non-French - French only	0.580 *	0.702 *	0.594 *
	Other language - English and French	1	1	1
Continent of birth	America	0.914	0.819 *	1.134 *
	Europe	1	1	1
	Africa	1.275 *	0.831 *	0.928 *
	Asia	0.945	0.673 *	0.683 *
	Oceania	0.999	1.136	1.319
Marital status	Never married	0.977	1.155 *	1.218 *
	Married, in relationship	1	1	1
	Widowed, married/separated	1.204 *	1.170 *	1.099 *
Interprovincial migrant	Non-migrant	1	1	1
	One migration	1.259 *	1.046	1.157 *
	Two or more migrations	1.156	1.010	1.211 *
Region of residence	Atlantic	1.200	1.235 *	1.625 *
	Ontario	1	1	1
	Manitoba	0.787	1.251 *	1.340 *
	Saskatchewan	1.341	1.229	1.607 *
	Alberta	0.917	0.973	1.197 *
	B.C.	1.027	0.958	1.220 *
	Territoires	1.300	0.566 *	1.066

*Note: The * symbol indicates that the coefficient is signifiant at the 0.05 level.*
Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The other variables had the expected effect on the probability of reaching the reference income. Men who were married or in a relationship reached the reference income more quickly than single or separated/divorced men, while the opposite was observed for women. The fact of having undertaken one or more interprovincial migrations increased the length of time it took to reach the reference income. For women, this effect is less stable than for men: among women in the 1990-1999 cohort, interprovincial mobility had no impact on the annual probability of reaching the reference income.

The effect of province of residence, which can change over time as a result of interprovincial migration, on attainment of the reference income varies for the different arrival cohorts. For men in the first cohort, living in an Atlantic province or in Saskatchewan increased the probability of reaching the reference income. This is not the case for women in this cohort, since province of residence did not have a statistically significant effect on the probability of reaching the reference income. For the 1990-1999 and 2000-2010 cohorts, the effect of place of residence increased in significance. We observed that living in Alberta or British Columbia had a dampening effect on attainment of the reference income, while living in the Atlantic provinces, Saskatchewan or Manitoba accelerated the process. As previously noted, the causes of these differences are no doubt related to the income distributions specific to these regions.

The geographic origin of immigrants can be dealt with through a variety of categorizations, as we saw in the descriptive section of this report. We have proposed five separate groupings, but in the results of the regressions presented in Table 14 we limited ourselves to using only the continent of birth. This variable does not provide many details on an immigrant's actual birthplace. To complete our analysis of the effects of an immigrant's geographic origin on attainment of the reference income, we rerun the regressions, substituting country of birth and detailed geo-linguistic origin in turn for continent of birth. Table 15 presents the values for the odds ratios compared with the same reference category, namely France, for these two variables of interest.[40]

There are similarities and differences between men and women depending on the country or region of birth. Looking initially at the situation by country of birth, it can be seen that male immigrants from Romania, France and Germany reached the reference income more quickly than other groups. The results for all cohorts combined (1983–2010) show two things. First, there is no significant difference between these three countries of birth. Second, all other countries are at significantly lower levels than the reference category (France). There are nonetheless variations depending on the arrival cohort. For example, for Romanians, the probability of reaching the reference income is especially high for the first two cohorts but decreases substantially for the third cohort. The odds ratio, which is high for the French in the two most recent cohorts, is much less so for the first cohort. The groups that present the lowest probabilities are the Lebanese (0.444) and the Haitians (0.436). Mauricians and Algerians posted high probabilities for only one cohort, that of 1990-1999.

We observed a different profile for women. As with the men, the Romanians and the French were among the groups that reached the reference income most quickly. However, even more than those three groups, it was Maurician women who showed the highest odds ratios of all, for the 1983-1989 and 2000-2010 cohorts in particular (odds ratio of over 1.5). We also observed fairly high probabilities for Haitian women (1990-1999 and 2000-2010 cohorts) and Chinese women (1983-89 and 1990-1999 cohorts) and for other groups (Congolese, Moroccan and German women), but only for one cohort.

Consideration of the results by geo-linguistic origin reveals a fairly clear profile for men. Three groups stand out from the rest from the point of view of reaching the reference income. Nationals of the major Anglo-Saxon countries, such as the United States, the United Kingdom, Australia and New Zealand, reached the reference income most quickly. They are followed by French-speaking immigrants born in a western European country (not including France or the United Kingdom) and by France. Aside from the latter country, other groups from French-

[40] We did not present the results for the other variables, as most of the information can be found in Table 10.

speaking country were the slowest to reach the reference income. This is especially true in the case of nationals of Asia, the Americas and the Pacific. Africans, Maghrebians in particular, show probabilities that are slightly higher but well below those of immigrants from France. It should be noted that even immigrants born in English-speaking countries, with the exception of developed Anglo-Saxon countries, present low probabilities of reaching the reference income. The exposure to English that immigrants from these countries enjoyed does not seem to be reflected in a greater probability of reaching the reference income.

For women, the groups showing the lowest odds ratios are Asian and Middle Eastern women from French-speaking countries (the lowest levels for the three cohorts), Maghrebian women and Asian women from English-speaking countries. The probabilities for women from countries in Sub-Saharan Africa, the Americas and the Pacific (both French- and English-speaking countries) are comparable to those of women from France and other European countries (aside from the most recent cohort in the case of women from French-speaking Sub-Saharan Africa).

