Reverse Assimilation? Immigrants in the Canadian Labour Market During the Great Depression

Preliminary: Not for citation

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Abstract

This paper uses Canadian Census data from 1911 to 1931 to trace the labour market assimilation of immigrants up to the onset of the Great Depression. We find that substantial earnings convergence between 1911 and 1921 was reversed between 1921 and 1931, with immigrants from Continental Europe experiencing a sharp decline in earnings relative to the native-born. The effect of Depression labour market conditions were particularly pronounced among older immigrants with long tenures in Canada.

Introduction

The recent global economic crisis has prompted renewed interest in the implication of business cycles for immigrant labour market outcomes (Barrett and Kelly 2011; Orrenius and Zavodny 2010). Several authors have found mixed evidence for an immigrant "scarring" effect of recessions (Åslund and Rooth 2007; Bloom, Grenier, and Gunderson 1995; Chiswick and Miller 2002), while others show the opposite - faster assimilation in earnings and employment among those arriving during recessions (MacDonald and Worswick 1999; Chiswick et. al. 1997). Recent shocks, however, are dwarfed by the disturbances of the late 1920s and early 1930s.

The Great Depression is the largest, deepest shock ever to hit North American labour markets. Numerous studies have explored the impact of the Depression on the pay and employment of different demographic groups,[1] but most comparisons omit the large numbers of foreign-born. While it is established that unemployment was higher among immigrants than the native-born (Green and MacKinnon 1988; Gemery 1993), little else is known about the foreign-born experience of the Depression in Canada and the United States. There are several reasons to suspect that the Depression may have had disproportionate effects on immigrants. While unemployment rose substantially in all walks of life, industrial workers suffered most, particularly in urban semi-skilled and unskilled jobs held disproportionately by immigrants. White-collar and clerical employment was more stable, but the effect of any differences in job search costs between immigrants and the native-born in this range of occupations would be magnified by Depression employment conditions.[2]

More generally, if observable ethnic identity mattered in labour markets before the Second World War, then the scale of the Depression shock may modify our understanding of immigrant labour market assimilation at the end of the so-called First Great Migration. Historical studies of mass migration have documented

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[1] In both Canada and the United States, unemployment incidence was highest among the least-skilled, and the youngest and oldest men in the workforce (Green and MacKinnon 1988; Margo 1988; Margo 1992). In the United States, unemployment was higher among black men than white men (Sundstrom 1992), with wage convergence between these groups slowing significantly between 1920 and 1940 (Smith, 1984). The spread of marriage bars between 1930 and 1950 hindered the ability of married women to maintain careers when employment opportunities were scares (Goldin 1992; Margo 1993).

[2] Beth Wenger (1996, p. 32-33) reports compelling evidence of rising discriminatory barriers faced by Jews in clerical and professional employment in Depression-era New York City.

differences in economic status among immigrant origin groups, and changes in cohort "quality" within immigrant origin groups (Douglas 1919; Hatton 2000; Minns 2000; Abramitzky, Boustan, and Erikson 2012). These studies focus mainly on the experience of immigrants in the American labour market before the Depression.

By the time the Depression hit, the immigrant population of both economies was a mix of recent arrivals and well-established migrants from earlier decades. If the relative earnings of even the seasoned immigrants fell relative to the native-born in 1930 and 1931, the apparent assimilation during the prewar and 1920s booms could be interpreted, at least in part, as a temporary product of the business cycle rather than a more enduring process of labour market integration. Exactly this possibility is suggested by the experience of black-white income gaps in the United States; even the more experienced cohorts of ethnic minority men fell behind during the Depression (Smith 1984, p. 695). Beyond fragmentary evidence on unemployment, however, there is little evidence on what happened to immigrant cohorts in Depression-era labour markets.

This paper uses recently released random samples of the Canadian censuses of 1911, 1921, and 1931 to document the entry position and longitudinal labour market experiences of immigrant cohorts, relative to the native-born, before and during the Great Depression. The Canadian labour market is especially interesting for two reasons. First, Canada was one of the world's leading immigrant destinations in the first decades of the twentieth century, with approximately 4.6 million immigrants arriving in Canada between 1901 and 1931 (relative to a 1901 population of 5.4 millions). As in the United States, source countries for Canadian immigration were changing over this period. Prior to 1901, the vast majority of immigrants to Canada arrived from Britain. In the early 20th century, however, increasing numbers came from more distant origins in Eastern and Southern Europe. Although Canada followed US policy with the introduction of a literacy test (1919) and restrictions by country of origin (1923), the number of migrants from "non-preferred" origin countries still grew substantially in the 1920s.[3]

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[3] The composition of flows to Canada may have been partly dependent on developments in the US: Lew and Carter (2002) show evidence that a tightening of U.S immigration quotas in 1924 may have influenced the country origins of Canadian migrants.

Second, the Canadian census collected 'earnings' information in each enumeration from 1901 to 1931.[4] These data allow us to examine the size and evolution of immigrant earnings differentials. Previous research on assimilation among immigrants of different origins (Minns 2000; Abramitzky, Boustan, and Erikson 2012) is limited to the US and assessed via shifts in occupational profiles.[5] For Canada, we can examine both occupational wage differences and changes in pay within occupations. We compare earnings at arrival and earnings growth among immigrants from different countries of origin and, using successive cross-sections, follow cohorts within the same origin group. To the best of our knowledge, we provide the first systematic evidence on Canadian immigrant outcomes after 1911, and the first direct evidence of how immigrant earnings in North America were affected by the Great Depression.

Our findings suggest that the Great Depression had a large effect on the earnings of non-anglophone immigrants in Canada. The relative earnings of these cohorts experienced a precipitous decline in the early years of the Great Depression. The most significant relative decline was felt by older European migrants who had been in Canada more than twenty years.[6] Others have written that the economic crises of the 1920s and 30s placed a disproportionate burden on older men (Marsh 1940, p. 316-7; Temple 1938, p.212); our evidence suggests this burden was particularly heavy among the foreign-born from continental Europe, for whom irregular employment was a prominent feature of declining incomes. Patterns of occupational holdings and the changing effects of ethnic residential concentration explain only a small portion of the sharp changes observed in the Depression.

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[4] The Canadian Census also enquired about unemployment and weeks worked, with considerable detail for the 1931 sample. Unfortunately, these enumerations do not provide detailed information about human capital, beyond the ability to read and write.

[5] Pioneering work on earlier decades has generated insight on the longitudinal progress of immigrants by linking earlier Census records to ship lists, or by tracing individuals from complete count census data to random samples (see Ferrie 1999), but these studies are similarly constrained by the lack of earnings data.

[6] We do not focus on entry effects for different immigrant groups and cohorts in this study, but our results also show a sharp widening in the gap in earnings on arrival in 1931, between immigrants (especially non-anglophone Europeans) and native-born Canadians.

Evaluating Immigrant Earnings

The first studies of immigrant labour market assimilation in North America were optimistic about the capacity of immigrants earnings to converge with those of the native-born (Chiswick 1978, Abbott and Beach 1993). Most early studies, however, were based on analysis of a single cross-section of census or other labour market data. More recent studies, using repeated cross-sections to trace immigrant and native-born cohorts over time, found that lower initial earnings of immigrants on arrival and more sluggish earnings growth (Borjas 1985 for the US; Baker and Benjamin 1993, Aydemir and Skuterud 2005 for Canada). The first studies of early American immigrants also relied on single cross-sections from the Census or state labour force surveys (Blau 1980, Hannon 1982, Hanes 1995, Hatton 1997). Minns (2000) added an intertemporal dimension with repeated cross-sections from the 1900 and 1910 Censuses, while Abramitzky, Boustan, and Erikson (2012) created a panel of migrants linked between Census years using new digital resources and data linkage techniques.[7] These studies report moderate to small entry effects among immigrants and subsequent earnings growth similar to that of the native-born. Assimilation rates were, if anything, somewhat higher for "new" immigrants from Southern and Eastern Europe (Minns 2000). All of these studies, however, are constrained by the absence of information on earnings in the US Census prior to 1940. The Canadian census collected earnings information beginning in 1901. Thus the Canadian economy offers a useful alternate testing ground to evaluate patterns of assimilation.

Green and MacKinnon (2001) and Dean (2012) document the slow assimilation of British migrants to Canada circa 1901 and 1911. Little is known, however, about the earnings adjustment progress of immigrants from other parts of the world, or how immigrants in general were affected by changing labour market conditions after 1911.[8] As in the US, Canada experienced changes in the volume and sources of immigrants after 1901. The foreign-born share of population rose from about 13 percent in 1901 to 22 percent in 1921 and 1931 (Table 1). Most of the increase came from so-called 'free migrants' (the US and Great Britain, especially

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[7] The Abramitzky, Boustan and Erikson (2012) method is challenging to implement but it has the advantage of not being vulnerable to bias arising from selective return migration.

[8] One exception to the British focus is the Armstrong and Lewis (2012) consideration of the characteristics of Dutch immigrants 1925-1929.

England) and 'non-preferred migrants' from eastern Europe. The number of Canadians born in Poland and what became the Soviet Union increased from 30,000 in 1901 to more than 300,000 in 1931.

