

Interprovincial Migration in Canada, 1911–1951 and Beyond

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Introduction

Canada's economic development in the twentieth century has been closely linked to factor mobility. The movement of labour into newer regions was critical to the rapid process of settlement, population expansion and economic growth that defined Canada from 1896–1929. And beyond settlement, the mobility of labour is critical to an open economy, particularly the Canadian economy which has strong regional specializations that are subject to asymmetric international shocks. Adjustment to regionally-specific shocks undoubtedly has been enhanced by the mobility of the Canadian labour force.

Analysis of the characteristics of migration prior to 1961 has been done without access to the Census microdata. In this paper, the recently released Census of Population of Canada for 1911–1951 will be used to characterize and explain the long-run patterns of Canadian population mobility. Availability of individual-level data for Canada now extends from 1871 (and earlier) through 2006. These data will be utilized to plot the long-run trends in interprovincial mobility of the Canadian population.

The nature of mobility: who moves, from where they move, and what characteristics influence the propensity to move will be analyzed using the individual-level data in two complementary methods. Migration propensities by decade can be tracked using a synthetic birth cohort of individuals from 1881–2001. While the general pattern of migration is consistent with previous studies, and is similar to patterns in interstate mobility in the U.S., there are differences. Interprovincial mobility was increasing in the late-nineteenth through early twentieth century in Canada while it was declining in the U.S. In both Canada and the U.S., the decades of the Great Depression and World War II had reduced interprovincial mobility.

There is some evidence that World War I was also disruptive of factor flows within Canada. While the Great Depression is a turning point for the mobility trends for most age groups, for those in their 20s and younger, the decline in interprovincial mobility begins a decade earlier.

Tracking birth cohorts does suffer from some basic flaws. The data do not allow separating multiple moves; they only allow comparison of province of birth with province of residence. Migration propensity assessed as difference between province of birth and province of residence will capture a move made at anytime in a person's life. The measure will not be as sensitive to intercensal changes. As well, the measure is cumulative over a lifetime, so older cohorts will inevitably display a greater propensity to move. To address this shortcoming, an alternate method is used looking only at families with children aged less than 10 years old. From this sample, families of those children whose province of residence and province of birth differ will have moved within the previous ten-year period. This method thereby restricts the focus to those that moved between the two census dates.

The individual-level data allow for relating the characteristics of the individual—their age, language spoken, province of birth—with the propensity to move. We run logit regressions on propensity to move for evidence of the influence of human capital on interprovincial migration. Measures of education are used to capture general skill endowments of individuals. Language spoken is also an important characteristic of those who move. In this regard, human capital will be assessed not only as an individual characteristic, but also as having a location-specific component. Province of birth and language taken together have significant impacts on mobility.

Canada differs from the U.S. in that languages acts as a barrier to mobility. Language alone has served to separate Canadians, but language differences also affect the impact of education on mobility. For English-speakers, education enhances mobility, while for French-speakers it may have the opposite effect of restricting opportunities. While French-speakers in general were less likely to migrate, French-speakers born in Quebec were the least likely to move. Interestingly, ability for French-speakers to speak English had almost no influence on mobility from the period of land settlement of the West through World War II. Then in the postwar period this changed rather abruptly and significantly and bilingual speakers became highly mobile.

Interprovincial Migration in Canada Before 1961

International labour mobility has had much greater attention in Canada than has internal mobility for the period prior to 1960. After 1960, census and other microdata become available allowing for tracking of the movement of the Canadian population by tracking individuals. There had been no sources of individual-level data available to researchers until the recent release of Census microdata for the period prior to 1961. Samples from the censuses of 1911 through 1951 have been made available by the Canadian Century Research Infrastructure. A sample from the Census of 1901 has been produced by the Canadian Families Project, and a sample of the 1891 Census is currently being made available by researchers at the University of Guelph.¹

The basic demographic method measures migration as the residual change in population

¹The full Census of 1881, and samples of the censuses of 1871 and 1852 are also available.

measured at two points in time, adjusted for births and deaths (Anderson, 1966; Buckley, 1960; Keyfitz, 1950; Stone, 1969). The data requirements are limited to the published census and vital statistics, but it can only be used to estimate net migration. Using this method Anderson (1966) presents net interprovincial migration measures for the period 1921 through 1960, and Stone (1969) extends estimates back to 1881. George (1970) also estimates interprovincial migration for the period from 1901-1961 using differences between birthplace and residence at time of census.

The general pattern is clear and well-known. In the period prior to 1951, mobility and Prairie settlement were closely linked. Migration to Manitoba was strong in the 1890s, falling to a lower level for the next two decades, followed by several decades of net out-migration. The same pattern holds for Saskatchewan and Alberta beginning in 1901, albeit the peak rates are higher and the period of dramatic in-migration is much shorter. Through this period, B.C. in-migration rates are high. The Maritime provinces are a region of persistent out-migration. Ontario shifts from a net out-migration prior to 1901, and a net in-migration after.

For the entire country, interprovincial mobility increased most dramatically from 1901 to 1911, and was essentially constant for the decade 1911 to 1921. Mobility declines through 1941, then increases for the next two decades, albeit much more modestly than the increase between 1901 and 1911. Interprovincial migration contributed more to population growth than natural increase in all decades except the 1930s.

George (1970) makes use of the data on migration first taken in the Census of 1941 to characterize interprovincial migrants by age (George, 1970, p. 156-7). In both 1941 and 1961, interprovincial migrants are more likely to be in the 25-34 age range than non-

migrants. The 20–24 year olds are more likely to have migrated by 1961, but less likely in the 1941 census. George (1970) finds that roughly forty percent of the population moved intraprovincially over their lifetimes, while interprovincial mobility rates are on the order of 5%.

McInnis (1969, 1971) in two early studies, and Laber and Chase (1971) in a similar study, considers the impact of human capital on the migration decision using the 1961 Census. McInnis (1969) also consider the age at which migration propensity peaks, but his focus is for the period 1956-61.

Robinson and Tomes (1982) is an early study to include an assessment of language and human capital on likelihood of interprovincial migration. Drawing on the 1971 Census, they find education generally increases mobility, but it decreases the mobility of French-speakers in Quebec. Results to be presented here extend their analysis backward.

Mobility of the Canadian Population Since 1881

Mobility by Ten-year Age Groups

The measure of the mobility of the Canadian population is the proportion of the Canadian-born population born outside their province of residence.² This measure is not a demographic measure of population change. It is useful strictly for comparison. Analysis that follows will focus on two particular age cohorts as a proxy of measuring decadal changes in migration propensities.

²Only individuals with an identifiable province of birth are included which excludes those born outside Canada.

The data are the digitized census files allowing for consistent age groupings per census year. The complete 1881 Census is available while all others are sampled. The 1891 Census file is a 5% sample of East and a 10% of West. As well, Montreal, Toronto and Halifax are separately sampled, and certain municipalities have complete coverage. For consistency, only the samples by province-level were included to avoid over-representation of urban centers. The 1911 Census is a 5% sample, the 1921 Census is a 4% sample, and 1931, 1941, and 1951 are $3\frac{1}{3}\%$ samples.

The mobility measure by province of birth and province of residence is all that is available in the Census prior to 1941. The Census of 1941 was the first to include a question on previous residence.³ It was not asked in the Census of 1951. The mobility measures from the 1941 Census will not be exploited here as the focus is comparative, examining long-run trends.

Estimates of population mobility by ten-year age groups for each census from 1881 through 2001 are presented in Figure 1.⁴ For each age group, the measure is lifetime mobility; it captures anyone who left their province of birth at any age. The measure does not identify the timing of the move.

[Figure 1 about here.]

The mobility of 30-39 year olds is probably most closely correlated with intercensal changes as this group represents young adults most likely to migrate, and most likely to

³George (1970) suggests that this measure is reliable only for interprovincial migration due to confusion and inconsistency over definitions of municipalities.

⁴The 1961 data are not strictly comparable. Not having been able to secure access to the microdata file, these numbers are taken from the published census, and the age groupings do not match exactly.

have made the choice themselves or for their family. Therefore the long-run behaviour of this group is reflective of decade-specific changes that affected mobility. For this group, mobility increases from 1881 through 1921, and increases quite rapidly from 1901 to 1911. Mobility declines to 1931 and again to 1941. By 1951, after two decades of decline, mobility jumps back to the level of 1921. The decline in 1931 is all the more significant given that over the 1920s mobility would likely have been increasing. Mobility for this cohort continues to increase by decade to 1981 after which it declines and flattens out.