Table 15a: Results of hazards regressions (odds ratio) for two geographic origin variables by arrival cohort and sex, French-speaking immigrants outside Quebec - Men

	1983-1989		1990-1999		2000-2010		1983-2010	
Country of birth								
France	1		1		1		1	
Romania	1.462	*	1.161	*	0.652	*	0.935	
Lebanon	0.505	*	0.458	*	0.442	*	0.444	*
Egypt	0.867		0.648	*	0.691	*	0.678	*
Iran	0.609	*	0.617	*	0.510	*	0.565	*
Mauritius	0.793		0.909		0.650	*	0.749	*
Congo (Democratic Republic)	0.568	*	0.664	*	0.568	*	0.585	*
Morocco	0.844		0.704	*	0.426	*	0.586	*
Haiti	0.498	*	0.583	*	0.303	*	0.436	*
China (People's Republic)	0.816		0.570	*	0.413	*	0.526	*
Algeria	0.848		1.028		0.624	*	0.837	*
Germany	1.107		1.036		1.447	*	1.099	
Other country	0.865		0.715	*	0.641	*	0.700	*
Breakdown of geo-linguistic origin								
France	1		1		1		1	
English-speaking country: US, Europe, Australia and New Zealand	1.805		1.390		1.712	*	1.757	*
English-speaking country: Africa, Central and South	0.668	*	0.688	*	0.731	*	0.698	*
English-speaking country: Asia and Pacific	0.552	*	0.406	*	0.550	*	0.508	*
French-speaking country: Maghreb	0.754	*	0.840	*	0.520	*	0.692	*
French-speaking country: Sub-Saharan Africa	0.574	*	0.711	*	0.510	*	0.569	*
French-speaking country: Middle East and Asia	0.466	*	0.416	*	0.462	*	0.446	*
French-speaking country: Central and South America, Caribbean, Pacific	0.460	*	0.557	*	0.323	*	0.442	*
Other western European country	1.256		1.003		1.301	*	1.134	*
Other country	0.747	*	0.753	*	0.650	*	0.734	*

*Note: The * symbol indicates that the coefficient is signifiant at the 0.05 level.*
The regressions also includes the following variables: baseline function, age at arrival, immigrant class, education level, language group, marital status, interprovincial migrant status and region of residence.
Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Table 15b: Results of hazards regressions (odds ratio) for two geographic origin variables by arrival cohort and sex, French-speaking immigrants outside Quebec - Women

	1983-1989		1990-1999		2000-2010		1983-2010	
Country of birth								
France	1		1		1		1	
Romania	1.198		1.510	*	1.009		1.208	*
Lebanon	0.609	*	0.608	*	0.554	*	0.589	*
Egypt	0.857		0.781	*	0.611	*	0.721	*
Iran	0.793		0.873		0.568	*	0.699	*
Mauritius	1.631	*	1.348	*	1.514	*	1.670	*
Congo (Democratic Republic)	0.832		1.100		0.756	*	0.907	
Morocco	0.932		0.824		0.568	*	0.715	*
Haiti	0.726	*	1.145		1.047		0.991	
China (People's Republic)	1.249		0.965		0.531	*	0.725	*
Algeria	0.648		0.887		0.667	*	0.769	*
Germany	0.806		0.850		1.141		0.910	
Other country	0.786	*	0.943		0.741	*	0.826	*
Breakdown of geo-linguistic origin								
France	1		1		1		1	
English-speaking country: US, Europe, Australia and New Zealand	0.780		1.056		1.427		1.030	
English-speaking country: Africa, Central and South	1.403	*	1.147		1.192	*	1.304	*
English-speaking country: Asia and Pacific	1.161		0.818	*	0.560	*	0.749	*
French-speaking country: Maghreb	0.836		0.833	*	0.551	*	0.705	*
French-speaking country: Sub-Saharan Africa	0.909		1.100		0.763	*	0.911	
French-speaking country: Middle East and Asia	0.616	*	0.616	*	0.499	*	0.580	*
French-speaking country: Central and South America, Caribbean, Pacific	0.756	*	1.138		0.979		0.980	
Other western European country	0.776	*	0.897		0.950		0.852	*
Other country	0.888		0.960		0.687	*	0.828	*

*Note: The * symbol indicates that the coefficient is signifiant at the 0.05 level.*
The regressions also includes the following variables: baseline function, age at arrival, immigrant class, education level, language group, marital status, interprovincial migrant status and region of residence.
Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

The differences in economic success between men and women according to geographic origin are particularly noteworthy and appear to warrant further study. The difference between men and women that we observed among immigrants from Sub-Saharan Africa and the Americas may not be limited to French-speaking immigrants. The integration of female immigrants is less studied than that of men. One reason is no doubt the fact that the primary focus of integration policies is the integration of selected immigrants, most of whom are men, whereas women more often arrive as spouses or dependants. Furthermore, the competition between being in the labour force on the one hand and household and child care responsibilities on the other makes it more difficult to analyze women's work because of the issue of non-random selectivity (Heckman 1979; Picot and Piraino 2012).

Economic immigrants

Economic immigrants are important to Canada. They are admitted to Canada for different reasons: either because their professional skills are in demand on the labour market or because they can contribute to economic development in provinces and territories through their entrepreneurship and their ability to invest in the Canadian economy. The economic immigrants program is primarily represented by the skilled workers class, which comprises the majority of economic immigrants. For example, CIC's data for 2011 indicate that skilled workers accounted for 57% of all economic immigrants (CIC 2012). That percentage has been decreasing in recent years owing to the emergence and development of new programs for economic immigrants. In 2002, again according to CIC's data, 89% of economic immigrants were skilled workers. Other economic immigration programs are as follows:

- Canadian Experience Class
- Entrepreneur
- Self-Employed Persons
- Investor
- Immigrants admitted under the Provincial Nominee Program
- Live-in Caregiver Class

Some of these programs are recent, while others are older. The Investor program dates from 1986, while the Canadian Experience Class is very recent, having come into existence in 2009. The Provincial Nominee Program began in 1996 and the Live-in Caregiver Class in 1993.

We are presenting here a brief analysis of these groups for the 1990-2010 cohorts. Our data do not enable us to go into detail given the small numbers in certain categories, a situation that affects all cohorts. As always, we have established distinctions based on an immigrant's sex as well as whether the immigrant is the principal applicant or a spouse or dependant.