The changing source countries raised concerns about the skills and adaptability of the new immigrants.[9] Contemporary observers speculated that relative poverty might have hindered immigrant economic prospects once in Canada.[10] These discussions fuelled the demand for a more restrictive immigration policy. Canada followed the US model with the introduction of a literacy test in 1919, and the introduction of formal restrictions by country of origin in 1923. The Canadian policy regime retained easy access for prospective immigrants from Britain, the Irish Free State, the United States and Northern and Western Europe (Scandinavia, Belgium, France, Holland, Switzerland, and from 1926, Germany). Immigrants from Southern and Eastern Europe faces stiffer entry conditions, though many Eastern Europeans were recruited for agricultural work under the so-called railway agreements between 1925 and 1930.

Immigrant earnings experience may have depended on the condition of the labour market as well individual characteristics (Chiswick et al. 1997; Chiswick and Miller 2002; MacDonald and Worswick 1999; Aydemir and Skuterud 2005). Assessments of the impact of local conditions are mixed although the most recent research does find significant effects when location decisions are exogenous (Åslund and Rooth 2007). All of these studies deal with relatively mild episodes of unemployment, in a context where states provide some degree of public assistance to the unemployed. Canadian labour market conditions the 12 months leading up to the 1931 Census survey were of an entirely different magnitude.

Canada experienced a Great Depression as deep as that of the United States, with only limited, local relief available to those unable to secure employment (Marsh 1940; MacKinnon 1988; Zagorsky 1998). By the time of the census the adverse

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[9] Immigration Minister Clifford Sifton in 1920 expressed concern for a declining quality of English migrants (quoted in Avery, 1979, p. 96-97), although Reynolds (1935, p. 98-99) countered that skilled tradesmen were being replaced by white-collar clerical and professional immigrants.

[10] For example, in *Strangers within our Gates* (1908), J.S. Woodsworth contrasted the difficulties of "Canadianizing" a recent influx of Galician immigrants from Eastern Europe (p. 134) with the "sober, industrious, and thrifty" Scandinavians, who were "in every way excellent citizens" (p. 97). Similar comments appear in Marsh (1940) a generation later.

shock to labour demand already had serious consequences for the employment of unskilled workers (Marsh 1940). Given their skill profile, many of the foreign-born in Canada were likely to have suffered particularly strong exposure to these adverse labour market conditions. National unemployment was over 20 percent by June of 1931; in Toronto, the majority of carpenters and labourers were out of work (Table 2, panel a; panel b)).

The massive scale of dislocation may have had a differential impact on immigrant populations relative to the native born, for several reasons. Ethnic networks were used by many to arrange employment prior to the Depression, and it is unknown how well these may or may not have continued to function once labour demand fell sharply. More generally, if immigrant labour faced different search costs compared to the native-born, we would predict that this translated into differences in unemployment, spells out of the labour market, and the willingness to accept lower wage offers. These effects could "scar" new entrants, as discussed in the contemporary literature, but there may also be substantial effects on long-settled migrants, who would face the same difficulties as older native-born Canadians, with the potential added disadvantages associated with job search as an ethnic minority.

Baseline regression results

We explore immigrant adjustment in new Canadian census samples from 1911, 1921, and 1931. Each is a representative random sample from the original census manuscripts for the enumerations of 1911 (five percent), 1921 (four percent) and 1931 (three percent).[11] These enumerations provide a wide range of information on personal and demographic characteristics as well as occupation and earnings.[12] In our analysis we focus on a small set of explanatory variables related to human capital accumulation and interregional differences in earnings: province or region of residence, age (our proxy for experience) and the ability to speak English. The

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[11] http://www.canada.uottawa.ca/ccri/CCRI/

[12] In the Appendix we outline how we used price evidence to place earning into real terms.

strength of our data is the rare glimpse into the earnings of immigrants during the early 20th century.[13]

       We restrict our attention to adult men aged 16 to 65 in each sample in urban areas (census places with a population of 1,000 or higher), for two reasons. First, the proportion of adult men with positive earnings responses was much higher in urban areas. Most farmers did not report a figure for earnings (and if they did, the responses are a less reliable indicator of economic status). Consistent with this we exclude men employed in agriculture. Thus we focus on employee labour markets where theories and evidence of immigrant assimilation have greatest relevance, and where earnings data are more complete and a more reliable indicator.[14] The second reason to focus on urban employees is the possibility of differences in urban-rural migration between immigrants and the native-born, particularly once the Depression hit. Articles and correspondent notes in the Canadian *Labour Gazette* in 1930 and 1931 feature much discussion about "back to the land" movements in both Eastern and Western Canada.[15]

       Appendix Table A1 summarizes mean log earnings for immigrants and native-born Canadians in each Census sample, while Appendix Table A2 provides means and standard deviations for key population characteristics.[16]

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[13] The data have some limitations. The most important is that our only measure of human capital is the ability to read and write. This is disappointing since we know post-1900 immigrants were predominantly from "new" source countries in Southern and Eastern Europe; they likely arrived with less human capital than earlier immigrants and yet we have no measure for this (Abramitzky, Boustan, and Erikson 2012).

[14] We have also estimated our regression results limiting the sample only to those who state that they are "employees." This restriction has little effect on our results. The broader urban restriction may have more substantial consequences, since a larger share of Canadian-born than immigrant men were farming. If farmer earnings were on average low, as fragmentary evidence from the Census suggest they were, then our results will overstate the distance between native-born and immigrant earnings (Inwood, MacKinnon and Minns 2014).

[15] The 1936 Census of Manitoba suggest that such movement began to take place between 1931 and 1936 (Marsh 1940). By March 1932, less than 45 thousand urban residents had been relocated to farming communities as part of "back to the land" policies. *Labour Gazette*, 1932, p. 293, p. 511. Our data reveal little evidence of strong movement either towards or away from rural areas between 1921 and 1931, for either immigrants or the native-born.

[16] Due to regulations regarding data disclosure imposed by Statistics Canada, at the time of submission we do not present summary indicators of all population characteristics that are included as regressors in the econometric analysis that follows.

We estimate a relatively parsimonious series of regression models from which we derive the evolution of immigrant cohort earnings over time. Our baseline regression model is outlined in the following equation:

$$Y_{ij} = \alpha 0_{ij} + \beta 1 age_{ij} + \beta 2 age_{ij}^2 + \gamma 1 ysm_{ij} + \gamma 2 ysm_{ij}^2 + I_{ij}\theta + X_{ij}\chi + C_{ij}\delta + \varepsilon_{ij} \qquad (1)$$

In equation (1), the explanatory variable Y is the log of personal earnings in year i and age cohort j. In keeping with the existing literature on immigrant assimilation in early 20th Century labour markets, we use annual earnings in the first set of results presented here. On the right-hand side, age and the square of age are proxies for experience. Years since migration (*ysm*) approximates the Canadian-specific labour market experience of immigrants. Our analysis of immigrants of different origins divides the foreign-born population into three broad groups, based on 1920s Canadian immigration policy criteria – immigrants who enjoyed free entry into Canada after 1921 (Britain, Ireland, and the US), "preferred" immigrants from Northwest Europe (France, Netherlands, Belgium, Germany, and "non-preferred" immigrants from other origins.[17] These immigrant indicators (free, preferred, and non-preferred) are included in equation (1) through the vector *I*. Finally, *X* is a vector of control variables - in the baseline specification, these are province of residence, and a dummy variable for lack of English language ability - and a series of 5-year arrival cohorts (*C*) for immigrants. We estimate the model in equation (1) for all three Census years (*i*=1911, 1921, or 1931), and for three age cohorts (*j*=born 1876-85, born 1866-75, or born 1856-65). The regression coefficients on immigrant origins, age, and years since migration then allow us to trace the evolution of relative immigrant earnings between census years (as captured through cohort dummies) controlling for a limited set of additional characteristics.[18]

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[17] We include Germany in the list of preferred countries from 1924, in which year it changed from the non-preferred to the preferred category.

[18] We have estimated alternative models of this regression that impose fewer restrictions on the relationship between immigrant vintage and earnings, through a series of 5-year dummy variables for arrival cohorts in each census year. These results, which are available from the authors on request, provide similar evidence regarding relative labour market assimilation, but at the cost of additional individual regressions and many more right-hand side variables.

While this approach allows us to develop a longitudinal perspective on relative immigrant earnings, there are also some important shortcomings to note. Return to Europe was an important part of early 20th century mass migration (Kuznets and Rubin 1954; Bandiera, Rasul, and Viarengo, 2013), and we have no way of adjusting for cohort attrition due to return migration. Part of any apparent intertemporal adjustment in earnings may be due to the impact of unobserved, selective return migration (see Abramitzky, Boustan, and Erikson, 2012, Figure 1). At this time we have little way to control for this problem. The Canadian case introduces another form of potentially selective attrition, that being the departure of native-born Canadians to the United States (McInnis 2000b; Ramirez 2001; Widdis 1998).[19] Data from Canadian Census bureau reports suggest that these flows declined markedly after 1924.[20] This implies that the relative position of the native-born is less likely to reflect selective migration decisions among cohorts affected by the Great Depression than was the case in earlier decades.[21]

The results of the regressions explaining annual earnings are presented in Table 3. Our main interest is to infer relative earnings using the pattern of coefficients on the immigrant indicators, age, and years since migration. As is typical of most age earnings profiles, the quadratic age terms show decreasing returns to experience. Unsurprisingly, the age/earnings slope is usually steeper at early ages among younger cohorts. Provincial indicators show earnings were higher in Quebec than Ontario for all age cohorts and census years. In large part this reflects the fact that Montreal was the economic centre of the country throughout these years.

