

Which Child Immigrants Face Earnings Disparity?
Age-at-immigration, Ethnic Minority Status and Labour Market Attainment in
Canada¹²

Krishna Pendakur and Ravi Pendakur
Simon Fraser University and University of Ottawa
November 2015

Abstract:

Using Canadian Census microdata from 1990 to 2005, we investigate the earnings attainment of immigrants to Canada in 6 age-at-arrival cohorts. In comparison to past work we extend our understanding regarding three dimensions of the age at immigration debate: we explore heterogeneity across fine grained age-at-arrival cohorts, over a fifteen-year period and across different ethnic groups. We find that white immigrants and female immigrants arriving in Canada prior to age 18 face little earnings disparity. In contrast, visible minority male immigrants face significant earnings disparity regardless of their age-at-migration, and additionally this disparity increases sharply with age-at-migration. We find a break in earnings attainment at an age-of-arrival of 17, with immigrants arriving after this age performing much worse than those arriving at this age or earlier. The patterns observed are found for visible minority immigrants as a whole, and for Chinese, South Asian and African/Black origin immigrants examined separately.

¹ This research was supported by the Social Sciences and Humanities Research Council of Canada.



Social Sciences and Humanities
Research Council of Canada

Conseil de recherches en
sciences humaines du Canada

Canada

² The analysis presented in this paper was conducted at the COOLRDC and the SFU-RDC which are part of the Canadian Research Data Centre Network (CRDCN). The services and activities provided by the RDCs are made possible by the financial or in-kind support of the SSHRC, the CIHR, the CFI, Statistics Canada, and the University of Ottawa and Simon Fraser University. The views expressed in this paper do not necessarily represent the CRDCN's or that of its partners.

Introduction

Canada has among the world's highest proportion of immigrants, with more than 21 per cent of Canadian residents born abroad (Statistics Canada 2013). Unfortunately, research suggests that immigrants suffer very large earnings disparity on entry and that their earnings do not fully catch up to those of native-born workers even over the long haul (see, e.g., Frenette and Morissette 2005; McDonald and Worswick 2010). Further, the gaps in labour market attainment faced by immigrants to Canada have been growing over time (see, e.g., Pendakur and Pendakur 2015).

Immigrants are heterogeneous, coming from different source countries with differing skills and networks in Canada and, importantly, arriving at different ages. In 2006, of the 6.2 million immigrants in Canada, 1.6 million of them arrived in Canada at 14 years old or younger. Immigrants who arrive young are often referred to as 'generation 1.5', and they acquire education and social networks in Canada. Those who arrive youngest may also speak English or French without an accent. A few papers have noted that generation 1.5 immigrants to Canada do not face nearly the same economic disparity as immigrants who arrive older (see, Schaafsma and Sweetman 2001, Boyd 2002, 2009, Skuterud 2010).

In this paper we track the earnings disparity of immigrants to Canada in different age at arrival cohorts over the period 1990 to 2005 (four census periods). Specifically we assess earnings outcomes for 6 age-at-immigration cohorts compared to people born in Canada for both white and visible minority workers. Our age-at-arrival cohorts are: age of 7 or less, 8 to 12 years old, 13 to 17 years old, 18 to 24 years old, 25 to 29 years old and 30 or more years old. These categories identify broad breaks at elementary and secondary school for most of Canada, and to allow for patterns of assimilation found in the linguistics literature wherein ages 7 and 12 are found to be critical ages (see, e.g., Johnson and Newport 1989).

In contrast to existing literature on Canadian age at migration effects, we consider two new factors. First, how have these factors changed over time, and second, are these patterns different between white and visible minority immigrants.