For our study population in the 1990-2010 cohorts, the vast majority of economic immigrants are skilled workers, mainly principal applicants followed by spouses and dependants (Table 16). There are differences between men and women that are not exclusive to skilled workers but that also pertain to other economic classes. We thus find more men than women in the class of immigrants admitted under the Provincial Nominee Program, but more women than men in the live-in caregiver class.

Table 16: Distribution of population of French-speaking immigrants outside Quebec by economic immigrant class and sex, 1990-2010 cohorts, in percentages

Immigrant class	Males	Females	Total
Principal applicants			
Skilled workers	59.4%	36.9%	49.4%
Investors	0.3%	0.0%	0.2%
Immigrants admitted under Provincial Nominee Program	1.9%	0.7%	1.4%
Live-in caregivers	0.0%	0.5%	0.3%
Other economic classes	1.4%	0.4%	1.0%
Sub-total	**63.0%**	**38.7%**	**52.2%**
Spouses and dependants			
Skilled workers	10.2%	29.4%	18.8%
Investors	0.1%	0.2%	0.1%
Immigrants admitted under Provincial Nominee Program	0.2%	1.2%	0.6%
Live-in caregivers	0.0%	0.0%	0.0%
Other economic classes	0.1%	1.2%	0.6%
Sub-total	**10.6%**	**32.1%**	**20.2%**
Other immigrant classes	26.4%	29.3%	27.7%
Total - percentage	**100.0%**	**100.0%**	**100.0%**
Total - number	**51,760**	**41,515**	**93,275**

Source: Longitudinal Immigration Database (IMDB).

Because of their small numbers, we combined these classes. Spouses and dependants were placed into two subgroups: skilled workers and other classes. For principal applicants, we maintained the classes as they appear in Table 16, despite their small numbers.[41] Moreover, still because of the small numbers, we are not presenting any life tables and we are limiting ourselves to regression analyses. Table 17 reproduces the results of the regressions for the variable of interest. In addition to immigrant class, Model 1 includes the baseline function and the annual arrival cohort. Model 2 includes all of the variables previously looked at in this report, such as education level, age at arrival, continent of birth and marital status. The odds ratios that correspond to the variables other than immigrant class are not shown, as they would duplicate the results presented in Table 14.

We saw earlier that principal applicants in the skilled workers class make up the group of immigrants who reached the reference income most quickly, among both men and women. If we explicitly take additional economic immigrant classes into account, we must qualify this result (Table 17). For men, it can be seen that the probability that principal applicants in the class of immigrants admitted under the Provincial Nominee Program will reach the reference income is comparable to that of principal applicants in the skilled workers class, in Models 1 and 2. All other classes have lower probabilities, except for principal applicants in the investor class for Model 2. When we isolate the influence of all of the variables, the annual probability of reaching the reference income for this group is similar to that of principal applicants in the skilled workers class, while in Model 1, the probability is 50% lower than the reference class (odds ratio of 0.513). It should be noted that our method does not consider all of an investor's potential income, a major source of income being investment earnings, which are not included in employment income, our independent variable.

[41] The results for female investors and male live-in caregivers are not shown because of the small number of cases on which they are based.

For women, the group with the highest annual probability of reaching the reference income is immigrants admitted under the Provincial Nominee Program (principal applicants). The probability is 1.5 times higher than for the reference category, i.e., principal applicants in the skilled workers class. This result is essentially the same in Model 1 and Model 2. Without further study, it is difficult to explain the reason for this result. One explanation, which is also valid for men, seems to be that immigrants admitted under the Provincial Nominee Program are also skilled workers, but may have been selected differently from the criteria applied at the federal level, such as to meet the specific needs of a provincial or territorial labour market. This matter is clearly worth investigating, although the number of such French-speaking immigrants outside Quebec is small. It would be worthwhile to determine whether a similar result would be produced for other immigrants (anglophones, allophones and immigrants living in Quebec).

In total, Table 17 illustrates, for principal applicants, the specific situation of immigrants admitted under the Provincial Nominee Program from the standpoint of their economic success in Canada. The profile of these nominees, particularly the female ones, is favourable to their economic integration. Their integration appears to be at least as successful as that of skilled workers and may even be much more successful in the case of women.

Table 17: Results of hazards regressions (odds ratio) by economic immigrant class and sex, French-speaking immigrants outside Quebec, 1990-2010 cohorts

	Males		Females	
Immigrant class	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Principal applicants				
Skilled workers	1.000	1.000	1.000	1.000
Investors	0.513 *	0.907	--	--
Immigrants admitted under Provincial Nominee Program	1.114	1.195	1.515 *	1.594 *
Live-in caregivers	--	--	0.383 *	0.524 *
Other economic classes	0.327 *	0.461 *	0.272 *	0.338 *
Spouses and dependants				
Skilled workers	0.575 *	0.651 *	0.681 *	0.816 *
Other economic classes	0.466 *	0.579 *	0.349 *	0.482 *
Other immigrant classes	0.337 *	0.502 *	0.474 *	0.651 *

Model 1 comprises the baseline probabilities function and the annual arrival cohort.
Model 2 comprises all variables, including the baseline probabilities function.
The "--" symbol indicates that the result is not shown beause of the very small number of cases that these categories represent (20 immigrants or less).
*The * symbol indicates that the coefficient is significant at the 0.05 level.*
Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Conclusion

This study provides an analysis of the economic integration of French-speaking immigrants living outside Quebec based on a longitudinal approach, that of survival analysis. Its starting point was the many studies that have looked at the matter of immigrant integration in Canada. While the method they used was longitudinal as well, it was based on analysis of synthetic cohorts established from Canadian censuses in most instances.

The major findings from this study are as follows:

First, a difference between men and women was observed. Women reached the reference income more quickly than men. One explanation for this result has to do with the definition of the independent variable, which was calculated separately for each sex. It would thus appear that female immigrants reach the average income of Canadian-born women more quickly than male immigrants reach the average income of their counterparts born in Canada. The reason is that Canadian-born men report proportionally higher incomes than Canadian-born women, thus pushing up the average income of Canadian-born men compared with that of Canadian-born women. This situation makes the average income of their Canadian-born counterparts more quickly attainable for female immigrants than for male immigrants.