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[19] Decadal emigration rates from Canada were well over 100 per 1000 through the late 19th century, and was in the order of 100,000 per annum at several points in the 1910s and 1920s. McInnis (2000a; 2000b).

[20] Emigration from Canada to the United States fell from approximately 201 thousand in the fiscal year ending June 30 1924, to less than 75 thousand in the fiscal year ending June 1929, before collapsing to only 18 thousand over six months between July and December 1930. (*Labour Gazette*, 1929, p. 312*; Labour Gazette*, 1930, p.44; *Labour Gazette*, 1931, p. 375). Return migration to Canada also fell as the Depression began to unfold, with US to Canada flows declining from about 3 thousand a month in 1930 to less than 1.5 thousand per month in 1931 (*Labour Gazette*, 1930, p. 375; *Labour Gazette*, 1931, p. 1133)

[21] We have estimated our regression models in a more restricted sample in which the native-born include only internal migrants, and we find larger native born – immigrant differentials under this alternative. Our tentative interpretation of these results is that the departure of those who left to the US is likely to compress earnings differentials than in a counterfactual were Canadian emigrants were unable to move south.

Maritimers typically had lower earnings then Ontarians, which is also consistent with expectations based on alternative sources.[22] For western Canada the picture is much more mixed. Men enjoyed a positive premium in British Columbia in 1911, but not in 1921 or 1931. In the Northwest (Alberta, Saskatchewan, and urban settlements in the Yukon), we find positive premiums in 1921 and 1931; the lack of effect in 1911 may reflect the small number of "urban" observations in this region. By 1911, earnings in urban Manitoba are well in line with those in Ontario.

The most interesting of the control variables is the indicator for lack of English language ability. Coefficients are negative, significant, and large in all nine regressions, and are much greater in magnitude in 1931 for all cohorts than in 1911 or 1921. This suggests that penalties for language human capital grew over time, and were particularly large in the depressed conditions of the early 1930s. When labour demand was at its most scarce, those with higher search costs due to poor communication skills and a heavy reliance on (possibly declining) ethnic networks were forced to accept much lower wage packages than those who could speak English. Other findings later in this paper will support this view of the immigrant labour market in 1931.

The baseline specification also provides an estimate of the entry effect for the three immigrant groups, constructed to match the policy entry classes for migrants to Canada from the early 1920s. The dummy variables for "free", "preferred", and "non-preferred" migrants provide the predicted earnings gap between each immigrant group and otherwise identical native-born Canadians when years since migration is equal to zero. The estimated entry effects are large for all groups and age cohorts in 1911 and 1921 (in the order of 25 to 50 log points). The entry effect is much larger in 1931 especially for European migrants in the preferred and non-preferred groups. Figures 1a, and 1b provide a visual portrayal of the relative progress of age-arrival cohorts over time from the baseline regression results. We simulate the earnings path of three age and arrival cohorts relative to the native-born. In each case, we use coefficient estimates to track the progress between censuses of immigrants relative to the native-born of the same age, both resident in Ontario throughout and able to speak

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[22] See Inwood, MacKinnon, and Minns (2014) for evidence on regional earnings from the Census of 1901 and 1911, and Emery and Levitt (2002) on wage evidence from the *Labour Gazette* in the 1910s, 20s, and 30s.

English. Figure 1a compares just-arrived immigrants (years since migration = 0), who were 25 years of age in 1911 to native-born men of the same age. Figure 1b does the same for immigrants who arrived in 1896 (years since migration = 15), who were 40 years of age in 1911. In each figure, we follow the fortunes of the three aggregate immigrant groups (free, preferred, and non-preferred) over a 20 year window.[23]

Both figures suggest that free immigrants, largely from the US and the UK, made reasonable progress after 1911, despite the large entry penalty experienced by younger migrants (Figure 1a). This pattern suggests that the reported trend of British immigrants faring poorly in Canada in 1901 and 1911 ceased to be the case after the First World War (Green and MacKinnon 2001; Dean 2012). Progress for other immigrants was much more limited. Preferred and non-preferred immigrants did not come close to achieving earnings parity with the native-born.   A striking feature of all three figures is the divergence in earnings between preferred and non-preferred immigrants and comparable native-born between 1921 and 1931, particularly among the older immigrant groups. The predicted earnings gaps in 1931 are in the order of 30 to 70 log points, a disadvantage much larger than found among experienced immigrants in Canada in 1901 and 1911 (Green and Mackinnon 2000; Dean 2012), and larger than comparable wage gaps observed in recent decades (Aydemir and Skuterud 2005; Borjas 1994).[24]

Regressions with occupational controls

In a second set of regressions, we extend the baseline specification with controls for broad occupational grouping. Conditioning relative immigrant progress on occupational attainment allows us to identify relative earnings growth within occupational clusters. This is important for several reasons. As mentioned earlier, previous studies of immigrant cohort attainment in American labour markets base their findings entirely on earnings patterns that are fixed by occupation (Minns 2000; Abramitzky, Boustan, and Eriksson 2012). Here we can identify if immigrants also experienced earnings convergence within occupation. Identification of the

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[23] We have estimated regression models without controls for language, and these generate similar results (available on request).

[24] In alternative regression specifications we also find large, significant entry effects among immigrants recently arrived in 1931.

contribution to cohort progress of within and between occupational earnings growth also may shed light on the evidence (above) of declining relative earnings in 1931 for older cohorts. Fragmentary evidence for Depression-era New York City suggests that differences in family relief rates by ethnicity closely follow differences in skill and occupation among household heads (Wenger 1996, p. 17). If a similar pattern holds for earnings and occupation in Canada, it may account for much of the relative earnings decline seen in Figures 1a and 1b.

Table 4 reports the full set of coefficients from the modified regressions, including the occupation category controls. A visual summary of the effect of occupational controls is provided in Figures 2a and 2b. We use the same assumptions regarding age, vintage (years since migration), language ability, and province or residence as in Figures 1a and 1b, and make the predictions conditional on being employed in the operative category.

Controlling for occupation accounts for a noticeable share of the earnings gap between preferred/non-preferred immigrants and the native-born among younger workers (Figure 2a). For older immigrants, however, the earnings penalties remain substantial in 1931 – Figure 2b reports gaps of 55 to 65 log points for preferred and non-preferred migrants aged 40 in 1911 with an 1896 arrival date. Thus, while occupational controls account for a substantial portion of the earnings penalty suffered by younger, more recently arrived immigrants, older migrants of long-standing in Canada suffered large earnings disadvantages even within occupations. This step also suggests that differences in earnings between free (mainly Anglophone) immigrants and their Canadian counterparts were small *within occupations*. This finding qualifies the claims of contemporaries (and even some historians today) that English and Irish immigrants suffered the effects of labour market discrimination in Canada. Our evidence indicates that free immigrants, who were dominated by arrivals from the British Isles, had a lower average wage than that of the native-born because of their occupational mix, but earnings within occupations appear to have converged.

Immigrants with weaker language abilities, and perhaps fewer connections outside of ethnic subgroups, had a particularly difficult occupational adjustment once the depression hit. Non-preferred immigrants may have been less able to switch occupational sectors in response to relative shocks to labour demand, with higher search costs allowing employers to bid down their wages. While there is an established literature about demographic differences in unemployment incidence and

duration during the Depression, much less is known about earnings for those who remained employed. Some research suggests that skill type, for which natives and the foreign-born may have different endowments, mattered for wage outcomes among the employed. In an examination of career employment at the Canadian Pacific Railroad during the Depression, Hamilton and MacKinnon (2001) find that the demand shock led to workers with firm-specific skills being demoted to low-paid positions, while those with general skills were fired. Whether or not this finding can translate into ethnic differences in earnings among those who remain employed is unclear. Our finding of large within-occupation differences in earnings also suggest that some caution is necessary in interpreting earlier results based on occupational earnings profiles (Minns 2000; Abramitzky, Boustan, and Erikson 2012).

Regressions for weekly earnings

Our final set of regression models analyses weekly rather than annual earnings in order to remove the effect of spells out of the labour market. This is particularly important for 1931 because of evidence of differences in the incidence of unemployment and lost work time across occupations and ethnic groups. Marsh's analysis shows that the depression reduced employment in skilled trades, but the incidence of unemployment was greatest among men employed in low-skilled occupations, particularly construction (Marsh 1940, p. 298, p. 364).[25] His findings also confirm international patterns of greater unemployment among older workers. Green and MacKinnon (1988) show that the share of men who lost time in 1931 varied by country of birth. Forty-four percent of working-age men lost time in 1930-31. For British immigrants, the figure is 50 percent for recent arrivals, and 40 percent for those in Canada since 1911. For European immigrants the equivalent numbers are 71 percent and 52 percent.