An alternate presentation of the patterns in Figure 1 highlighting changes for each ten-year cohort over successive census years is shown in Figure 2. These changes are measured as the proportion of a ten-year age group living outside of their province of birth in census year t minus the proportion of the next younger ten-year age group living outside of their province of birth in census year $t - 10$. In other words, it is the difference in the proportion of 30–39 year olds living outside province of birth in 1931 minus that of 20–29 year olds living outside province of birth in 1921.

Changes from census to census of a particular cohort are indicative of intercensal population mobility. As each cohort measure is lifetime mobility, for each decade interval, changes in the mobility measure reflect that decade's impact. While there are a few successive years in which there is a slight decline for a few cohorts, only one is in fact a statistically significant decline, that of the 50–59 year old group in 1941. The mobility of the ten year cohort of 50-59 year old's in 1941 is statistically lower than the 40-49 year olds' mobility in 1931. This could reflect migrants returning to their province of birth, a distinct possibility during the Depression.⁵

⁵Of course it could be an artefact of sampling.

The possibility of return migration is reinforced indirectly. As mentioned, in 1941 for the first time a question on previous location of residence was included in the census. The motivation for inclusion of the question was the increased population movement of the previous decade. As interprovincial mobility declines from 1931–1941, the sudden interest in population redistribution is surprising unless the movement was dominated by either intra-provincial migration or return migration. While it is not possible to comment on intra-provincial movements here, there is evidence of a return migration because of the negative change in the mobility measure for the 50–59 years olds in the 1941 Census, as well as the very slight negative change in the 60–69 year old age group in 1941.

[Figure 2 about here.]

The onset of the Great Depression has the largest effect on the 30–39 year old age group. As Figure 2 illustrates, the increase in the mobility of this cohort to 1931 was the smallest over all census years. Certainly other age-groups were also affected. The 20–29 year old group also shows its smallest increase, but it was at least equal to that of 1891. For older cohorts, the decade of the Great Depression had the greater affect on their mobility. In 1941, the mobility of all three ten-year age groups: 40–49, 50–59, and 60–69 years olds displayed the smallest increase, and in several cases were decreases. In contrast, mobility among the 30–39 year olds was slightly greater in 1941 than in 1931. This suggests that the initial downturn impinges more heavily on the young. A sustained period of low output then restricts mobility of the middle-aged.

A direct comparison of the levels of mobility between Canada and the U.S. is inappropriate. Canadian provinces are relatively larger than U.S. states, so for moves of equal

distance, Canadians are less likely to leave their province of birth.⁶ In every period, an American is much more likely to be living outside their state of birth than is a Canadian likely to be living outside their province of birth.

Trends, however, can be compared for the two countries. A comparison of changes in the temporal pattern of mobility in the U.S. and Canada suggests that many differences in population mobility between the two countries are due to the different timing of land settlement. Interstate mobility in the U.S. declines from mid-19th century to a low in 1941, then rebounds (Rosenbloom and Sundstrom, 2004). The overall pattern since 1850 is strongly U-shaped. In comparison, mobility in Canada is rising prior to the Great Depression. For Canada, this is the period of land settlement. In the U.S., popular mythology has the frontier filled by the 1890s. However, population mobility in the U.S. seems to have been at its maximum much earlier, perhaps around 1850. After 1931, the pattern of population mobility is similar for the two countries.

There are a couple of additional differences between the two countries. One difference is in the mobility pattern of the 20–29 year old group from 1901 to 1921. In the U.S., mobility for this group is increasing modestly, and is consistent with the changes in the mobility of the other age groups. In Canada, mobility of this age group shows a sharp increase from 1901 to 1911, then a sharp decline to 1921. It is possible that effects of World War I differentially impacted the cohort aged 10–19 in 1911 and 20–29 in 1921. It is also possible that the unusual decade was the 1901–1910 period affecting the cohort aged 10–19 in 1901. Homestead settlement likely had a greater impact on family migration, and the bulk of that movement was a fairly brief period on the timescale of Figure

⁶George (1970)'s measure of intraprovincial migration for this period is only slightly higher than U.S. interstate mobility rates indicating the differences geography has on the measures obtained.

1. More evidence will be discussed below addressing the impact of World War I directly.

The other notable difference between mobility changes in Canada compared to the U.S. is the differential effect of changes on different cohorts (See Figure 2). Almost without exception, in the U.S. the lifetime mobility is increasing with each successive age group in all census years. This is clearly not the case in Canada. So while interstate mobility in the U.S. is absolutely greater than in Canada, time-specific shocks seem to have a greater relative effect on the mobility of some age groups in Canada. Differences in mobility of the older age groups in the U.S. due to geography may also play a role. Even though direct comparisons of levels of migration are not revealing given the differences in geography between the two countries, in the U.S. there is no large decline in the incremental mobility for the older age groups beyond the 40–49 year old group (Rosenbloom and Sundstrom, 2004, Figure 1). In contrast, in Canada mobility continues to decline with age, or at least declines relatively more, in most Census years.

In general, it appears that decadal shocks had fairly strong effects on mobility of different age cohorts. The decade from 1911–1921 saw an evenly-distributed effect on mobility across age groups. In contrast, the decades from 1901–1911 and 1941–1951 were much more strongly skewed to mobility increases among the young. And the two decades of 1921–1931 and 1931–1941 caused return migration among the middle aged, but saw only a modest increase in the mobility of the older age groups.

Intercensal Mobility: Families with Children Under Ten Years of Age

While the migration of the 30–39 year old group is one proxy for intercensal moves, it is not a perfect proxy. Another potential source of information on intercensal migration are families with children under ten years of age. Movers can be readily identified in this group as those families with children whose province of birth differs from their province of residence. The additional benefit of this measure is that it can track movements of families headed by either Canadian- or foreign-born parents. A disadvantage of the measure is that families with young children are less mobile so mobility patterns may differ for this group relative to those without children.⁷

Following Rosenbloom and Sundstrom (2004), one reference child was chosen randomly from among all children under ten years of age for families with two identifiable parents.⁸ A reference child must have an identifiable province of birth. Only one child per family was used so as not to over-represent the fecund.

The migration pattern of this group is illustrated in Figure 3.⁹ The pattern is mostly consistent across each age grouping. Migration propensity increases from 1901 to 1911. For families with older children, migration propensity increases again to 1921; for families with younger children, it declines after 1921. In either case, migration propensities decline after 1921 through 1941 after which they increase substantially to 1951.

⁷Rosenbloom and Sundstrom (2004) address this issue, suggesting it does not bias the results of using this group.

⁸Identifying family structures is a significant effort as the censuses prior to 1961 do not readily distinguish among families living in one household. The presence of several families within one household was common, e.g. head and wife, several children including married children and grandchildren can easily be found in many households. Generally, census enumerators grouped families together, but there was variation by enumerator.

⁹The graph covers only 1901 through 1951 for now. We hope to move backwards to 1891. Moving forward is difficult because the pumf's do not include family structure so access to the full census files is required. Otherwise the samples won't be comparable.

[Figure 3 about here.]

Unlike the pattern in the U.S., Canadian migration propensity increases in the early part of the twentieth century. Like the U.S., migration propensity falls at the onset of the Great Depression, remains low through the Second World War, and is resurgent in the postwar period peaking in 1981.

It was noted above that the migration propensity of 20–29 year olds peaked in 1911, then declined thereafter through 1941. This may have been a result of a large increase in mobility for this group from 1901 to 1911 as was noted. Or, the decline after 1911 could be due to the effects of World War I. Figure 3 sheds some light on this. From 1911–1921, mobility increases for families with eight and nine year olds. These would be children born around 1912–1914, that is, before the outbreak of World War I. For families with children aged two to seven, migration peaks in 1911, then declines. This group includes children born in 1915 through 1919. Migration propensity of families with one year olds—children born after the end of the war—increases, though only very slightly, from 1911 to 1921. Perhaps this is indicative of a return to normalcy. So there is some evidence to suggest that World War I was disruptive, reducing mobility of the population.