We observed that the length of time it takes to reach the reference income varies little for the different arrival cohorts, be they men or women. However, this result changes when we isolate the influence of the individual variables. In the multivariate context, we observed a decrease in the probability of reaching the reference income from the oldest to the most recent cohort. Most of this decrease occurs during the first 10 years of residence.

Age at arrival and characteristics relating to human capital have the expected effect on attainment of the reference income. Age at arrival, immigrant class, language characteristics and education level are all strongly associated with the length of time it takes to reach the reference income. Age at arrival and education level emerge as gradients: the younger the age at arrival and the higher the education level, the more quickly the reference income is reached. Immigrant class plays a significant role. Skilled workers stand out from other groups as a result of their higher probability of reaching the reference income. From this point of view, they are joined only by immigrants admitted under the Provincial Nominee Program—women in particular, whose probabilities are even higher still. Provinces and territories may be more successful in selecting immigrants suited to the needs of their own labour market.

Language group, a variable created on the basis of language characteristics (mother tongue and knowledge of official languages), has a strong impact on economic success. Two results emerge. Knowledge of both official languages, and in fact knowledge of English, at the time of entry to Canada is positively associated with attainment of the reference income for both men and women. French-speaking immigrants who knew only French at time of entry were at a disadvantage compared with those who were bilingual. However, French-speaking immigrants (i.e., those whose mother tongue is French) reached the reference income more quickly than non-francophones with equal proficiency in Canada's official languages. We hypothesize that this may reflect the level of proficiency in French, since we can assume that francophones are more proficient in French than non-francophones who know this language. However, the data do not enable us to provide further details on this matter or the role that other characteristics, such as visible minority status, may play.

In our own work we also adopted the concept of assimilation used in the other studies. Assimilation effect was defined as absolute growth in the percentage of immigrants who reached the reference income between the fifth and the twentieth year of residence in Canada. We focused on the fact that unilingual women (who reported speaking only one official language, i.e., French, at the time of entry) experienced a substantial progression in their economic integration as of the fifth year of residence in Canada. This result could be attributed to the fact that after five years of residence in Canada their level of attainment of the reference income was low compared with bilingual female immigrants. Therefore, the assimilation effect might simply reflect the fact that they are catching up with the level of bilingual women. However, this explanation raises two points. First, unilingual men do not present this particular profile despite showing differences comparable to those observed for women after five years of residence in Canada. Second, the situation for other groups of women (such as refugees and women without a university degree) whose attainment of the reference income at entry is low does not present this assimilation profile characteristic of unilingual women either. It therefore seems that unilingual female immigrants are a special case, and there is cause to wonder whether this result might not reflect a positive effect related to progressive acquisition of English as the duration of residence in Canada increases, with language acquisition and the effect of exposure to English being particularly effective for these women.

French-speaking immigrants settled outside Quebec come from all over the world. Our findings showed that immigrants born in Europe and Oceania posted better economic integration than other groups. This is a very general observation, as there are significant differences for the specific region and even the country of birth. Moreover, the effect of an immigrant's birthplace is not exactly the same for men and women.

Immigrants from the major Anglo-Saxon countries, such as the United States, the United Kingdom and Australia, reached the reference income quickly, and this is especially obvious for men. However, this group is small in numbers. Immigrants from European countries such as France, Germany and Romania also experienced rapid economic integration. However, our findings indicate that coming from a French-speaking or English-speaking country outside Europe and Oceania is not associated with better economic integration. Nevertheless, there are differences between men and women when we isolate the influence of the other individual variables. The results of the regressions revealed that the probability of French-speaking women from Sub-Saharan Africa and the Americas reaching the reference income is comparable to that of French and European female immigrants in general. One of the factors that contributes to their economic success is their high level of integration as of the fifth year of residence in Canada.

Throughout this study we have identified research topics that should be explored further. The first of those topics is definitely the economic integration of female immigrants, which has been less studied than that of men. There are at least two reasons for this situation. One is 'technical' in nature and relates to the selective nature of women's participation in the labour force. The other has to do with immigration policies that ensure that the majority of principal applicants are men, with specific regard to economic programs and skilled workers in particular. Three secondary topics relating to the economic integration of female immigrants appear to call for special attention.

First, within the strict framework of the method used in this report, it would be helpful to clarify why female immigrants reached the reference income for women more quickly than male immigrants reached the reference income for men. Second, the question of official language

acquisition by female immigrants could be studied in detail and in relation to their economic integration. Four groups of female immigrants—unilingual French-speaking francophone women outside Quebec, unilingual English-speaking women in Quebec and female allophones who know neither both official language, outside Quebec and in Quebec—could be studied and compared with one another. Third, the geographic origin of female immigrants does not have precisely the same effect on attainment of the reference income as does the geographic origin of men, and it would be worthwhile studying the social and economic causes for this difference.

Another area of research could involve comparison of the longitudinal approach chosen for this report against the longitudinal approach based on synthetic cohorts. To do this properly, it would be important not to look only at French-speaking immigrants outside Quebec but to include all immigrants living in official-language minority communities, i.e., English-speaking immigrants living in Quebec.

The topic of economic immigrant classes could be expanded, once again including all immigrants. Does the economic success of immigrants admitted under the Provincial Nominee Program apply to other immigrant groups and in all of the provinces and territories in which this program exists?

Annexe A. Illustration of methodological options

During the exploratory phase of this project, a number of alternative solutions were tested in order to learn more about the consequences of the methodological choices available to us. One of the choices we had to make was which data source to use in calculating reference income; we also had to look at calculation of the income itself. Chart A-1 presents the results (cumulative proportions by gender) that came out of various options.