The Canadian census collected information on weeks worked in occupations in 1911, weeks away for any reason in 1921, and derived weeks away for any reason in 1931. We sum weeks in all occupation in 1911, and subtract weeks lost in 1921 and 1931 from 52 to arrive at a number of weeks worked which we then use as the

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[25] Unemployment rates were less than 10 percent for clerks and store managers, and over 50 percent for labourers and carpenters.

denominator in calculating weekly earnings.[26] We first estimate weekly earnings regressions without occupation controls (Table 5), then add controls (Table 6) and use the results to trace earnings gaps relative to the native born over the life-cycle for the three cohorts of interest (Figures 3a and 3b).

Removing the effect of spells without work significantly attenuates the earnings gaps between the native-born and immigrants (both preferred and non-preferred). This is particularly clear in 1931, where the hardest-hit cohorts are now within 25 log points of the native-born (Figure 3b). An earnings disadvantage of 20 to 25 percent remains significant by historical standards, and we still find little convergence for preferred and non-preferred migrants between 1911 and 1931, but it is now clear that much of the large gap found in the earlier figures was due to relative differences in lost worktime.

Discussion and Conclusions

Using a synthetic cohort approach we find an earnings disadvantage at entry for immigrants and a subsequent experience of convergence during the war decade 1911-1921 that is more optimistic than the view suggested by previous studies of labour markets in early twentieth Canada. Admittedly, convergence or assimilation varies by source country; American and British migrants fared much better than workers from southern and eastern Europe. We also see a strong differential impact of the Great Depression on immigrant earnings profiles. "Free" migrants from the US and UK continued their catch-up growth relative to the native-born through to 1931. Other immigrants fared much worse. The most striking findings is a pattern consistent with "reverse assimilation" between 1921 and 1931, with declining earnings relative to the native-born, particularly for long-settled, older workers. Occupational controls do little to alter this finding, but shifting the focus from annual to weekly earnings does account for a sizeable share of the observed relative earnings decline. For older cohorts, the log point earnings differential falls by about two-thirds in 1931 when we run regression explaining weekly earnings rather than annual earnings, but this remains a significant gap to native-born earnings, especially when compared to other periods in the twentieth century.

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[26] Sample coverage of weeks worked/not worked is excellent in both 1911 and 1931, but limited to about 65 percent of observations in 1921.

What accounts for these findings? One possibility relates to post-migration human capital investments. Immigrants arriving with fewer skills may have made different investments than natives and native-speakers in terms of general versus job-specific skills. Credit constraints among poorer European immigrant families may have directed their human capital investment in earlier years to job-specific skills. If so, the disruption in the labour market between 1929 and 1931 would have hit these groups particularly hard. Were this to be the most likely explanation, however, one would expect occupational controls to offer much more bite in explaining earnings gaps and in particular the earnings deterioration between 1921 and 1931.[27]

Most plausible alternative explanations would point to increasing labour market discrimination against immigrants during the Depression, as suggested by some US historians (Wenger, 1996). European migrants with extensive job experience in Canada were offered lower wages than Canadian, British, and American workers in similar occupations, with similar observable characteristics. Our findings also support the view that these immigrants were more likely to lose employment than otherwise similar Britons or "British Canadians," and likely faced higher search costs (and therefore longer average spells out of work) in securing new positions when jobs were rationed. Changing attitudes towards the employment of European immigrants may also have disrupted the ability of long-standing migrants to use ethnic networks to access the labour market as they had done in previous decades.

While our findings are consistent with greater discrimination when labour demand was at its most slack since the settlement of North America, separating labour market discrimination from the effects of unobserved skills is beyond the possibilities of what we can do with available evidence. A discrimination-based explanation that is focused mainly on migrants from Continental Europe is not entirely coherent with the large historical literature that emphasizes the hostility of many native-born Canadians towards arrivals from Britain in the early 20th century (Lloyd 2012). Unpicking the causes of poor immigrant performance in Depression labour markets is an important question for future research.

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[27] A more fine-grained set of occupational controls yields broadly similar results to those presented earlier in the paper.

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Table 1: The foreign-born in Canada, 1891-1931 (thousands)

Year	Population	Foreign-born (% of population)	Free migrants (% off foreign-born)	Preferred migrants (% of foreign-born)	Non-preferred migrants (% of foreign-born)
1891	4833	644 (13)	572 (89)	41 (6)	31 (5)
1901	5371	700 (13)	534 (76)	56 (8)	109 (16)
1911	7207	1587 (22)	1118 (70)	130 (8)	339 (21)
1921	8788	1956 (22)	1439 (74)	128 (7)	388 (20)
1931	10377	2308 (22)	1529 (66)	174 (8)	604 (26)

Source: Historical Statistics of Canada, 2nd edition, consulted online (1983).

Notes: Free migrants are arrivals from the United States, Britain, Ireland, and other British dependencies. Preferred immigrants are from Belgium, the Netherlands, France, Germany, and Scandinavia. Non-preferred immigrants include all other arrivals from Europe and elsewhere.

Table 2: Canadian unemployment in 1931

Unemployment by city			Unemployment by occupation	
Place	% wage earners not at work		Occupation	% "no job" during 1930-31 (Men)
Vancouver	34		Retail store managers	6
London	14		Mechanics	33
Toronto	19		Carpenters	61
Ottawa	14		Truck drivers	30
Montreal	20		Labourers	55
Canada	21		Janitors	13
			Cooks	32
			Salesmen	19
			Office Clerks	11

<u>Notes</u>: Sources for panel a) are Green and Mackinnon's (1988, Table 10.2) calculations from Dominion Bureau of Statistics (1934). Sources for panel b) are Green and Mackinnon's (1988, Table 10.3) calculations from Dominion Bureau of Statistics (1934; 1935).

Table 3: Regression results, annual earnings

	Born 1886-95			Born 1876-85			Born 1866-75		
	1911	1921	1931	1911	1921	1931	1911	1921	1931
Age	.50***	.15***	.09	.10**	.12*	.13	.07	.06	-.02
	(.03)	(.04)	(.09)	(.04)	(.06)	(.14)	(.08)	(.12)	(.25)
Age^2 x 10	-.10***	-.02***	-.01	-.01**	-.02**	-.01	-.01	-.01	-.001
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Years since migration	.20***	.05***	.04	.14***	.04***	.03***	.09***	.04***	.04*
	(.02)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)	(.01)	(.02)
Years since migration^2 x 10	-.02***	-.02***	-.01***	-.11***	-.01***	-.01*	-.07***	-.01*	-.01
	(.002)	(.01)	(.003)	(.01)	(.003)	(.003)	(.02)	(.01)	(.01)
No English	-.25***	-.25***	-.58***	-.32***	-.30***	-.55***	-.33***	-.31***	-.66***
	(.02)	(.02)	(.03)	(.02)	(.02)	(.04)	(.02)	(.03)	(.06)
Free migrants	-.47***	-.27***	-.35***	-.41***	-.30***	-.29***	-.39***	-.26***	-.31*
	(.03)	(.04)	(.05)	(.03)	(.05)	(.08)	(.04)	(.08)	(.17)
Preferred migrants	-.40***	-.52***	-.77***	-.36***	-.48***	-.71***	-.37***	-.44***	-.78***
	(.04)	(.05)	(.06)	(.04)	(.06)	(.10)	(.06)	(.09)	(.19)
Non-preferred migrants	-.36***	-.48***	-.91***	-.45***	-.54***	-.88***	-.39***	-.52***	-.93***
	(.04)	(.04)	(.05)	(.03)	(.05)	(.09)	(.05)	(.08)	(.17)
British Columbia	.19***	-.04*	-.10***	.09***	-.06***	-.05	.07***	.03	-.20
	(.02)	(.02)	(.03)	(.02)	(.020)	(.03)	(.03)	(.04)	(.06)
Northwest	-.12***	-.06***	-.04	-.11***	-.01	-.03	-.06*	-.01	.01
	(.02)	(.02)	(.03)	(.02)	(.02)	(.03)	(.03)	(.03)	(.06)
Manitoba	-.04	-.04**	-.14***	-.03	.012	-.12***	.06*	.03	-.03
	(.02)	(.02)	(.04)	(.02)	(.02)	(.04)	(.04)	(.04)	(.07)
Quebec	.13***	.08***	.15***	.13***	.09***	.19***	.17***	.12***	.24***
	(.01)	(.02)	(.02)	(.02)	(.02)	(.03)	(.02)	(.02)	(.04)
Maritimes	-.23***	-.26***	-.34*	-.34***	-.23***	-.24***	-.31***	-.19***	-.25***
	(.02)	(.02)	(.03)	(.02)	(.02)	(.04)	(.02)	(.03)	(.06)

Constant	-4.6***	-.07	.20	.21	-.36	-.87	.59	.46	3.1
	(.32)	(.06)	(1.7)	(.61)	(1.3)	(3.4)	(1.6)	(2.9)	(7.5)
R^2	.16	.05	.10	.08	.04	.07	.06	.04	.07
N	18009	16016	13146	17836	12796	9413	9997	7126	4337

Notes: Canadian Census samples of 1911, 1921, and 1931 – see text for further details. Estimation is by OLS. Standard errors in parentheses.