The War ended the period of international mobility of commodities and factors that had evolved over the mid-nineteenth century. It seems likely that it also had a disruptive effect on mobility of factors within countries – if the Canadian experience is in any way indicative of a global phenomenon.

Characteristics of Migrants

30–39 Year Olds

We identify the characteristics that distinguish movers from non-movers, and look first at the 30–39 year old age group. While migration is more likely among the young, those in the 30–39 year old group would include mostly those for whom the decision to move was made by themselves rather than by their parents. Therefore use of this group will provide a sharper proxy for migration occurring over the decade prior to the census. Comparison of this age group across censuses will be indicative of periods in which migration was more or less likely, and of changes in the characteristics that influenced the migration.

The motivation to migrate is the expectation of increased returns to labour and skills. Therefore movers should differ from non-movers based on characteristics that can proxy for relevant skills and regional differences in labour market outcomes. Older workers would likely have human capital that is highly industry- and/or location-specific, and would therefore be less likely to move. Younger people would not have acquired substantial specific capital, but would differ in their human capital. Education is a standard proxy for differing levels of human capital available to youth. Education measured as years of schooling is available from the 1941 Census. Prior to 1941, the only measure available is literacy.¹⁰

Differences in earnings available by region is a motivator of migration. Province of birth is included to capture any differences in employment opportunities across regions. A

¹⁰Literacy is defined as ability to read and write. The Census asked two questions: ability to read and ability to write resulting in four possible outcomes. All combinations other than ability to read and to write were coded as illiterate.

personal characteristic that would have strong locational specificity in Canada is language spoken. Green, MacKinnon, and Minns (2005) have shown that French Canadians had fewer opportunities in the Canadian West and therefore were less likely to settle there. Since land settlement was a significant reason for migration, it is likely that language influenced migration. Language may also cut the other way, reducing the likelihood that English-speakers would migrate to Quebec, and possibly increasing the likelihood that French-speakers might migrate back to Quebec.

There are more than two languages spoken in Canada, so language also identifies those that speak neither English nor French. As well, over the twentieth century, knowledge of English diffused among French-speakers.¹¹ It is possible that mobility among the bilingual would be enhanced since they would potentially be able to move to any region in the country. Therefore language is coded for four possibilities: English only, French only, both English and French, and neither English nor French.¹²

Though the sample is restricted to a narrow age range already, differences by age may still be apparent, so age is included as another covariate. A distinction between males and females is also included. Certainly males and females both migrated, but younger single females had more constraints on the opportunities available.

The dependent variable is a bivariate choice of moving or not moving, defined as 1 for those who reside outside their province of birth and 0 for those living in their province

¹¹Equivalently, knowledge of French may have diffused among English-speakers, though this seems much less likely since a large proportion of those identified as being bilingual reside in Quebec

¹²In the 1911 Census, language spoken is determined by three questions asking respondents for their spoken language. The Censuses of 1901, 1921–1951 instead asked respondents directly if they could speak English and if they could speak French. The 1891 Census only asked individuals to identify as French Canadian. If so identified, it is assumed they speak French. No other language information can otherwise be gleaned, and all analysis for 1891 is restricted to identifying only English or French.

of birth.¹³ The estimation is done as a logit regression. The basic model for census years 1891–1931, including interactions is

$$\ln \Omega(x) = \alpha + \beta \textit{age} + \gamma \textit{female} + \delta_l \textit{language}_l + \rho_p \textit{birthProv}_p + \lambda \textit{literate} \\ + \eta_{lp} \textit{language}_l \times \textit{birthProv}_p + \theta_l \textit{literate} \times \textit{language}_l + \epsilon$$

where $\Omega(x) = \frac{\textit{Pr}(\textit{move} = 1|x)}{\textit{Pr}(\textit{move} = 0|x)}$.

In order to allow for differences in language's effect on migration depending on province of birth, regressions include an interaction term of language and province-of-birth. This captures the tendency for English-speakers born in Quebec to be highly mobile while French-speakers born in Quebec remain highly attached to their province of birth.

For 1941 and 1951, education is available. In 1941 it is reported as years of education. In 1951 it is coded in ten categories of years of education as follows: 0, 1-4, 5-7, 8, 9, 10, 11, 12, 13-16 and 17+. For comparison across the two years, years of education from the 1941 census was recoded into the ten categories.

The model estimated for the years 1941 and 1951 is

$$\ln \Omega(x) = \alpha + \beta \textit{age} + \gamma \textit{female} + \delta_l \textit{language}_l + \rho_p \textit{birthProv}_p + \lambda_e \textit{education}_e \\ + \eta_{lp} \textit{language}_l \times \textit{birthProv}_p + \theta_{el} \textit{education}_e \times \textit{language}_l + \epsilon.$$

There are four language values subscripted by l , and 11 provinces of birth subscripted by p .¹⁴ For 1941 and 1951, there are ten education categories subscripted by e .

¹³Multiple moves are not identified, and neither are movers who return to their province of birth.

¹⁴The Northwest Territories and the Yukon are included where available. For 1951, Newfoundland is included yielding 12 provinces.

Regressions are run separately for each census year. The regression results are available in Appendix Table A.1 for 1891–1931 using literacy, and in Appendix Table A.2 for 1941 and 1951 using years of education. In 1891, the label *Alberta* includes all areas that become Alberta, Saskatchewan, parts of Manitoba, Nunavut, the Northwest Territories, and the Yukon Territories. It will also include substantial parts of northern Quebec and Manitoba that were then not included in the provincial boundaries of those provinces. In 1901, the label *Alberta* applies to the area to become Alberta and Saskatchewan. The rest of the Northwest Territories are identified separately. Newfoundland is included in 1951, but excluded in earlier years. Some interaction cells are either constant, i.e. no mover or all movers, or are simply empty, and therefore are not reported in the regression results output. For example, there are no French-only speakers born in B.C in the sample of 30–39 year olds, so no coefficient is reported for that interaction.

The interaction terms are statistically significant taken together thereby justifying their inclusion. Given the large number of interaction terms, interpretation of the coefficients themselves is not straightforward. As well, the significance of the interaction terms does not necessarily imply their effect is statistically significant across the entire range of values. Therefore tests of particular effects are done by generating marginal effects of changes on the odds ratio of moving in response to changes in the effects of interest.

The estimates in Tables A.1 and A.2 suggest that migration propensity differs by province, but also differs by language for any province. This is most apparent for Quebec where from the signs and significance of the coefficients on the interaction terms for French language and Quebec, it can be concluded that French-speakers are less likely to leave than are English-speakers.

The marginal effect of language on the likelihood of migration by province is expressed as

$$\frac{\partial \Omega(x)}{\partial language_l}$$

Because the marginal effect is for a change in a categorical variable, the marginal effect can be calculated as

$$\Omega(\bar{x}) \Big|_{language \in I_l} - \Omega(\bar{x}) \Big|_{language = English}$$

where the set $\{I_l\}$ of possible languages consists of French, both English and French, and neither English nor French. English is the excluded category. All other covariates are held at their sample average values.¹⁵

[Table 1 about here.]

Results of the effect of language on migration propensities are reported in Table 1. The marginal effects reported are the difference in the odds ratio of migrants to non-migrants for one speaking each of French, both English and French, or neither language compared to the odds ratio for one speaking English born in the same province. The result that is immediately apparent is the attachment of French-speakers to Quebec. For example, in 1901 for French-speakers born in Quebec, the marginal effect is -0.304 and is statistically significant. This means that among those born in Quebec, for every 1000 non-movers there would be 304 fewer movers for French-speakers than for English-speakers.

¹⁵The calculated marginal effect is not a marginal effect as such, but is rather the change in the odds ratio for a discrete change in language category. It will be referred to as a marginal effect regardless of the precision of the term.

Given that in 1901 over 25% of English-speakers born in Quebec in the 30–39 age group migrated, whereas for French-speakers born in Quebec, only about 3.5% migrated, the marginal effect of being a French speaker in Quebec on the likelihood of migrating is not just statistically significant, it is large.