The average employment income adopted as the reference income was calculated using two alternative sources: the LAD base on the one hand, and the data from the 1981 to 2006 censuses and from the 2011 NHS on the other. Censuses provide income values every five years only, i.e., for the year prior to the census year. The 2006 Census could be used to calculate the incomes of individuals received the previous year, in 2005. Annual intercensal values were linearly interpolated between each census. Chart A-1 compares the effect of the data source on the calculation of reference income (the average employment income of people born in Canada). On the basis of such comparison, it can be deduced that the reference incomes calculated on the basis of the census and NHS data are slightly higher than those calculated from the LAD given that the reference income is reached by immigrants slightly less quickly if we use the census and NHS data rather than the LAD data. After 20 years of residence in Canada, the difference between the cumulative proportions is two percentage points for men (62% for LAD and 60% for censuses/NHS) and four percentage points for women (77% for LAD and 73% for censuses/NHS).

Using the LAD base raises a difficulty in that it is not possible to identify all of the immigrants present in it. Immigrants are identified in the LAD base only if they are present in the IMDB, since it is by linking these two sources that immigrant status can be assigned to the individuals in the LAD base. Therefore, the LAD cannot be used to identify as immigrants persons who arrived in Canada before 1980. Accordingly, a population of immigrants who settled in Canada before 1980 is added to the population of people born in Canada in the LAD. This immigrant population is relatively small in number compared with people born in Canada, whom they tend to resemble in many respects because of the large number of years they have lived in Canada. Picot and Piraino (2012) therefore conclude that the effect on the comparison of incomes between immigrants (IMDB) and people born in Canada (LAD) is not very significant. The results presented in Chart A-1 support this conclusion.

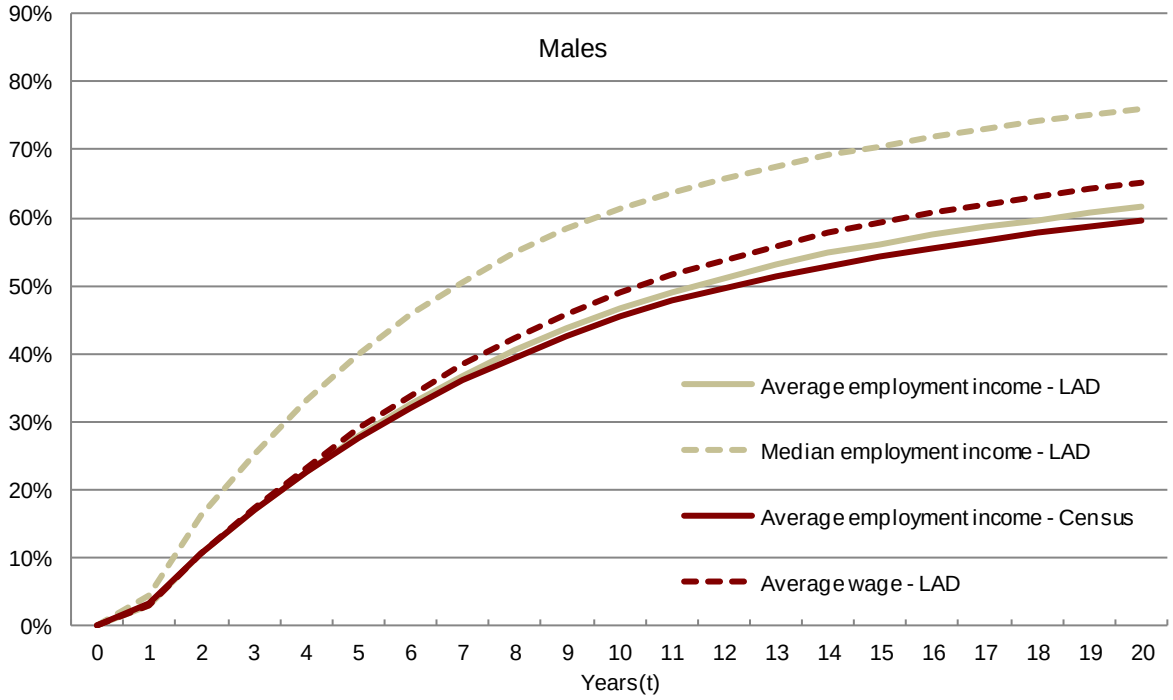
Chart A-1 illustrates two other scenarios. In the first, we have taken income from wages rather than employment income to establish the dependent variable; we therefore calculated both immigrants' wages and the average wage for reference purposes. Income from wages constitutes the main component of employment income, which includes, in addition to wages, other income (such as gratuities) and net self-employment income. In terms of reference income, the results show that the average wage is reached somewhat more quickly by French-speaking immigrants than the average employment income, for males in particular. Thus, 65% of men earning wages reached the reference wage after 20 years of residence in Canada compared with 62% in the case of employment income. For women, the corresponding percentages are 79% and 77% respectively. Overall, there is little difference between the two defining criteria. We nonetheless used employment income to calculate income because of its greater inclusiveness.[42]