***, ** and * indicate coefficients significant at 1%, 5%, and 10% level.

Table 4: Regression results, annual earnings, occupation controls

	Born 1886-95			Born 1876-85			Born 1866-75		
	1911	1921	1931	1911	1921	1931	1911	1921	1931
Age	.50***	.09**	.05	.05	.10*	.25*	.02	.08	.27
	(.03)	(.04)	(.08)	(.04)	(.06)	(.13)	(.07)	(.11)	(.25)
Age^{2}x 10	-.10***	-.01*	-.01	-.01	-.01*	-.03**	-.003	-.01	-.02
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Years since migration	.20***	.04***	.03***	.13***	.03***	.03***	.10***	.03**	.03*
	(.02)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)	(.01)	(.02)
Years since migration^2 x 10	-.02***	-.02***	-.01***	-.11***	-.01***	-.01**	-.08***	-.01*	-.01*
	(.002)	(.004)	(.002)	(.01)	(.003)	(.003)	(.02)	(.01)	(.01)
No English	-.17***	-.08***	-.23***	-.18***	-.12***	-.25***	-.18***	-.16***	-.36***
	(.02)	(.02)	(.03)	(.02)	(.03)	(.04)	(.02)	(.03)	(.06)
Free migrants	-.42***	-.24***	-.27***	-.36***	-.29***	-.24***	-.34***	-.21***	-.22
	(.03)	(.03)	(.05)	(.03)	(.04)	(.08)	(.04)	(.07)	(.16)
Preferred migrants	-.32***	-.33***	-.46***	-.25***	-.33***	-.42***	-.27***	-.26***	-.48***
	(.04)	(.04)	(.06)	(.04)	(.05)	(.09)	(.05)	(.09)	(.18)
Non-preferred migrants	-.35***	-.32***	-.58***	-.36***	-.36***	-.51***	-.29***	-.34***	-.58***
	(.04)	(.04)	(.05)	(.03)	(.05)	(.08)	(.04)	(.08)	(.17)
Professional	.72***	.86***	1.5***	1.0***	.92***	1.5***	1.1***	.91***	1.4***
	(.03)	(.02)	(.04)	(.03)	(.03)	(.05)	(.03)	(.04)	(.07)
Clerical	.62***	.72***	1.1***	.85***	.66***	1.1***	.86***	.58***	1.1***
	(.02)	(.02)	(.04)	(.02)	(.03)	(.05)	(.03)	(.04)	(.07)
Craftsmen	.68***	.60***	.77***	.74***	.53***	.78***	.68***	.48***	.61***
	(.02)	(.02)	(.03)	(.02)	(.02)	(.04)	(.03)	(.03)	(.06)
Operative	.57***	.54***	.72***	.65***	.45***	.69***	.60***	.42***	.64***
	(.02)	(.02)	(.03)	(.02)	(.03)	(.05)	(.03)	(.04)	(.07)
Service	.36***	.40***	.72***	.52***	.37***	.74***	.51***	.29***	.56***
	(.03)	(.03)	(.04)	(.03)	(.03)	(.05)	(.04)	(.05)	(.07)

Labour	.39***	.22***	.08**	.34***	.12***	.10**	.28***	.07*	.01
	(.02)	(.02)	(.04)	(.02)	(.02)	(.04)	(.03)	(.03)	(.06)
British Columbia	.15***	-.04*	-.06*	.08***	-.05***	-.02	.05**	-.001	-.11*
	(.02)	(.02)	(.03)	(.02)	(.02)	(.03)	(.02)	(.03)	(.06)
Northwest	-.03*	.03*	-.001	-.06***	.03	-.01	-.04*	.03	-.02
	(.02)	(.02)	(.03)	(.02)	(.02)	(.03)	(.03)	(.03)	(.05)
Manitoba	-.01	-.04**	-.11***	-.04*	.001	-.16***	.02	.004	-.13**
	(.02)	(.02)	(.03)	(.02)	(.02)	(.04)	(.03)	(.03)	(.07)
Quebec	.10***	.05***	.12***	.10***	.07***	.17***	.13***	.09***	.18***
	(.01)	(.01)	(.02)	(.01)	(.02)	(.03)	(.02)	(.02)	(.04)
Maritimes	-.193***	-.20***	-.18***	-.26***	-.17***	-.12***	-.22***	-.17***	-.15***
	(.02)	(.02)	(.03)	(.02)	(.02)	(.04)	(.02)	(.03)	(.05)
Constant	-4.9***	-.23	.20	.35	-.37	-4.9	.88	.41	-6.2
	(.32)	(.60)	(1.7)	(.55)	(1.2)	(3.3)	(1.5)	(2.7)	(7.4)
R^2	.27	.22	.34	.27	.22	.30	.26	.20	.27
N	17526	15260	10937	17306	12146	7804	9699	6743	3596

Notes: Canadian Census samples of 1911, 1921, and 1931 – see text for further details. Standard errors in parentheses. ***, ** and * indicate coefficients significant at 1%, 5%, and 10% level.

Table 5: Regression results, weekly earnings

	Born 1886-95			Born 1876-85			Born 1866-75		
	1911	1921	1931	1911	1921	1931	1911	1921	1931
Age	.41***	.17***	.10	.11***	.16**	.22**	.04	.04	-.23
	(.03)	(.05)	(.07)	(.04)	(.07)	(.11)	(.07)	(.14)	(.21)
Age^2 x 10	-.08***	-.02***	-.01	-.02***	-.02**	-.002**	-.01	-.01	.002
	(.01)	(.01)	(.01)	(.01)	(.01)	(.001)	(.01)	(.01)	(.002)
Years since migration	.02	.05***	.03***	.02***	.03***	.02**	.01	.03**	.03*
	(.02)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Years since migration^2 x 10	-.02	-.02***	-.01***	-.02**	-.01*	-.001	.01	-.01	-.01
	(.02)	(.01)	(.002)	(.01)	(.004)	(.002)	(.01)	(.01)	(.004)
No English	-.13***	-.22***	-.47***	-.22***	-.23***	-.46***	-.21***	-.16***	-.53***
	(.01)	(.03)	(.03)	(.01)	(.03)	(.03)	(.02)	(.04)	(.05)
Free migrants	-.12***	-.23***	-.22***	-.12***	-.19***	-.16**	-.15***	-.19**	-.28**
	(.03)	(.04)	(.04)	(.02)	(.05)	(.07)	(.03)	(.08)	(.14)
Preferred migrants	-.05	-.46***	-.49***	-.05*	-.31***	-.45***	-.11	-.26**	-.56***
	(.03)	(.05)	(.05)	(.03)	(.06)	(.08)	(.04)	(.10)	(.15)
Non-preferred migrants	.01	-.35***	-.54***	-.16***	-.35***	-.51***	-.18**	-.32***	-.60***
	(.03)	(.04)	(.04)	(.02)	(.05)	(.07)	(.03)	(.08)	(.13)
British Columbia	.24***	.06**	-.02	.16***	.03	-.01	.14***	.12***	-.03
	(.02)	(.02)	(.02)	(.01)	(.02)	(.02)	(.02)	(.03)	(.05)
Northwest	-.08	-.10	-.04*	-.05***	-.07***	.004	.02	-.03	.05
	(.02)	(.02)	(.02)	(.02)	(.02)	(.03)	(.03)	(.04)	(.05)
Manitoba	-.07	-.05**	-.12***	-.05***	.003	-.07**	.05	.08**	-.05
	(.02)	(.02)	(.03)	(.02)	(.02)	(.03)	(.03)	(.04)	(.05)
Quebec	.08***	.07***	.10***	.08***	.08***	.13***	.11***	.12***	.19
	(.01)	(.02)	(.02)	(.01)	(.02)	(.02)	(.02)	(.03)	(.03)
Maritimes	-.14***	-.22***	-.31***	-.05***	-.19***	-.24***	-.24***	-.13***	-.26***
	(.01)	(.02)	(.03)	(.02)	(.02)	(.03)	(.02)	(.03)	(.05)

Constant	-7.3***	-4.7***	-3.8***	-3.7***	-5.0***	-7.1***	-2.7**	-2.9	5.7
	(.27)	(.73)	(1.4)	(.53)	(1.4)	(2.7)	(1.4)	(3.4)	(6.2)
R^2	.16	.06	.08	.06	.04	.06	.04	.03	.06
N	16943	9609	13126	16594	7754	9399	9119	4195	4325

Notes: Canadian Census samples of 1911, 1921, and 1931 – see text for further details. Standard errors in parentheses. ***, ** and * indicate

coefficients significant at 1%, 5%, and 10% level.