The propensity for French-speakers born in Quebec to remain in Quebec is strong and persistent through 1951. This tendency is well-known. This propensity is at its strongest in 1921 and 1931. But even by 1951 it is hardly diminished

Even those born in Quebec with the ability to speak both French and English remain almost as attached to Quebec as those speaking French only, a result that seems puzzling. There is also an apparent tendency for French-speakers to be less likely to migrate from provinces in which there are established French-speaking communities; but this resistance erodes by 1941. There is also some variation by province. For those born in New Brunswick, the French-only speakers remain less likely to migrate than English-speakers through 1951. This pattern does differ for Manitoba and Nova Scotia where French-speakers' attachment to their province of birth converges to that of English-speakers.

If French-speakers prefer to remain in French-speaking communities, do they tend to leave provinces that are predominantly English-speaking? There is some evidence to suggest that French-speakers leave other provinces. French-speakers were less likely to leave Ontario than were English-speakers from 1901 to 1911, but from 1931 to 1951, French-speakers' mobility among those born in Ontario is greater. It should be noted too that from 1901 to 1911 there was a substantial migration of Ontarians to the West, so in comparison, French-speaking Ontarians appeared much more attached to the province. Generally, there are no statistically significant differences between English- and French-

speakers elsewhere, though in 1891 and 1921 French-speakers were less likely to leave Manitoba. In many provinces, however, there were few French-only speakers.

Those that do not speak English or French are probably less likely to migrate; but observations on their behaviour by province are limited. In Manitoba, where there are observations of those speaking neither English nor French for every census year beginning in 1911, for most of those census years this group has a much lower likelihood of migrating, though the effect itself is not always statistically significant due to the small numbers and high standard errors. There are no observations of a province in any year when this group displays a greater likelihood of migrating than an English speaker.¹⁶

[Table 2 about here.]

[Table 3 about here.]

Of particular interest is whether and how human capital affected the mobility of Canadians. The marginal effect of literacy by language is presented in Table 2 for 1891–1931. The marginal effect of education on migration propensity by language is illustrated in Table 3 for 1941–1951 with the availability of measures of education. Again, all other covariates are held at their means, including province of birth. It is not clear that education would interact with province of birth in the same way it might affect the migration choice based on knowledge of English or French; so we did not calculate the marginal effects of education on migration propensity varying by province of birth.¹⁷

¹⁶There are a few positive point estimates of the marginal effect of language on migration propensity, but none are statistically significant.

¹⁷We did estimate the marginal effect of literacy by province of birth by language, and province of birth had no effect on the results.

The results for literacy are very clear. Literacy has an increasing impact on the mobility of English-speakers. The increase in the marginal effect of literacy from 1891 to 1901 for English-speakers is very small, but the increase from 1901 to 1921 is larger, from 8% in 1901 to 18% in 1911 to 25% in 1921. The marginal effect declines modestly to 1931. This is certainly consistent with the increasing shift of the Canadian economy from agriculture and resource-based to an industrial economy requiring some basic skills of workers.

However, if demand for workers in the economy was shifting towards skilled workers, it did not seem true for non-English-speakers. Or, more precisely, skill differences did not determine whether non-English-speakers would move or not. For French-speakers, literacy had a slightly negative effect on their mobility, while for bilingual speakers and those without either English or French, literacy had no significant effect on mobility. That literacy should have a statistically significant, and by 1921, a modestly large, negative effect on interprovincial mobility of French-speakers may suggest the locational-specific nature of French. Someone literate in French would find higher demand for their skills among French-speakers, but would likely not be otherwise distinguishable from the illiterate in an English environment; whereas, for someone illiterate, the language in which one is illiterate would matter less. It is not clear why mobility would not be enhanced for those with both languages.

Results in Table 3 are particularly interesting, indicative of significant changes in the postwar Canadian economy.¹⁸ For 1941, the results are similar to those for literacy alone. Education is only a motivator of migration for English-speakers. For all other language

¹⁸Marginal effects for those with neither English nor French are not included as most cells are empty. In fact, it is unclear what years of schooling means for those who speak neither English or French. Our sample only includes those born in Canada, almost all of whom would have received education in either English or French.

categories, education level has no impact on migration. For English-speakers, there is a modest increase in the marginal effect of education on migration propensity with years of schooling, though the effect is quite small, and only negligibly statistically significant, for those with less than ten years of education. For those with twelve years or more of schooling, the effect on migration is quite large.

For 1951, there is a transformation apparent. The effect of education on mobility for English-speakers is everywhere greater, becoming very large for those with ten years or more. However, what has really changed is the effect of education on the mobility of bilingual Canadians. For this group, education has a large impact on the likelihood of migrating. Even for those with 9 years of education or less, the marginal effect of education on migration relative to a bilingual Canadian with no education is equivalent to the effect of education on the likelihood of migration for an English speaker. This seems to have arrived without past precedent. The effect of education on the mobility of bilingual Canadians in 1941 was insignificant except for one small group, bilingual Canadians with 17+ years of education. For this select group with very high human capital, the likelihood of migration in 1941 was substantially and significantly greater than an equivalent individual with less education. But education had no effect on any other group of bilingual Canadians in 1941, even for those with education in the category immediately below the highest.

Of course we cannot rule out whether the most educated bilingual speakers were highly mobile prior to 1941 because everyone was lumped together into one category, “literate.” We do know, however, that there was a huge difference between the migration propensity of the most highly educated and the next most educated group of bilingual speakers in 1941, and we see that much of that difference had eroded by 1951—indicative

of significant changes. While unilingual French-speakers were not likely to migrate, that might be expected. In fact, we might expect to see the reverse pattern of the impact of education on migration propensity of those born in Quebec. With location-specific skills, returns to migration for a French-speaker is expected to be lower elsewhere, not higher. The results show no pattern whatsoever for the effect of education on the migration propensity of French-speakers. By 1951, education coupled with knowledge of English opened up the country to Canadians from all but the most remote corner.

While education may have had a modest negative impact on the likelihood of migration of French-speakers, even by 1951 French-speakers were a group less likely to migrate. That would suggest that while skill may have been somewhat important to mobility in the Canadian economy twentieth century, language itself may have mattered more. French-speakers may have been less than perfectly substitutable for English-speaking workers in a predominately English environment outside Quebec and the French communities in New Brunswick, Nova Scotia and Manitoba. In the two decades of the 1930s and the 1940s, mobility among bilingual speakers regardless of skill had increased to the point where by 1951 education had a more pronounced effect on the likelihood of bilingual speakers leaving their province of birth than English-speakers.

Characteristics of Migrants: Families with Children Under Ten

Using the family of the randomly-chosen reference child, the analysis is focused on those families that moved since the previous census. Characteristics of the family and of the head of the family are used to identify movers and non-movers. The model estimated

for the census years 1891–1931 is:

$$\begin{aligned} \ln \Omega(x) = & \alpha + \beta \textit{age} + \gamma \textit{immig} + \delta \textit{childAge} + \eta \textit{nChild} + \kappa \textit{childU2} \\ & + \theta \textit{language}_l + \zeta \textit{cbProv}_p + \lambda \textit{literate} \\ & + \rho_{lp} \textit{language}_l \times \textit{birthProv}_p + \phi_l \textit{literate} \times \textit{language}_l + \epsilon \end{aligned}$$

where *age* is age of head of family; *immig* is an indicator for whether the head of family is an immigrant; *childAge* is age of the reference child; *nChild* is the number of siblings of the reference child under eighteen years old; *childU2* is an indicator for the presence of children under the age of two in the family of the reference child; *language* is the language spoken by the head of the family; *birthProv* is the province of birth of the reference child; and *literate* is an indicator for literacy of the head of family. For the 1941–1951 census years, literacy is replaced by the ten-category coding of years of education.

Regression results are presented in Appendix Table A.3.¹⁹ As results are incomplete, we will mention a couple of features of the results for 1911.

The first result—and certainly not expected—is the negative coefficient on immigrant status. It is also a large effect, suggesting that immigrants were in fact less likely to make an interprovincial move than the Canadian-born. Interestingly, the raw means of migration propensity by immigration status do not reveal this effect; in fact we observe just the opposite.