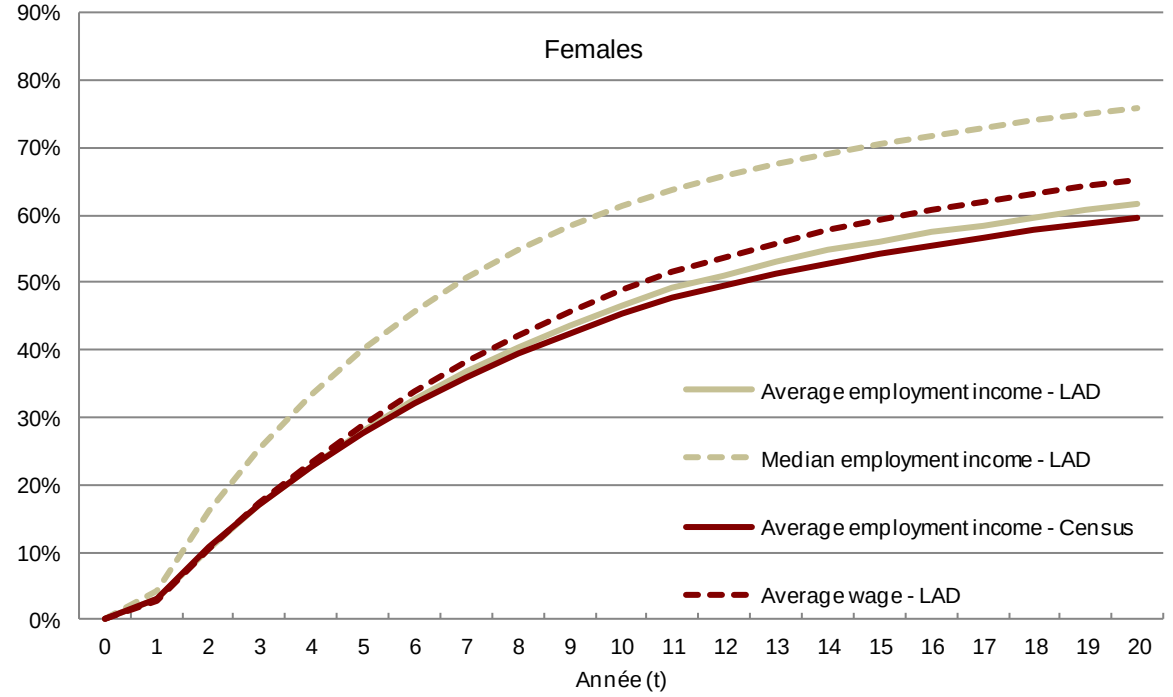
[42] For certain groups, such as Korean immigrants, self-employment is much more prevalent than for people born in Canada (Pereira et al. 2014).

The second scenario entails using median employment income rather than average income as the reference income. Chart A-1 shows that the effect of this choice on attainment of the reference income is unequivocal. Because median income is lower than average income, median income is reached much more quickly than average income. For men, the difference between the two estimates after 20 of residence in Canada is just over 14 percentage points (cumulative proportion of 76% for median income and 62% for average income). For women, the difference is smaller but is nonetheless close to nine percentage points. While it is easy to justify the decision to use employment income rather than wages alone, or to use the LAD data for calculating reference income rather than the census/NHS data, the choice of average income rather than median income as the reference income is largely discretionary. It is not known how immigrants evaluate or compare their incomes. Average income seems more intuitive, but we know that averages are highly sensitive to very high incomes, which push up the value of an average. Median income might be more appropriate in that it is more reflective of the income of an individual situated at the centre of the income distribution. Moreover, the difference between men and women that is obtained depending on whether reference income is calculated on the basis of the average or the median supports the hypothesis that the best relative performance for women (compared with the reference income) is due, at least in part, to the fact that income distribution for Canadian-born men is less even (broader) than for Canadian-born women.[43] In our study, reference income calculations are based on average income, as in the other studies on this subject.

[43] The difference between men and women after 20 years of residence in Canada is 15 percentage points when the calculation is based on average income as the reference income and 10 percentage points when the calculation is based on median income as the reference income.

Chart A-1: Cumulative proportions for attainment of reference income according to different calculation options, all cohorts of French-speaking immigrants outside Quebec by gender, in percentages





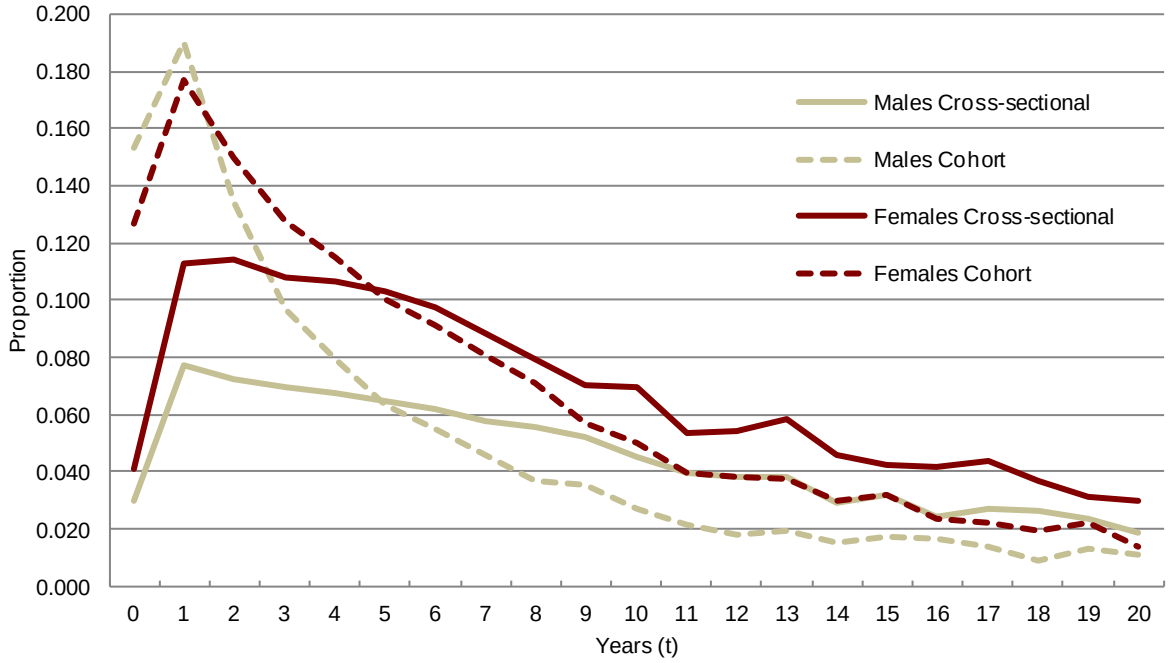
Sources: Longitudinal Immigration Database (IMDB), 1981 to 2006 censuses of Canada, 2011 National Household Survey and Longitudinal Administrative Databank (LAD).