Table 6: Regression results, weekly earnings, occupation controls

	Born 1886-95			Born 1876-85			Born 1866-75		
	1911	1921	1931	1911	1921	1931	1911	1921	1931
Age	.41***	.10**	.07	.07**	.12*	.30***	.02	.10	-.03
	(.03)	(.04)	(.07)	(.03)	(.06)	(.10)	(.06)	(.12)	(.20)
Age^2 x 10	-.08***	-.01*	-.01	-.01**	-.02*	-.03***	-.002	-.01	.001
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Years since migration	.02	.04***	.02***	.02**	.02**	.01	.01	.03**	.02
	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.01)	(.02)
Years since migration^2 x 10	-.02	-.02***	-.01***	-.02**	-.01	-.001	-.002	-.01*	-.01
	(.02)	(.004)	(.002)	(.01)	(.003)	(.002)	(.01)	(.01)	(.004)
No English	-.10***	-.09***	-.19***	-.13***	-.10***	-.23***	-.10***	-.05	-.27***
	(.01)	(.02)	(.03)	(.01)	(.03)	(.03)	(.02)	(.04)	(.05)
Free migrants	-.08***	-.17***	-.14***	-.08***	-.17***	-.12**	-.10***	-.17**	-.18
	(.02)	(.04)	(.04)	(.02)	(.04)	(.06)	(.03)	(.08)	(.13)
Preferred migrants	-.01	-.25***	-.23***	.04	-.15***	-.22***	-.004	-.19**	-.37**
	(.03)	(.05)	(.05)	(.03)	(.05)	(.07)	(.04)	(.09)	(.14)
Non-preferred migrants	-.01***	-.21***	-.28***	-.08***	-.18***	-.24***	-.07**	-.19**	-.34**
	(.03)	(.04)	(.04)	(.02)	(.05)	(.06)	(.03)	(.08)	(.13)
Professional	.61***	.91***	1.4***	.84***	.98***	1.3***	.91***	1.1***	1.3***
	(.02)	(.03)	(.03)	(.02)	(.03)	(.04)	(.03)	(.05)	(.06)
Clerical	.45***	.74***	1.0***	.65***	.74***	.99***	.63***	.75***	1.0***
	(.02)	(.03)	(.03)	(.02)	(.03)	(.04)	(.03)	(.05)	(.06)
Craftsmen	.56***	.72***	.88***	.63***	.72***	.91***	.51***	.75***	.87***
	(.02)	(.02)	(.03)	(.02)	(.03)	(.04)	(.02)	(.05)	(.06)
Operative	.48***	.67***	.80***	.51***	.65***	.78***	.43***	.71***	.83***
	(.02)	(.03)	(.03)	(.02)	(.03)	(.04)	(.03)	(.05)	(.06)
Service	.25***	.48***	.68***	.38***	.49***	.66***	.32***	.46***	.59***
	(.03)	(.03)	(.04)	(.03)	(.04)	(.04)	(.04)	(.06)	(.06)

Labour	.39***	.39***	.36**	.29***	.34***	.36***	.19***	.39***	.38
	(.01)	(.02)	(.03)	(.02)	(.03)	(.04)	(.02)	(.05)	(.06)
British Columbia	.22***	.04**	.01	.15***	.012	.01	.13***	.06*	.05
	(.02)	(.02)	(.02)	(.01)	(.02)	(.02)	(.02)	(.03)	(.04)
Northwest	-.02	.003	.02	-.02	-.02	.05	.01	.02	.07
	(.02)	(.02)	(.02)	(.01)	(.02)	(.02)	(.03)	(.04)	(.04)
Manitoba	-.02	-.05***	-.09***	-.05***	-.01	-.08***	.01	.04	-.13***
	(.02)	(.02)	(.02)	(.02)	(.02)	(.03)	(.03)	(.03)	(.05)
Quebec	.05***	.04**	.07***	.06***	.05***	.11***	.08***	.08***	.13***
	(.01)	(.02)	(.02)	(.01)	(.02)	(.02)	(.02)	(.03)	(.03)
Maritimes	-.13***	-.19***	-.18***	-.20***	-.16***	-.16***	-.17***	-.16***	-.20***
	(.01)	(.02)	(.02)	(.01)	(.02)	(.03)	(.02)	(.03)	(.05)
Constant	-7.6***	-4.2***	-3.9***	-3.6***	-4.8	-10	-2.7**	-5.2*	-1.1
	(.26)	(.67)	(1.3)	(.48)	(1.2)	(2.6)	(1.3)	(3.1)	(6.0)
R^2	.25	.24	.34	.22	.25	.30	.22	.21	.27
N	16498	9164	10918	16117	7376	7804	8860	3971	3586

Notes: Canadian Census samples of 1911, 1921, and 1931 – see text for further details. Estimation is by OLS. Standard errors in parentheses.
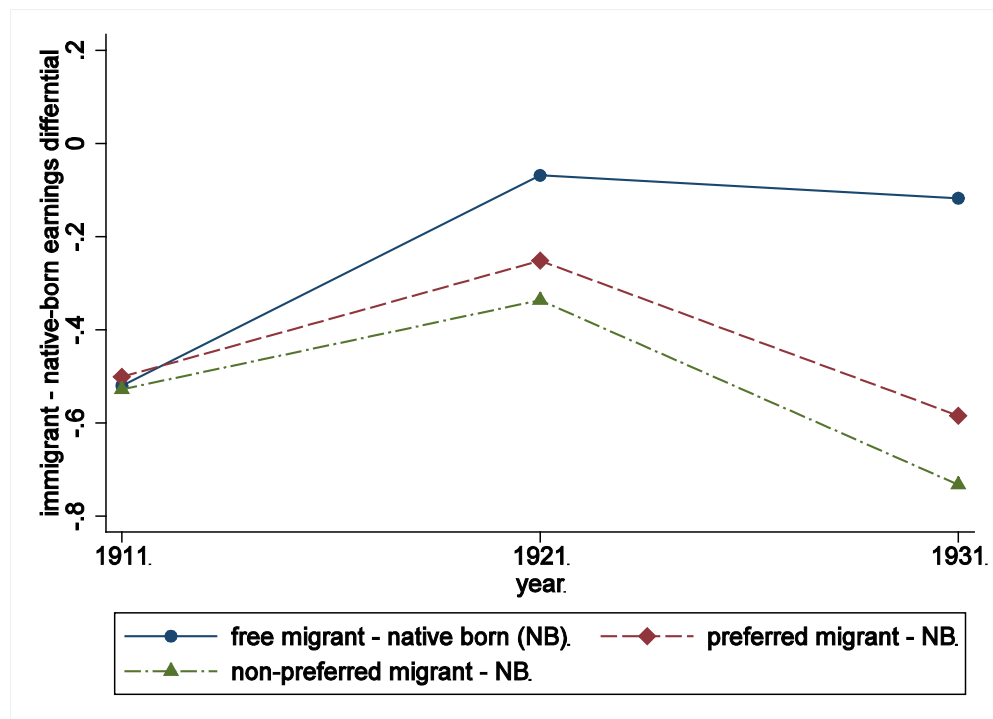
***, ** and * indicate coefficients significant at 1%, 5%, and 10% level.

Figure 1a: Predicted relative immigrant earnings (annual), born 1886, arriving 1911
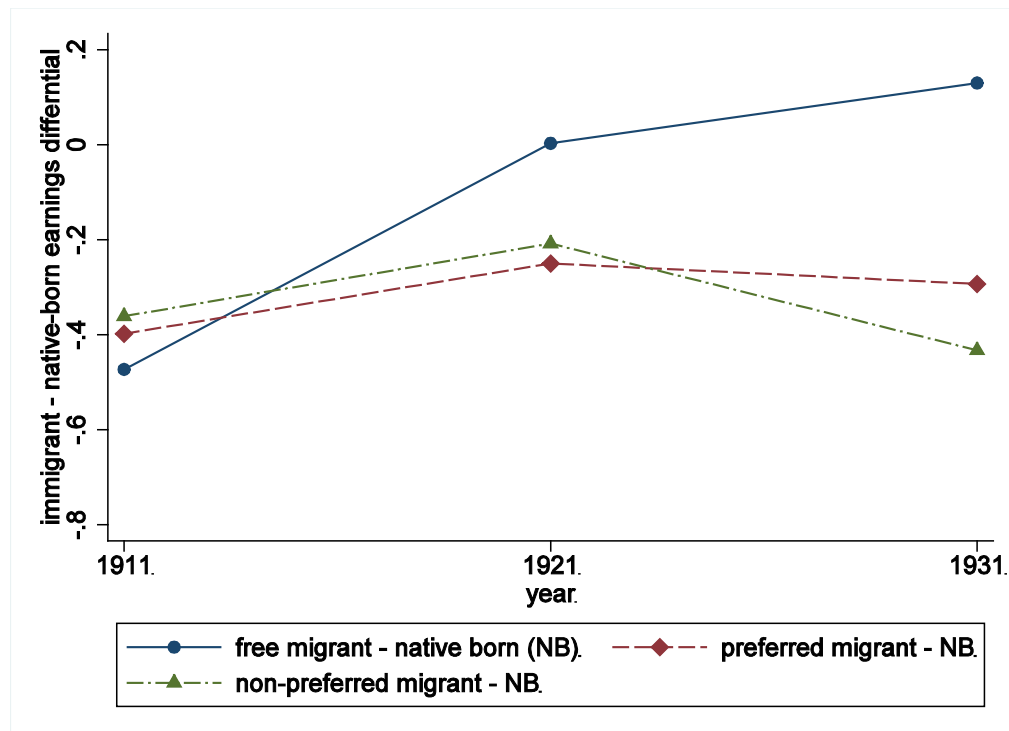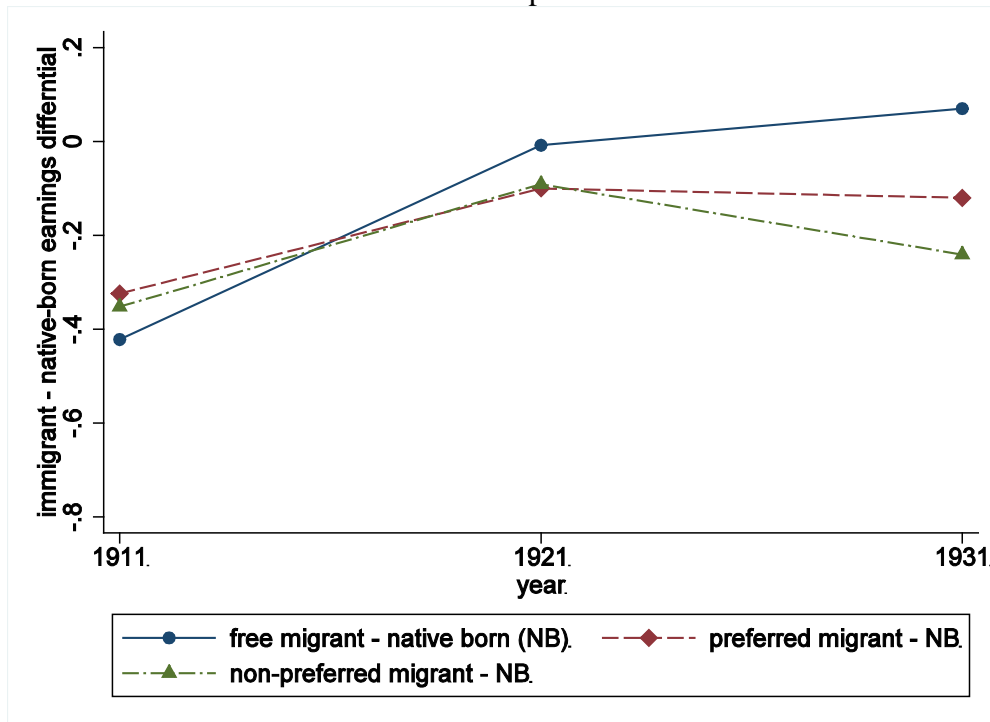