To compare, we tested the difference in the proportion of families of a reference child moving to another province for families with immigrant heads against those with Canadian-

¹⁹To date, only 1911 has been analyzed, but we retain room for expansion.

born heads. In every census year from 1891–1951 the proportion of families with an immigrant head migrating interprovincially was greater than that of a family with a Canadian-born head. This difference is statistically significant in every census year as well. The regression results, however, indicate that controlling for the covariates, immigrant-headed families were significantly less likely to move to a different province after the birth of the reference child. It remains to be seen if this effect persists beyond 1911. Studies of migration in the post-World War II period generally find that interprovincial mobility of immigrants and the native-born did not differ significantly, though immigrants tended to be more mobile over shorter distances, moving within or between municipalities with greater frequency (George, 1970).

Comparing the results for the marginal effect of language by province in 1911, the pattern is very similar to the estimates on the sample of 30–39 year olds. French-speakers in Manitoba, New Brunswick, Ontario and Quebec are less likely to migrate.²⁰ One difference here is that the marginal effect of French in Manitoba is larger than the marginal effect of French in Quebec. For the 30–39 year olds, the marginal effect of French on those born in Quebec is larger.²¹

For bilingual speakers, only those with children born in Quebec have a statistically significant reduction in the odds ratio of leaving their province of birth compared to English-speakers; whereas, for the 30–39 year olds, the marginal effect of being bilingual is statistically significant and negative for several provinces. Among the sample of families, speakers of neither English nor French whose reference child was born in Ontario

²⁰There are no observation for French-speakers born in Nova Scotia for this sample – although there are observations of French-speakers with children born in B.C.

²¹The point estimate of the marginal effect of French-speakers in Manitoba for the 30–39 year olds is also larger than for all other provinces except Quebec, but the effect itself is not statistically significant.

had a greater likelihood of moving than English speaking families, an effect that is statistically significant. No other province has any significant effects. For the 30–39 year olds, there were four provinces for which speaking neither English nor French resulted in a lower migration rate. This suggests the value of looking at at least two groups for whom several of the categories have few observations.

Comparing the marginal effects of literacy for the sample of families and the 30–39 year old group, no large differences are apparent. Literacy increases the likelihood of English-speakers migrating. The effect on French-speakers has a negative sign, but is not statistically significant. But for the family sample, literate bilingual speakers are slightly more likely to migrate than are illiterate bilingual speakers. The effect itself is not large, and is only significant at the 10% level, however. But it does appear that literacy may have had a slight effect on bilingual speakers as early as 1911.

Conclusions

The long run trend in mobility in Canada appears different from that of the U.S. for the period up to the Great Depression. While interstate mobility in the U.S. declined from 1850–1920, in Canada interprovincial mobility rose. That is mostly due to timing of land settlement. Canada's west was settled late, after a lengthy period of population growth on a fixed land endowment leading to emigration to the U.S. The Great Depression and World War II both had similar effects on population mobility, and recovery in the post-war period was similar for both Canada and the U.S.

A close scrutiny of the mobility patterns from 1911–1931 suggests a disruptive effect of World War I, something not apparent in the U.S., most likely due to the limited di-

rect impact that war had on the U.S. If there was a reduction in population mobility in Canada, that suggests that the disruptive effects of the War on the global economy were transmitted internally. However, domestic mobility in Canada did increase again through the 1920s for most of the population.

Education and language both play an important role in determining mobility. Even as early as 1891, the literate were more likely to migrate than the illiterate. The impact of literacy in the nineteenth century was positive though the actual size of the effect was probably small. By the twentieth century, the effect of literacy on mobility was much larger. By the time census takers begin recording educational attainments, the more educated are much more mobile than the less educated. By 1951, even those with minimal education have an increased likelihood of leaving their province of birth.

But the impact of education on mobility in Canada is influenced very strongly by language. Those who speak only French, most of whom are from Quebec, do not tend to leave their province of birth regardless of their level of education. There is even weak support for the effect of education reducing their mobility. The real story is the impact of education on those who are able to speak English in addition to French. Until the period of World War II, education had no effect on the mobility of bilingual speakers. However, over the span of just one decade, from 1941 to 1951, bilingual speakers with some education became increasingly likely to leave their province of birth to pursue opportunities. For most of these bilingual speakers, their province of birth was Quebec. Given this *Great Migration*, it is interesting to speculate about its role in Canada's adoption of the policy of official bilingualism.

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Table 1: Marginal Effect of Language Spoken on Probability of Migration by Province of Birth

Language Spoken	Alta. [†]	B.C.	Man.	N.B.	N.S.	Ont.	P.E.I.	Que.	Sask.
1891 French	—	—	-0.587***	-0.052***	-0.034**	0.009	0.078	-0.160***	—
1901 French	0.110	—	0.052	-0.078***	-0.012	0.104	—	-0.304***	—
blang	-0.278	—	0.093	-0.007	0.006	0.080***	0.200*	-0.225***	—
nol	-0.345	—	—	-0.050	0.098	-0.083**	—	-0.275***	—
1911 French	—	—	-0.232	-0.125***	-0.129***	-0.163***	-0.094	-0.356***	0.038
blang	—	—	-0.315*	-0.035	-0.082***	-0.061*	0.094	-0.267***	0.526
nol	-0.933**	—	-0.345**	—	—	-0.180***	—	-0.271***	-0.030
1921 French	—	—	-0.440***	-0.175***	-0.109	0.010	—	-0.502***	—
blang	0.008	0.030	-0.263***	-0.059*	-0.100***	0.023	-0.063	-0.393***	-0.132
nol	—	-0.045***	-0.224	—	0.652	-0.214***	-0.320***	-0.399***	0.054
1931 French	—	—	-0.367	-0.163***	-0.011	0.069	—	-0.509***	—
blang	-0.173	0.048	-0.074	0.010	-0.022	0.155***	-0.230***	-0.418***	-0.261***
nol	—	-0.079***	-0.426***	—	—	-0.160***	-0.368***	-0.511***	-0.082
1941 French	—	—	1.087	-0.101***	0.070	0.282***	—	-0.386***	—
blang	0.044	0.194	-0.237***	0.077**	0.139**	0.211***	0.268	-0.305***	-0.012
nol	-0.253***	0.409	-0.565***	—	—	-0.094***	—	-0.343***	0.459
1951 French	1.215	0.572	-0.188	-0.179***	0.271	0.401***	—	-0.463***	3.236
blang	-0.081	0.375**	-0.024	0.132***	0.065	0.213***	0.150	-0.376***	0.158
nol	—	0.713	-0.363	—	—	0.625	—	—	-0.476

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors not shown.

[†]For 1891, the label *Alta.* refers to all territories that become Alberta, Saskatchewan, Northwest Territories, Nunavut, and Yukon Territories. For 1901, it refers only to Alberta and Saskatchewan.

Notes: *blang* - both official languages; *nol* - neither official language.

Marginal effects on probability of migration of language are relative to that of English speakers of the same province. Marginal effects were calculated for the North, and Newfoundland for 1951 only, but not reported here. There were no statistically significant marginal effects to report, except for French speakers born in Newfoundland with a value of 1.9176 and a standard error of 0.5221.

Table 2: Marginal Effect of Literacy on Probability of Migration by Language Spoken

	English	French	Both English and French	Neither English nor French
1891	0.0657*** [0.0101]	-0.0060 [0.0074]	—	—
1901	0.0767*** [0.0164]	-0.0326* [0.0196]	-0.0216 [0.0210]	-0.0375 [0.0537]
1911	0.1817*** [0.0208]	-0.0225* [0.0127]	0.0343 [0.0273]	0.0038 [0.0382]
1921	0.2519*** [0.0233]	-0.0828* [0.0449]	-0.0328 [0.0366]	0.0793 [0.0637]
1931	0.1880*** [0.0251]	-0.0383 [0.0382]	-0.0385 [0.0496]	0.0115 [0.0113]

Standard errors in brackets.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Marginal Effect of Years of Education on Probability of Migration by Language Spoken