We find that, arriving younger (less than age 18) is correlated with lower earnings disparity compared to those born in Canada. For white immigrants, and for female immigrants, we find that child immigrants (those arriving at age 12 or less) have earnings that are identical to their counterparts born in Canada. Those arriving at older ages have slightly lower earnings. However, visible minority male immigrants show a different pattern. For them, in 2005, earnings are lower than Canadian-born visible minority men for all age-at-arrival cohorts, and these earnings gaps are much larger for older age-at-arrival cohorts. The difference is especially stark for those arriving before and after age 18. In addition we look at outcomes for largest three visible minority groups (African/Black, South Asian and Chinese) in 2006. These groups face a similar situation with the exception of Chinese men, who face higher earnings differentials if they arrive after age 12.

Literature

A large body of Canadian research since the late 1980s shows that immigrants, especially visible minority immigrants, face substantial earnings disparity, which may be worsening over time. Christofides and Swindinsky (1994) studied hourly wage outcomes in the 1989 Labour Market Activity Survey, and found that while British and French immigrants did not face wage disparity, other immigrants had wages nearly 20% less than their Canadian-born counterparts. Pendakur and Pendakur (1998) used 1991 Census data and corroborate this result for annual earnings, finding earnings gaps of about 2 per cent for immigrant white men, and 16 per cent for immigrant visible-minority men.

Immigrant earnings gaps persisted into the 1990s. Although immigrants could expect smaller earnings gaps as their time in Canada lengthened, successive waves of immigrants did not do better over time, even as immigrant communities in Canada grew substantially over the decades. Hum and Simpson (1999) used data from the 1993 Survey of Labour and Income Dynamics and found entry earnings gaps for visible minority immigrant and white men to be 37 per cent and 9 per cent, respectively. Using the Longitudinal Immigration Database to examine immigrant entry earnings and catch-up rates between 1980 and 1996, Li (2003) found that immigrants who came in the 1990s did indeed have lower entry earnings than those who came in the 1980s. However, Hum and Simpson (1999) estimated that the earnings of immigrant men had the potential to

converge to those of the native-born within ten years. Immigrants from non-European countries fared more poorly. Li (2003) found that immigrants from Asia and Africa in particular took longer to catch up. Hum and Simpson (2004) survey the literature and conclude that evidence from cross-sections and panel data studies has contributed to a common acceptance of the notion that immigrant earnings are unlikely to converge with those of native-born Canadians over the lifetime of the immigrant.

Entering the 2000s, Galarneau and Morissette (2004) used Census data from 1991, 1996 and 2001 to reaffirm that no narrowing of the earnings gap had occurred for the immigrant population at large. Pendakur and Pendakur (2015) corroborate this result and extend it to 2006.

Researchers have also looked at earnings gaps faced by minorities born in Canada. Using data from the 1971, 1981, 1986, 1991, 1996, 2001 and 2006 Censuses, Pendakur and Pendakur (2002, 2012) find a pattern of narrowing earnings gaps between white and Canadian-born visible minorities throughout the 1970s, followed by stability in the 1980s, and an enlargement of the earnings differentials in the 1990s and stability (at a larger magnitude) in the 2000s. By the mid 2000s, Canadian-born visible minority men had earnings disparity of about 15 per cent relative to Canadian-born white men.¹

Child immigrants, defined as those immigrants who arrive as children, lie somewhere in between the Canadian-born and general immigrant populations. Corak (2012) considers how child immigrants perform in terms of educational attainment and finds that they outperform the native born. But, he does not examine their labour market outcomes. Boyd (2002) and Kim and Boyd (2009) study educational attainment and socio-economic achievement using the General Social Surveys and 2001 Census and find that visible minority generation 1.5 children actually outperform the native born in terms of educational attainment and home-ownership.

¹ Aydemir et al (2009) and Skuterut (2010) consider the second and third generation population, that is, the Canadian-born children and grand-children of immigrants. They find interesting intergenerational patterns that are consistent with the overall view that child immigrants are high performing relative to other immigrants, but that this high performance does not endure across generations.