Notes: Derived from regression estimates in Table 2, assuming age of 25 in 1911, ysm of 0 in 1911, speaks English and resides in Ontario.

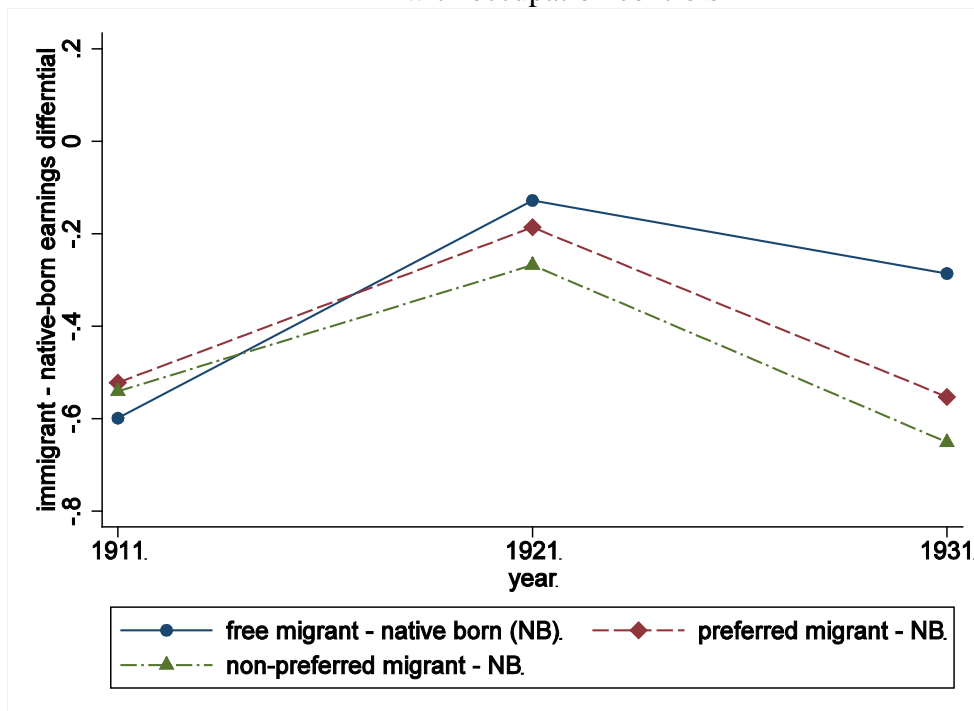Figure 1b: Predicted relative immigrant earnings (annual), born 1871, arriving 1896

Notes: Derived from regression estimates in Table 2, assuming age of 40 in 1911, ysm of 15 in 1911, speaks English and resides in Ontario.

Figure 2a: Predicted relative immigrant earnings (annual), born 1886, arriving 1911, with occupation controls

Notes: Derived from regression estimates in Table 3, assuming age of 25 in 1911, ysm of 0 in 1911, employed as operative, speaks English and resides in Ontario.

Figure 2b: Predicted relative immigrant earnings (annual), born 1871, arriving 1906, with occupation controls

Notes: Derived from regression estimates in Table 3, assuming age of 40 in 1911, ysm of 15 in 1911, employed as operative, speaks English and resides in Ontario.

Figure 3a: Predicted relative immigrant earnings (weekly), born 1886, arriving 1911, with occupation controls
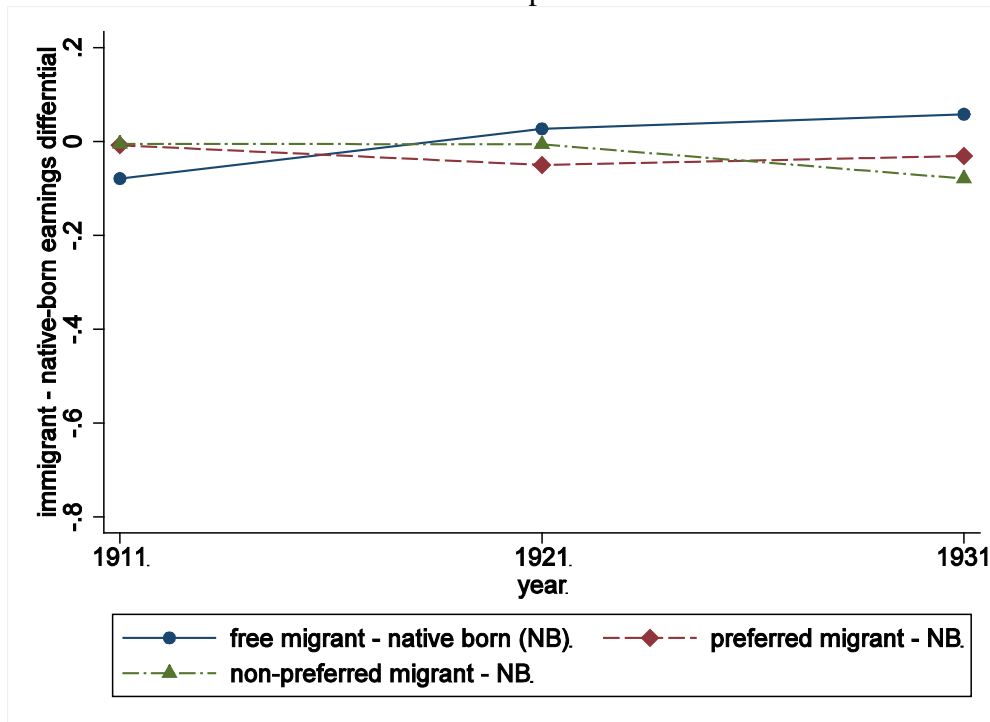

Notes: Derived from regression estimates in Table 5, assuming age of 25 in 1911, ysm of 0 in 1911, employed as operative, speaks English and resides in Ontario.

Figure 3c: Predicted relative immigrant earnings (weekly), born 1871, arriving 1906, with occupation controls
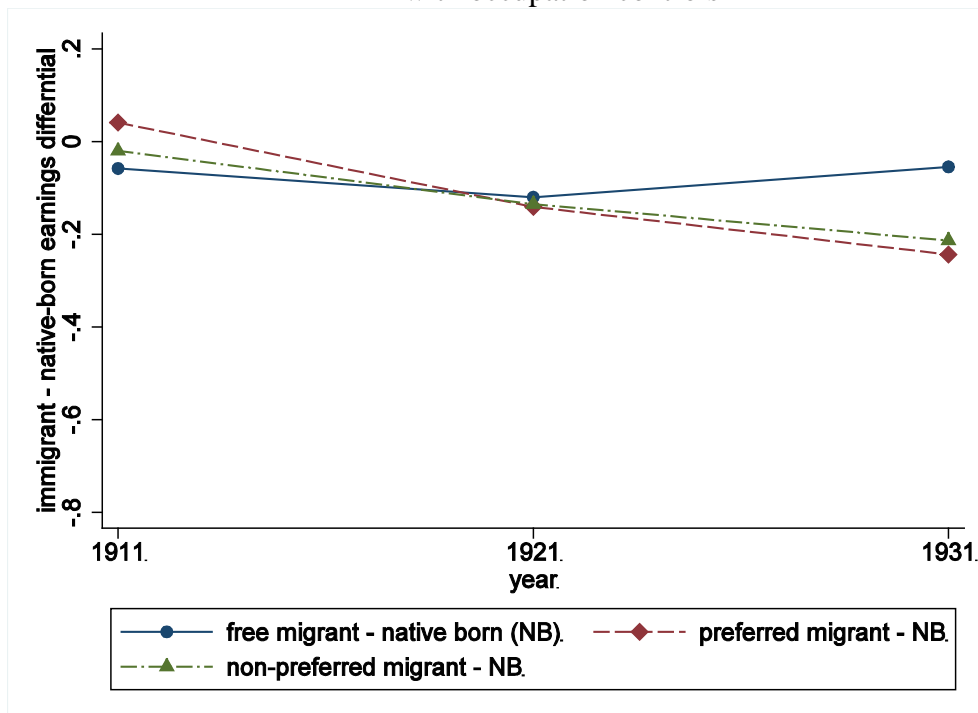

Notes: Derived from regression estimates in Table 5, assuming age of 40 in 1911, ysm of 15 in 1911, employed as operative, speaks English and resides in Ontario.