Years of Education	English	French	Both English and French
Panel A: 1941			
1-4	-0.0365 [0.0292]	0.0882 [0.0816]	0.0350 [0.0509]
5-7	-0.0308 [0.0270]	0.0007 [0.0763]	-0.0106 [0.0471]
8	0.0487* [0.0280]	0.0022 [0.0798]	0.0147 [0.0494]
9	0.0515* [0.0296]	0.0568 [0.989]	-0.0334 [0.0502]
10	0.0918*** [0.0301]	-0.0735 [0.0780]	0.0580 [0.0524]
11	0.1443*** [0.0335]	0.2377 [0.1673]	0.0857 [0.0580]
12	0.1830*** [0.0350]	-0.0421 [0.0930]	0.0213 [0.0545]
13-16	0.2221*** [0.0379]	0.0637 [0.1582]	0.0638 [0.0563]
17+	0.2291*** [0.0615]	0.0701 [0.1487]	0.2329** [0.0981]
Panel B: 1951			
1-4	0.0505*** [0.0188]	-0.0380 [0.1757]	0.1370** [0.0571]
5-7	0.0651*** [0.0166]	-0.1028 [0.1770]	0.0786 [0.0491]
8	0.1454*** [0.0173]	-0.1749 [0.1794]	0.1591*** [0.0502]
9	0.1677*** [0.0187]	-0.1850 [0.1864]	0.1486** [0.0534]
10	0.2017*** [0.0191]	-0.0937 [0.1947]	0.1629*** [0.0535]
11	0.2302*** [0.0204]	-0.0599 [0.2013]	0.1506** [0.0549]
12	0.3342*** [0.0237]	-0.1445 [0.1934]	0.2122*** [0.0572]
13-16	0.4146*** [0.0275]	-0.1551 [0.2073]	0.2424*** [0.0580]
17+	0.6670*** [0.0617]	0.3545 [0.4138]	0.2791*** [0.0683]

Standard errors in brackets.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 1: Proportion of Canadian-born Leaving Province of Birth, by 10-year Age Groups

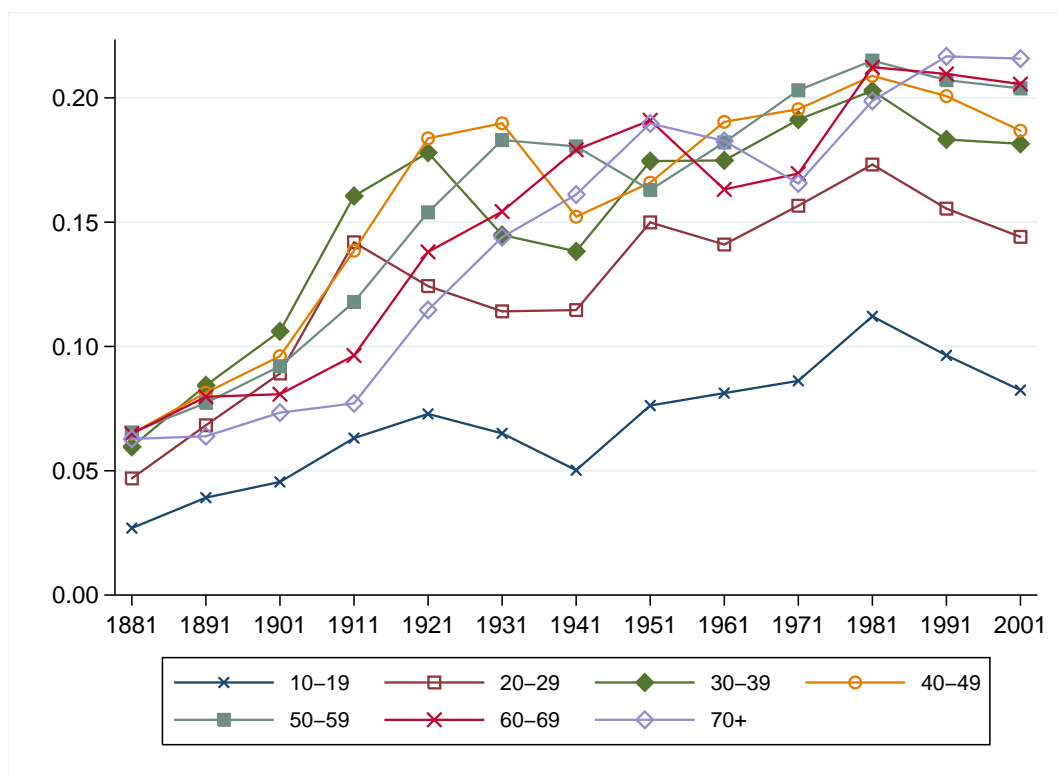


Figure 2: Intercensal Changes in Percentage of Age Cohort Living Outside Province of Birth

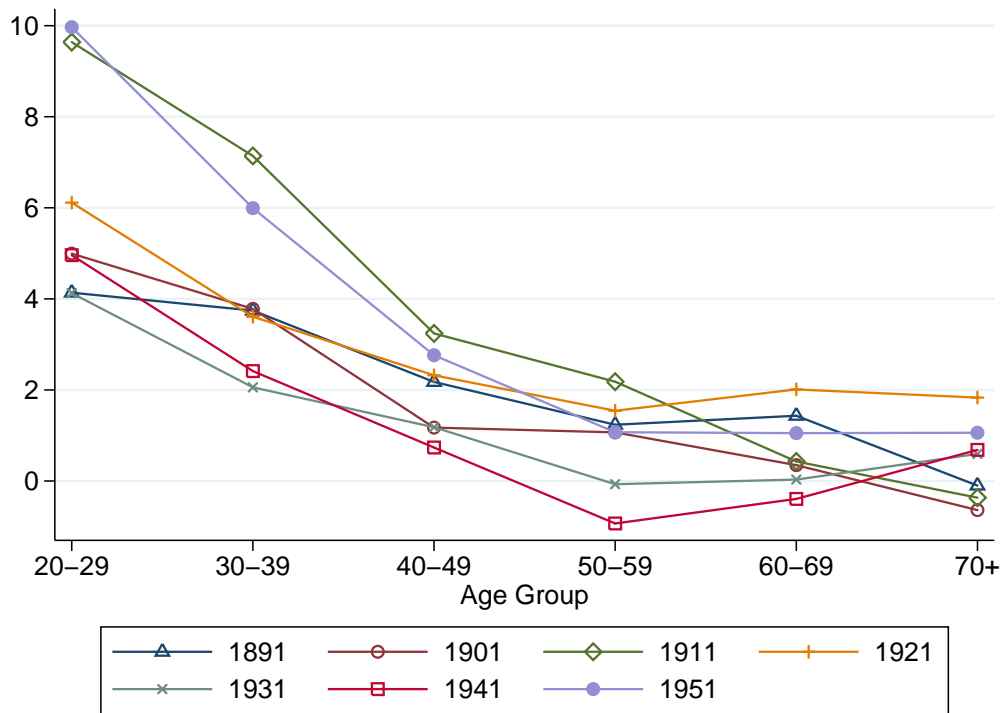
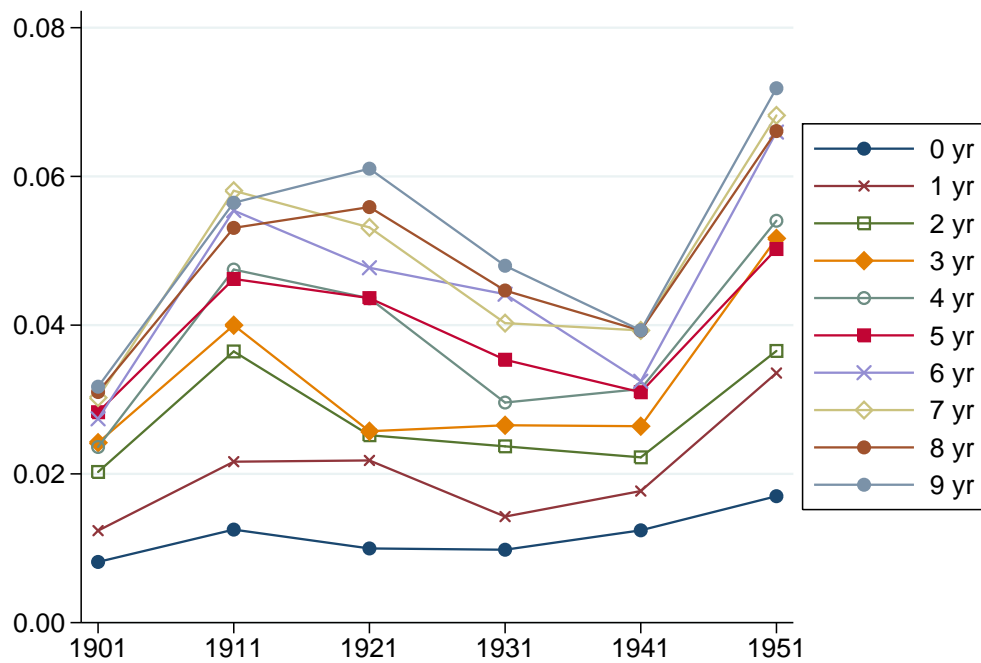


Figure 3: Proportion of Children Under Ten Years of Age Whose Families Moved From Child's Province of Birth



Families include only those with at least one child born in Canada regardless of parents' birthplace.