Bonikowska and Hou (2010) examine how succeeding waves of child immigrants (age 12 and under) to Canada performed in terms of educational and labour market attainment. They find large differences across waves (calendar years of arrival), but do not consider the age of the child immigrants. Boyd (2005, 2008) examines the pattern across age-at-migration and finds that child immigrants may actually earn more than their native-born counterparts, a finding similar in spirit to her work on educational outcomes. These papers investigate outcomes for child immigrants as a whole but do not assess differences across age at migration cohorts. They are thus unable to say whether those who enter at very young ages have different earnings as compared to those entering as older children.

Canada is not alone in hosting a large number of immigrants who arrive as children. Bratsberg and Ragan (2002) find that immigrants who come to the USA at a younger age take less time to catch-up in earnings, and can achieve levels comparable to the native-born population. Bleakly and Chin (2004) study how wages connect to language ability and use age-at-arrival as an instrument for language ability, since younger children absorb new languages better than do older children. Their reduced form shows a strong negative relationship between age-at-arrival and wage outcomes for those arriving after the age of seven. Beck, Corak and Tienda (2012) find a similar pattern in the educational outcomes of immigrants to the United States (see also Bratsberg et al 2011; Boyd 2009; Van Ours and Veenman 2006; and Gonzales 2003). Aslund et al (2009, 2012) consider how three types of social integration (residential, labor, and marriage) varies with age-at-migration in Sweden and find that immigrants who migrate younger tend to integrate much more than those who migrate older. Rumbaut (2004) uses tabular data from the United States to assess differences in educational and occupational attainment across immigrants by age at immigration and country of birth. He concludes that separating immigrants by age at immigration is critical in explaining outcomes. Myers et al (2009) assess outcomes for Mexican immigrants in the United States linking age at immigration to language acquisition. They conclude that the importance of age at immigration varies by the outcome of interest with English proficiency being highly correlated with age at migration (p: 224). Lee and Edmonston (2011) use logistic regression to assess the link between age at immigration and a series of outcomes including education, home ownership, low income status and occupation. These last

two articles argue that while there are no clear breakpoints, age at immigration is a determining factor in socio-economic outcomes.

Two papers on immigrants to Canada corroborate this international work, and are especially close to our work. Schaafsma and Sweetman (2001) considered how age-at-immigration affects earnings among immigrants to Canada, using data from the 1986, 1991 and 1996 Censuses. They find that earnings decline as age-at-migration increases. However, they do not allow for the possibility that visible minority immigrants have different disparities from white immigrants. We find this difference to be important to the pattern of immigrant disparity, and crucial given the increase in visible minority migration to Canada since the 1980s. Skuterud (2010) uses 2001 and 2006 Census data to assess the inter-generational pattern in earnings for immigrants and their children. Although he did not focus on them, Skuterud hints at some disparities for child immigrants, especially for Black males. Our work here builds on Skuterud, and develops this line of inquiry to assess how age-at-arrival matters in determining immigrant disparity, and how this disparity has evolved over time.

Data and Methodology

We estimate earnings differentials for immigrants paying close attention to the age at which the immigrant arrived in Canada. Our data are the Census of Canada long-forms from the 1991, 1996, 2001 and 2006. These records are available for roughly 20% of households in Canada during each Census, and earnings are reported from the previous year (1990, 1995, 2000 and 2005).

Our sample is restricted to permanent residents age 25-64, whose primary source of income is from wages and salaries. This means that we exclude those who are primarily self-employed and those whose primary source of income is government transfers. We exclude people reporting Aboriginal origins, immigrants arriving in the census year or previous year and people reporting earnings from wages and salaries less than 100 dollars.² In all regressions, the dependent variable is the natural logarithm of annual earnings from wages and salaries in the previous year (e.g., the 1991 Census asked about 1990 earnings).

² We do not restrict our analysis to full time workers. This is because if access to full time work is rationed based on immigrant or age at immigration status, then including it as one of the selection criteria would serve to omit one element of earnings differences.