Appendix: Price index used for real wage calculations

This paper uses real earnings as the outcome measure for immigrant success in Canada. A number of papers (Emery and Levitt, 2000; Minns and MacKinnon, 2007) have proposed price indices for major Canadian cities in the period, but our analysis includes all communities denoted "urban" by CCRI custodians Sufficient differences between these major cities suggest that no one city's prices are an accurate representation of the province as a whole, and so we develop our own provincial measure.[28]

In order to account for price changes across province and census year we generate a consumer price index drawing upon several sources. The result is a provincial CPI measure with the Dominion of Canada Average in 1913 as the base. Provincial data for 1921 and 1931 is based on tables published by the Dominion Bureau of Statistics (DBS). Table XXV in the DBS publication 62-C-501 "Prices and Price Indexes 1913-1929", provides the provincial cross section for 1921 using "Grand Total pricing figures on page 142. A comparable table of price levels for 1931, which appears to be sourced from DBS numbers, is available in Table 10 of the "Canada Year Book 1932" on page 693. Although neither table contains both 1921 and 31 prices, several intermediate years overlap, enabling us to verify the consistency of the numbers across the various sources

The DBS, to the best of our knowledge, did not publish a version of this table for 1911. Therefore we rely on the user guide for the Sixth Canadian Census, which provides most 1911 provincial prices normalized to 1921. Page xxiv, in Volume 3, gives a table of these cost of living estimates for the provinces. The exception is Prince Edward Island, for which we do not have any official 1911 numbers.

Because of sample size concerns, as well as the desire to follow provincial groupings common to the literature, the results in this paper are based on provincial groupings as follows: The "North Western" provinces (NW) are comprised of Alberta, Manitoba, the Yukon and Northwest Territories, while the Maritime provinces (MAR) of New Brunswick, Nova Scotia and Prince Edward Island are also combined. Price indices for these provincial groupings are averages of the provincial price indexes, weighted by the relative provincial populations. For 1911 prices, due to the omission of PEI and the territories, the provincial group price indices are weighted averages of the available regions.[29] The Provincial index numbers used are presented in Appendix Table A1.

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[28] We attempt to use the price indices from Emery and Levitt (2002) by attribute the population shares in our sample to major cities for which price indices were reported. We then aggregate within provincial categories weighting with the population shares in each city to generate a set of provincial prices accordingly. The data are very noisy, however, with respect to location indicators at the city level and so this approach was abandoned.

[29] The PEI sample is sufficiently small that we feel the bias from this imputation is minimal.

Appendix Table A1: Price Indices for 1911 to 1931

Province	1911	1921	1931
Prince Edward Island	---	138	123
Nova Scotia	87	155	127
New Brunswick	84	158	130
Quebec	83	146	121
Ontario	91	164	185
Manitoba	111	177	142
Saskatchewan	126	177	140
Alberta	107	159	126
British Columbia	112	164	135

Notes: Base is Dominion average in 1913. Sources are as follows: 1911 – 1921 Census Volume III, "Estimated Provincial Index Numbers of Cost of Living in 1921 (base year 1911); 1921 – Price and Price Indices: 1913-1929. Dominion Bureau of Statistics. "Index Numbers of a Family Budget", pp. 142; 1931 – Canada Year Book 1932. "Index Numbers of a Family Budget", pp. 693.

Appendix Table A2: Earnings of Immigrants and the Native born in Canada, 1911-1931

	Born 1886-95				Born 1876-85				Born 1866-75			
	Native-born	"Free" immig	"Preferred" immig	"Non-preferred" immig	Native-born	"Free" immig	"Preferred" immig	"Non-preferred" immig	Native-born	"Free" immig	"Preferred" immig	"Non-preferred" immig
a) Real annual earnings												
1911	**514.03** **(5.25)**	518.09 (7.71)	500.92 (14.18)	489.92 (8.39)	**745.38** **(7.89)**	685.29 (6.99)	661.08 (22.77)	533.08 (6.73)	**845.92** **(17.41)**	702.07 (12.60)	646.43 (22.99)	575.36 (16.08)
1921	**736.69** **(10.06)**	730.90 (7.90)	556.72 (15.42)	593.08 (13.40)	**825.22** **(7.75)**	819.60 (21.39)	671.48 (27.87)	616.27 (13.14)	**789.63** **(13.50)**	766.11 (16.90)	617.49 (40.12)	850.49 (293.55)
1931	**996.23** **(9. 29)**	1035.97 (14.79)	648.57 (12.24)	553.57 (12.24)	**970.16** **(13.38)**	970.34 (15.00)	675.02 (35.85)	538.82 (18.95)	**893.77** **(21.94)**	840.26 (24.76)	505.40 (64.09)	447.58 (28.19)
b) Real weekly earnings												
1911	**11.62** **(0.14)**	14.01 (0.90)	12.50 (0.29)	12.17 (0.18)	**16.03** **(0.18)**	15.94 (0.36)	15.86 (0.49)	12.72 (0.15)	**18.44** **(0.59)**	16.04 (0.30)	15.35 (0.54)	13.10 (0.28)
1921	**14.58** **(0.24)**	15.58 (0.32)	12.21 (0.38)	13.60 (0.36)	**16.14** **(0.17)**	17.54 (0.65)	14.47 (0.60)	13.82 (0.47)	**16.14** **(0.53)**	16.09 (0.39)	13.93 (0.78)	23.83 (8.52)
1931	**21.55** **(0.19)**	22.44 (0.28)	16.72 (0.60)	14.93 (0.14)	**21.79** **(0.38)**	21.80 (0.29)	17.11 (0.78)	15.45 (0.65)	**19.97** **(0.43)**	19.60 (0.49)	14.53 (1.30)	13.44 (0.58)

Notes: Panel a) lists weighted mean real annual earnings. Panel b) is weighted mean real weekly earnings.

Appendix Table A3: Characteristics of Immigrants and Native-Born Canadians, 1911 to 1931

1911

Born	Age	YSM	No English	Prof.	Clerical	Craft.	Oper.	Service	Labor
Canadian	28.36	---	0.22	0.09	0.14	0.21	0.14	0.03	0.27
	(0.05)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Free	29.58	3.66	0.01	0.07	0.12	0.27	0.12	0.06	0.23
	(0.07)	(0.03)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Pref	29.45	3.50	0.35	*	*	0.14	0.16	0.04	0.51
	(0.19)	(0.08)	(0.01)			(0.01)	(0.01)	(0.01)	(0.02)
Non-Pref	29.25	3.53	0.60	0.02	0.02	0.12	0.14	0.02	0.64
	(0.12)	(0.04)	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.01)

1921

Born	Age	YSM	No English	Prof.	Clerical	Craft.	Oper.	Service	Labor
Canadian	37.89	---	0.10	0.10	0.11	0.26	0.14	0.03	0.28
	(0.08)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Free	38.03	10.44	*	0.10	0.14	0.29	0.13	0.06	0.19
	(0.10)	(0.06)		(0.00)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
Pref	38.07	9.98	0.08	*	*	0.19	0.12	*	0.43
	(0.28)	(0.20)	(0.01)			(0.02)	(0.01)		(0.02)
Non-Pref	36.58	10.47	0.12	*	0.03	0.13	0.17	0.03	0.55
	(0.17)	(0.09)	(0.01)		(0.00)	(0.01)	(0.01)	(0.00)	(0.01)

1931

Born	Age	YSM	No English	Prof.	Clerical	Craft.	Oper.	Service	Labor
Canadian	47.32	---	0.10	0.15	0.13	0.25	0.13	0.05	0.21
	(0.07)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Free	47.12	18.59	*	0.14	0.14	0.29	0.13	0.08	0.58
	(0.09)	(0.09)		(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.01)
Pref	46.13	15.78	0.07	0.08	*	0.28	0.10	0.05	0.31
	(0.26)	(0.31)	(0.01)	(0.01)		(0.02)	(0.01)	(0.01)	(0.02)
Non-Pref	44.58	16.01	0.08	0.05	0.02	0.18	0.20	0.04	0.42
	(0.15)	(0.19)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)

Notes: Estimated sample mean values reported, with standard errors in parentheses. Values replaced with a * are omitted because the number of observations represent a disclosure risk. For all occupations these shares of employment are less than 3% and for No English, all omitted population shares are less that 0.5%.