Table A.1: Logit Regressions: Mobility of 30–39 Year Olds, 1891–1931

	1891	1901	1911	1921	1931
age	0.0019 [0.0070]	0.0038 [0.0071]	-0.0112** [0.0056]	0.0248*** [0.0055]	0.0225*** [0.0064]
female	-0.3315*** [0.0376]	-0.3593*** [0.0382]	-0.3903*** [0.0275]	-0.1728*** [0.0272]	-0.0891*** [0.0334]
Language (Ref: English)					
French	0.7240*** [0.2698]	1.3889*** [0.3778]	0.3130 [0.2880]	1.8131*** [0.3977]	1.6705*** [0.4558]
blang	—	1.1183*** [0.2130]	0.4033 [0.2755]	1.3999*** [0.2589]	1.8016*** [0.3030]
nol	—	-0.0252 [0.4840]	-0.2175 [0.4921]	-1.3871 [0.8493]	-4.6362*** [1.7313]
Province of Birth (Ref: Ontario)					
Alta.†	—	1.1396 [0.7427]	1.2631*** [0.3852]	0.1358 [0.2403]	0.8108*** [0.1611]
B.C.	—	-1.7827** [0.7176]	-0.7872** [0.3522]	-1.5638*** [0.2759]	-0.7061*** [0.1832]
Man.	2.0267*** [0.2788]	0.4771 [0.3810]	0.8337*** [0.1547]	0.8400*** [0.0789]	1.2907*** [0.0729]
N.B.	0.0179 0.1212	-0.3707*** [0.1085]	-0.5460*** [0.0861]	-0.3021*** [0.0851]	0.2646*** [0.0969]
N.S.	-0.2104** [0.1027]	-0.5887*** [0.0933]	-0.7121*** [0.0717]	-0.3908*** [0.0701]	0.1131 [0.0798]
N.W.T.‡	1.3623*** [0.3385]	1.800** [0.7687]	-0.9034 [1.0669]	—	1.8985 [1.2720]
P.E.I.	0.4939*** [0.1665]	0.1948 [0.1417]	-0.0546 [0.1240]	0.4028*** [0.1141]	0.8306*** [0.1362]
Que.	1.0229*** [0.0901]	0.9542*** [0.0996]	0.3496*** [0.0714]	0.6215*** [0.0805]	1.1589*** [0.0885]
Sask.	—	—	-1.1499** [0.5321]	0.0429 [0.1711]	0.9507*** [0.1298]
Yukon	—	—	1.8824 [1.4728]	—	0.7282 [1.1070]

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Table A.1: continued

	1891	1901	1911	1921	1931
Language \times Province of Birth					
French \times Alta.	—	-0.3471 [1.4106]	—	—	—
French \times Man.	-3.0096*** [1.0640]	-0.3651 [0.7953]	0.4366 [0.6539]	-1.1522 [0.8182]	-1.2842 [1.1675]
French. \times N.B.	-1.0775** [0.4844]	-2.6086*** [0.7978]	-0.6365 [0.4400]	-1.8540*** [0.5589]	-1.7454*** [0.5434]
French. \times N.S.	-0.8259 [0.5253]	-0.7658 [0.8228]	-2.1295** [1.0407]	-0.885 [0.8534]	-0.4108 [0.9829]
French \times P.E.I.	0.3499 [0.5475]	—	0.4449 [0.8571]	—	—
French \times Que.	-1.3239*** 0.2530	-2.8967*** [0.3724]	-1.5317*** [0.2401]	-3.1466*** [0.3227]	-3.5945*** [0.3401]
French \times Sask.	—	—	1.2498 [1.2252]	—	—
blang \times Alta.	—	-1.6263 [1.3314]	—	-0.0557 [0.6805]	-1.2823** [0.5524]
blang \times B.C.	—	—	—	0.3293 [0.8601]	-0.2002 [0.7173]
blang \times Man.	—	-0.1126 [0.5227]	-0.4357 [0.4613]	-0.5942** [0.2446]	-0.7911*** [0.2296]
blang \times N.B.	—	-0.5631** [0.2847]	-0.0008 [0.2869]	-0.4107** [0.2061]	-0.6138*** [0.2043]
blang \times N.S.	—	-0.3978 [0.3420]	-0.6760 [0.4308]	-0.8202*** [0.2658]	-0.7854*** [0.2621]
blang \times P.E.I.	—	0.3389 [0.3738]	0.5583 [0.4244]	-0.242 [0.3575]	-1.5852*** [0.4640]
blang \times Que.	—	-1.5773*** [0.1561]	-0.8983*** [0.1739]	-1.4577*** [0.1237]	-2.2213*** [0.1378]
blang \times Sask.	—	—	2.2002* [1.3410]	-0.6742 [0.5415]	-1.5922*** [0.4650]
nol \times Alta.	—	-0.8843 [0.9792]	-2.1000** [0.9577]	—	—

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Table A.1: continued

	1891	1901	1911	1921	1931
nol × Man.	—	—	0.2758 [0.4604]	0.9991 [0.8039]	2.1380* [1.2251]
nol × N.B.	—	0.1975 [1.0895]	—	—	—
nol × N.S.	—	1.8630** [0.7450]	—	2.9036** [1.2358]	—
nol × N.W.T.	—	—	—	—	0.9555 [1.9615]
nol × Que.	—	-0.6766 [0.6928]	-0.1229 [0.7266]	—	—
nol × Sask.	—	—	0.6410 [0.9941]	1.5886 [1.0721]	3.1472** [1.4840]
Language × Literacy (Ref: English)					
literate	0.6742*** [0.1400]	0.5748*** [0.1605]	0.9378*** [0.1690]	1.2237*** [0.2020]	1.0059*** [0.2172]
French × literate	-0.7577*** [0.1724]	-0.8937*** [0.2464]	-1.2780*** [0.2431]	-1.8533*** [0.3440]	-1.3691*** [0.3847]
blang × literate	—	-0.7133*** [0.2056]	-0.6932*** [0.2698]	-1.3770*** [0.2583]	-1.1826*** [0.3015]
nol × literate	—	-1.0954 [0.8511]	-0.8968** [0.4503]	-0.0337 [0.6496]	1.3235 [1.4206]
Constant	-2.9534 [0.2790]	-2.5059*** [0.2914]	-1.6028*** [0.2566]	-3.2045*** [0.2843]	-3.4948*** [0.3173]
Sample Size	27,520	28,463	33,937	32,160	29,063
Sample Population	481,730	569,260	657,644	756,330	837,790

Standard errors in brackets.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

†For 1901, the label *Alberta* refers to the part of the Northwest Territories that becomes Alberta and Saskatchewan. See text for details.

‡For 1891, the label *NWT* refers to all territories that become Alberta, Saskatchewan, Northwest Territories, Nunavut, and Yukon Territories.

Notes: *blang* is knowledge of both English and French, *nol* is no knowledge of either English or French. *Literate* is ability to read and write. Excluded categories: Language - English, Province of Birth - Ontario.