The final methodological point that we wish to illustrate relates to the choice of average income as the reference income depending on whether that income is calculated on the basis of a cross-section every calendar year or, to take the solution proposed by Green and Worswick (2004), calculated for synthetic cohorts followed as of age 25. These two authors in fact proposed a comparison (or reference) income that differs from what is normally used in studies similar to theirs and to our own study. Rather than take the average income for a given calendar year, they used the average income of people born in Canada arranged in cohorts defined by the time of initial entry into the labour market. Their reasoning is that this would permit comparison of cohorts of new arrivals on the labour market through immigration (new immigrants) with cohorts of new arrivals composed of people born in Canada. The two groups of workers thus enter the labour market at a comparable time and, most significantly, they are subject to the same macro-economic conditions at the time of entry. This approach presents a number of limitations. The first pertains to the definition of cohorts entering the labour market that are composed of people born in Canada. The solution chosen by Green and Worswick was to set the age of entry at 25. Therefore, the cohorts entering the labour market that are composed of people born in Canada all start at this age. Second, immigrants enter the labour market at different ages, depending on how old they were when they obtained permanent residence, while cohorts of people born in Canada are defined as of a set age. The cohorts of people born in Canada followed as of age 25 are compared against cohorts of immigrants who arrived at different ages, including immigrants who arrived after age 25.

When the synthetic cohort approach is used, immigrants in their first year of residence are compared with people born in Canada who are 25 years of age; immigrants in their second year of residence are compared with people born in Canada who are 26 years of age, and so on; immigrants in their twentieth year of residence are compared with people born in Canada who are 45 years of age. We have previously mentioned the limitations of this approach and we can see the consequences on attainment of the average income used as the reference income in Charts A-2 and A-3.

The probabilities of reaching the reference income are sensitive to the approach chosen to calculate reference income (Chart A-2). For the first four or five years of residence in Canada, the cohort-based approach produces proportions that are much higher than the cross-sectional approach. After five years of residence in Canada, 51% of men under the cohort-based approach and 28% of men under the cross-sectional approach reached the reference income, representing a difference of 23 percentage points between the two series (Chart A-3). For women, the gap between the two series is less pronounced, at 13 percentage points, but it is still favourable towards the cohort-based approach.

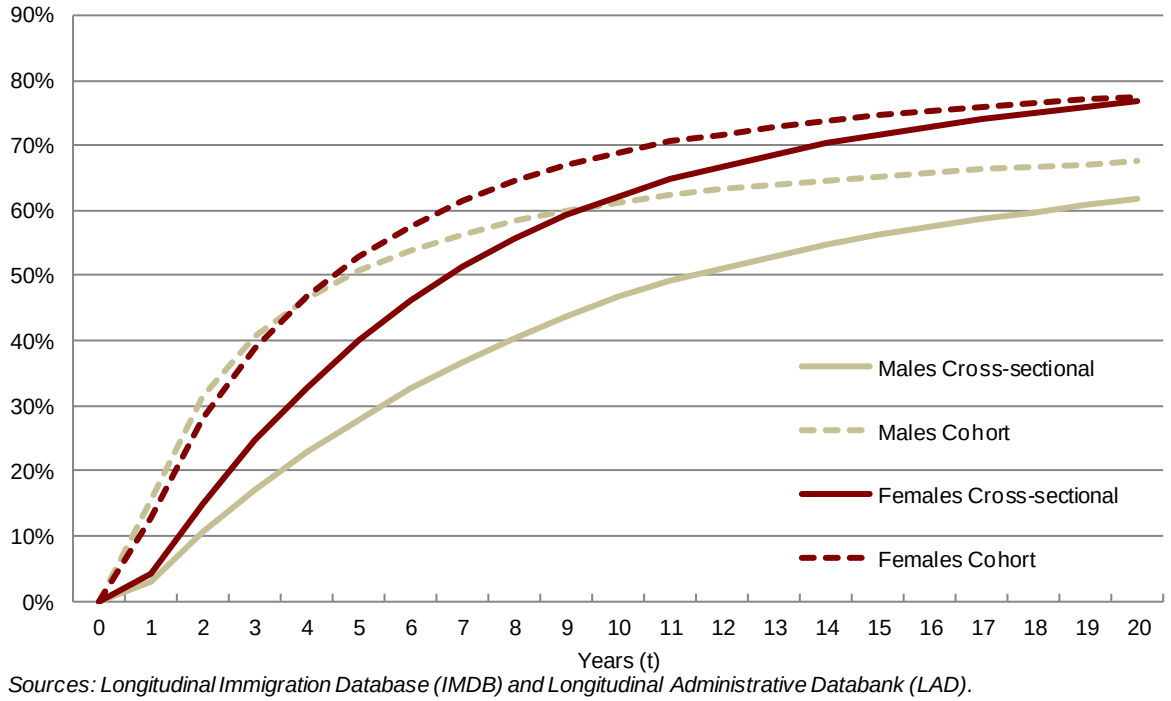
Chart A-2: Annual probabilities calculated according to approach used to calculate the average employment income as reference income, all cohorts of French-speaking immigrants outside Quebec, by gender



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

As of the fifth year of residence, the probabilities calculated on the basis of the two approaches tend to converge, although those calculated using the cross-sectional approach are systematically higher than those calculated using the cohort-based approach. Accordingly, cumulative proportions also tend to converge as the duration of residence grows longer. After 20 years of residence in Canada, the two series of cumulative proportions for women converged completely, and the two cumulative proportions for this duration of residence are 77%. For men, the convergence is not total, although the difference between the two series of cumulative proportions decreases also as the length of residence increases. After 20 years of residence, 68% of men under the cohort-based approach and 62% under the cross-sectional approach reached the reference income.