Table A.2: Logit Regressions: Mobility of 30–39 Year Olds, 1941–1951

	1941		1951	
	coefficient	standard error	coefficient	standard error
age	0.0347***	0.0059	0.0084*	0.0045
female	-0.0329	0.0312	0.0245	0.0234
Language (Ref: English)				
French	1.5217**	0.6356	3.8741***	0.6133
blang	1.2822***	0.2835	2.0167***	0.4794
nol	-15.9470***	3.1595	1.9720**	0.8441
Province of Birth (Ref: Ontario)				
Alta.	1.0808***	0.0842	2.0464***	0.0576
B.C.	0.1479	0.1133	0.8855***	0.0794
Man.	1.8244***	0.0615	2.3608***	0.0566
N.B.	0.6855***	0.0956	1.7882***	0.0788
N.S.	0.6216***	0.0785	1.5293***	0.0678
N.W.T.	2.4366*	1.2861	4.0412***	0.4606
P.E.I.	0.8959***	0.1554	1.9161***	0.1304
Que.	1.4417***	0.0835	2.2055***	0.0742
Sask.	1.6625***	0.0674	2.8063***	0.0523
Yukon	0.9584	0.7845	—	—
N.F.	—	—	1.5655***	0.0953
Language × Province of Birth				
French × Alta.	—	—	-0.7728	1.3114
French × B.C.	—	—	-0.4527	1.1399
French × Man.	-0.3321	0.9307	-2.5757***	0.9577
French × N.B.	-2.1637***	0.3895	-3.0213***	0.3335
French × N.S.	-1.0489	0.8470	-1.4084**	0.6630
French × Que.	-4.9185***	0.2593	-6.0017***	0.2558
French × Sask.	—	—	-0.6035	1.0552
blang × Alta.	-1.0315***	0.2990	-1.8502***	0.1945
blang × B.C.	-0.1553	0.5005	-0.2500	0.3415
blang × Man.	-1.6989***	0.1833	-1.6705***	0.1449
blang × N.B.	-0.8342***	0.1772	-1.2737***	0.1392

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Table A.2: continued

	1941		1951	
	coefficient	standard error	coefficient	standard error
blang \times N.S.	-0.5949***	0.2248	-1.3870***	0.1804
blang \times N.W.T.	—		-2.7268*	1.4680
blang \times P.E.I.	-0.4074	0.3740	-1.2744***	0.4123
blang \times Que.	-2.6357***	0.1275	-3.2097***	0.1104
blang \times Sask.	-1.2021***	0.2374	-1.4585***	0.1483
blang \times N.F.	—		-0.6870	0.5298
nol \times Alta.	13.1640***	3.0009	—	
nol \times B.C.	17.1547***	3.5969	-0.6711	1.0261
nol \times Man.	12.1302***	3.2171	-3.6337**	1.7070
nol \times Que.	13.6058***	2.6420	—	
nol \times Sask.	16.2517***	3.1961	-3.3663**	1.3260
Education (Ref: 0 yrs)				
1-4 yrs	-0.2195	0.1665	0.5465**	0.2389
5-7 yrs	-0.1817	0.1482	0.6620***	0.2278
8 yrs	0.2334	0.1474	1.1299***	0.2270
9 yrs	0.2454	0.1526	1.2288***	0.2282
10 yrs	0.4025***	0.1511	1.3627***	0.2277
11 yrs	0.5763***	0.1545	1.4626***	0.2282
12 yrs	0.6874***	0.1543	1.7609***	0.2283
13-16 yrs	0.7884***	0.1563	1.9424***	0.2291
17+ yrs	0.8054***	0.1930	2.3621***	0.2384
Language \times Education				
French \times 1-4 yrs	0.7686	0.6299	-0.6716	0.6004
French \times 5-7 yrs	0.1871	0.6455	-1.0445*	0.6026
French \times 8 yrs	-0.2155	0.6719	-1.9084***	0.6428
French \times 9 yrs	0.1411	0.7275	-2.0772***	0.7355
French \times 10 yrs	-1.3451	0.8556	-1.7046**	0.6943
French \times 11 yrs	0.5132	0.7541	-1.6676**	0.7005
French \times 12 yrs	-1.1172	0.9647	-2.3528***	0.7440
French \times 13-16 yrs	-0.3639	0.9797	-2.5954***	0.8843
French \times 17+ yrs	-0.3469	0.9282	-1.6220**	0.8132

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Table A.2: continued

	1941		1951	
	coefficient	standard error	coefficient	standard error
blang \times 1-4 yrs	0.3884	0.3059	0.2464	0.4936
blang \times 5-7 yrs	0.1244	0.2859	-0.1351	0.4796
blang \times 8 yrs	-0.1592	0.2931	-0.2523	0.4800
blang \times 9 yrs	-0.4384	0.3107	-0.3908	0.4850
blang \times 10 yrs	-0.1368	0.2988	-0.4716	0.4841
blang \times 11 yrs	-0.2047	0.3103	-0.6167	0.4873
blang \times 12 yrs	-0.5812*	0.3145	-0.7053	0.4862
blang \times 13-16 yrs	-0.4996	0.3109	-0.7981	0.4858
blang \times 17+ yrs	-0.0068	0.3670	-1.1197**	0.4968
nol \times 5-7 yrs	—	—	2.7557**	1.2578
nol \times 11 yrs	2.4497	2.9996	—	—
nol \times 13-16 yrs	3.1407	1.9991	—	—
Constant	-3.7162***	0.2495	-4.4758***	0.2762
Sample Size	37,223		56,243	
Sample Population	1,156,496		1,776,278	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: *blang* is knowledge of both English and French; *nol* is no knowledge of either English or French. Excluded categories: Language - English, Province of Birth - Ontario, Education category - 0 years.

Table A.3: Logit Regressions: Mobility of Families with Children Under Ten, 1891–1931. *Under Construction.*

	1891	1901	1911	1921	1931
immig			−0.2258***		
			[0.0827]		
age			−0.0208***		
			[0.0042]		
childAge			0.1687***		
			[0.0140]		
nChild			−0.0502***		
			[0.0189]		
childU2			−0.1775**		
			[0.0803]		
Language (Ref: English)					
French			0.3603		
			[0.5770]		
blang			0.5382		
			[0.5130]		
nol			1.7535***		
			[0.4602]		
Province of Birth (Ref: Ontario)					
Alta.†			0.4697***		
			[0.1649]		
B.C.			0.1226		
			[0.1792]		
Man.			1.2353***		
			[0.0960]		
N.B.			−0.3153*		
			[0.1780]		
N.S.			−0.4863***		
			[0.1519]		
N.W.T.‡			1.3800***		
			[0.5226]		
P.E.I.			−0.2088		
			[0.3104]		

Continued on next page

Table A.3: continued

	1891	1901	1911	1921	1931
Que.			0.5956***		
			[0.1271]		
Sask.			0.2139		
			[0.1576]		
Yukon			1.2007		
			[1.0642]		
Language \times Province of Birth					
French \times B.C.			3.8074***		
			[1.1388]		
French \times Man.			-0.3813		
			[0.8721]		
French \times N.B.			-0.6922		
			[1.1303]		
French \times Que.			-1.2805**		
			[0.5039]		
French \times Sask.			1.0120		
			[1.1250]		
blang \times Man.			-0.4058		
			[0.4651]		
blang \times N.B.			-0.7555		
			[0.5919]		
blang \times N.S.			-0.4509		
			[0.7660]		
blang \times P.E.I.			0.7230		
			[0.8630]		
blang \times Que.			-1.7047***		
			[0.3203]		
blang \times Sask.			-0.1802		
			[0.9265]		
nol \times Man.			-0.9283***		
			[0.3121]		
nol \times Que.			-0.7432		
			[0.5458]		
nol \times Sask.			-1.2821***		

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Table A.3: continued

	1891	1901	1911	1921	1931
			[0.4647]		
Language × Literacy (Ref: English)					
literate			1.1001***		
			[0.3243]		
French × literate			-1.6550***		
			[0.4682]		
blang × literate			-0.4609		
			[0.5239]		
nol × literate			-0.9385**		
			[0.4176]		
Constant			-3.8773***		
			[0.3544]		
Sample Size			29,461		
Sample Population			581,562		

Standard errors in brackets.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

†For 1901, the label *Alberta* refers to the part of the Northwest Territories that becomes Alberta and Saskatchewan.

‡For 1891, the label *NWT* refers to all territories that become Alberta, Saskatchewan, Northwest Territories, Nunavut, and Yukon Territories.

Notes: *blang* is knowledge of both English and French, *nol* is no knowledge of either English or French. *Literate* is ability to read and write. Excluded categories: Language - English, Province of Birth - Ontario.