Chart A-3: Cumulative proportions for attainment of reference income (average employment income of Canadians by birth) according to the approach used to calculate reference income, all cohorts of French-speaking immigrants outside Quebec, by gender, in percentages



Sources: Longitudinal Immigration Database (IMDB) and Longitudinal Administrative Databank (LAD).

Altogether, the two approaches have little impact on attainment of the reference income for women other than during the first three or four years of residence. The differences are more significant for men, the cohort-based approach being more favourable to them than the cross-sectional approach, even after 20 years of residence. The difference between the two approaches is especially pronounced during the initial years of residence given that at point the reference income is that of young adults, which is generally lower than that of their elders. It is not certain that this reference income is relevant for new immigrants who already have several years of experience in the labour market.

Annexe B. Theoretical framework of Chiswick and Miller (1995)

Numerous studies have shown the impact of knowledge of official languages on the economic integration of immigrants in Canada and other countries such as Australia, the United States, Germany and the United Kingdom in terms of income and labour force participation (for a recent review, see Boyd and Cao 2009, pp. 66-68). An article by Chiswick and Miller (1995: 248-251) sets out a relevant theoretical framework on the determinants of language learning in relation to the economic integration of immigrants. For French-speaking immigrants, settling outside Quebec presents a definite challenge with respect to knowledge of English, the latter being largely dominant.

According to the frame of reference proposed by Chiswick and Miller, the degree of fluency in a host country's dominant language depends on three types of factors: economic incentives to learn the language, level of exposure to the language and efficiency in its acquisition. Financial incentives to learn the majority language of the host country are connected with the increase in anticipated income and participation in economic activity associated with greater fluency in the language. These economic incentives are also a function of the anticipated duration of residence in the host country. For example, immigrants who are thinking of returning to their source country should be less motivated to invest in learning the language of the country they have immigrated to.[44]

Exposure to the majority language relates to the different forms of language learning, both formal (through classes) and informal (through contact with other people, through the media and by using the language in various contexts such as the workplace). Exposure has two main components: exposure before immigration and exposure at the destination.[45]

Exposure to the majority language of the future host country prior to immigration raises two points. The first is the effect of the 'linguistic distance' between the language of the source country and the majority language of the host country. Languages that belong to the same linguistic family are closer to one another than languages that belong to different linguistic families, and linguistic distance is even greater when the linguistic families are unrelated. For example, French and Spanish belong to the same family of Romance languages, and their linguistic distance is not very large. French and Russian are more distant from one another, as Russian is a Slavic language. However, French is more distant from Mandarin than Russian, because French and Russian belong to the same major family of Indo-European languages, while Mandarin belongs to the family of Chinese languages.

In Canada, exposure to the language of the host country also depends on the status the language holds in the source country. For a variety of historical or practical reasons, some languages have a special status in parts of the world in which they did not originate: English in India, the Philippines and Africa and French in the Maghreb and West Africa, to name just a few.

Along with these various elements of exposure to the language that took place prior to immigration, exposure in an intermediate destination between the country of birth and the host

[44] This is consistent with the non-random nature of the cases of truncation associated with a return to an immigrant's country: immigrants who return to the country of origin undoubtedly did not attain the same degree of economic integration as those who decided to stay.

[45] Exposure to the language can be broken down into the number of units of exposure time and the intensity of exposure by unit of time. Although Chiswick and Miller seem to apply this principle to exposure in the host country only, it also applies before immigration.

country can be another factor. Many immigrants transit through a third country before arriving in the country they are immigrating to, and in some cases the third country has the same language (official language, national language) as the host country. The reasons for such transits may be related, for example, to work or schooling, higher education in particular.[46]

The duration of residence in the country of immigration is generally a good indicator of exposure to the language, and the longer the duration the greater the exposure. The intensity of exposure is tempered by an immigrant's environment. When immigrants are surrounded by a large number of people who use their own minority mother tongue (in private communications, in business and in nearby services, for example), exposure to the majority language will be less intense. The family is the most significant linguistic environment for immigrants (Chiswick and Miller 1995). Having a spouse with the same minority mother tongue reduces exposure to the language of the country of immigration.

Obviously, language courses taken in the host country play a critical role in the acquisition and development of language skills.

Chiswick and Miller (1995) distinguish between the efficiency of exposure to the majority language in terms of intensity. Efficiency refers to "the extent to which a given amount of destination-language exposure produces language fluency.[47] The primary factors in efficiency are age, education level and immigrant class. Young people find it easier to learn a new language, and even more than one language at a time. However, this ability decreases with age. Age at immigration therefore has a significant modulating effect on the degree of adjustment to the host country, through its effect on language abilities among other things.

Higher education also increases the efficiency of language exposure. More educated people tend to have a better knowledge of their own mother tongue and are thus better equipped to learn new concepts, new syntactical elements and the vocabulary of another language.

This model highlights the importance of language as a factor in immigrants' adjustment. Linguistic preparation and adjustment are related to the economic success of immigrants. In this study, the only linguistic information of which we have direct knowledge is the mother tongue reported and knowledge of official languages at time of entry. The official statistics do not reveal the extent to which immigrants develop their language skills in either official language after they arrive in Canada other than indirectly on the basis of the cumulative duration of residence in Canada.

A certain amount of indirect information on language exposure can be derived from two variables: country of birth and country of last residence. For French-speaking immigrants, exposure to English before immigration can constitute an asset once they are in Canada. Such exposure can be combined with other characteristics that foster economic integration in Canada, such as having taken advanced studies in English or French in a country from which foreign academic credentials and work experience are more readily recognized in Canada, such as the United States, the United Kingdom and France.

[46] According to UNESCO statistics, the five countries that received the most foreign university students (tertiary level) in 2012 are, in order, the United States, the United Kingdom, France, Australia and Germany. See http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx (page viewed on 26/06/2014).

[47] Chiswick and Miller 1995:250.

Annexe C. Références bibliographiques

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