Our baseline results measure log-earnings disparity for white and visible minority immigrant workers in Canada as a whole. Visible minorities are defined by the Employment Equity Act of Canada (1988) as persons of non-Aboriginal descent whose ancestry is at least partly outside Europe, Canada, the United States, Australia, New Zealand and Israel. Whites are defined as non-Aboriginal people who are not visible minorities.

We consider 6 age-at-arrival cohorts: immigrants who arrived in Canada at the age of 7 or less, 8 to 12 years old, 13 to 17 years old, 18 to 24 years old, 25 to 29 years old and 30 or more years old. Because our regressions include Canadian-born people, there is no omitted category for this vector of dummy variables. We chose our age at migration categories to allow for the possibility that outcomes depend quite sensitively on the exact age at migration. We could not use single year of migration age groups because there are not enough counts to get precise estimates. Our categories identify the pre-school, elementary school, high school, and three older categories.

Evidence from linguistics suggests that people in the first two cohorts should be accent free. (see for example: Johnson and Newport 1989).³ Members of the first cohort received all their schooling in Canada. Those in our second cohort (age 8-12) received some elementary schooling and all their high school in Canada. Immigrants in the third cohort, (ages 13-17) could speak an official language with an accent, but have at least some high school and its associated socialization in Canada. The other cohorts have only post-secondary (if any) education in Canada.

In all regressions, we include age less 50 and its square as regressors, and interact these variables with our age-at-arrival cohorts. Thus, we allow for different age-earnings profiles across these age-at-arrival cohorts, and, since our age variables equal zero at age 50, our estimated coefficients will reflect the difference in age-earnings profiles across age-at-arrival cohorts at age 50. We use age 50 because for both men and women, age 50 is approximately the top of the age-earnings profile and because, for all but our latest age-at-arrival cohort, by age 50, the immigrants have been in Canada for at least 20 years.

³ There is research to suggest that speaking with an accent can play a role in labour force outcomes (see for example, Davila et al. 1993; Munro 2003; Carlson and McHenry 2006). The censuses and NHS do not provide information on language ability or speaking with an accent. However, Johnson and Newport (1989) provide proxies for accent based on age which we follow in our work.

In addition to stratifying across white versus visible minority, we investigate disparity faced by four subgroups of the visible minority category: Chinese, South Asian, African/Black and other visible minorities.

We run separate regressions for males and females because these census data do not have good instruments to deal with the potential endogeneity of labour force participation. So, our results allow us to compare within ---but not across---genders. We acknowledge that for women in Canada the growth rate of the labour force participation rate slowed by about 1990 (Beaudry and Lemieux 1999). We hope therefore, that over-time comparisons of cross-sectional differences for women are not too polluted by changes in selection effects over time.

We run regressions for each year that map out the age-earnings profile for each group. We then compare the level of the age-earnings profile at a particular age (50 in our case) across groups (holding other variables constant). We do not attempt to determine whether these disparities emerge from: a) differing income growth rates over the life-cycle for immigrants vs natives; b) differing year effects for immigrants vs natives; or c) differing entry-year effects across immigrants. That is, we do not attempt to resolve the age-period-cohort (APC) problem identified by Ryder (1965).

The APC problem can be resolved with repeated cross-sectional data such as ours by imposing additional identifying restrictions, such as assuming that any of the 3 differences noted in the paragraph above are zero, and then pooling the cross-sections. Alternatively, it may be resolved by using entropic methods (see Browning, Crawford and Knoef 2015). However, in these cases, the additional identifying restrictions are not testable. Rather than trying to solve the APC problem by imposing untestable assumptions on these various time-varying effects, we estimate our disparities separately in each year. We consequently interpret our results as giving income disparity across age-at-arrival cohorts that may derive from any or all of the 3 sources noted in the paragraph above. Formally, for each year, we estimate a linear regression model of the following form:

$$\ln(Y_i) = \alpha + C_i' \Delta_0 + v_i C_i' \Delta_0^v + v_i \gamma + (a_i - 50) [\delta_1 + v_i d_1^v + C_i' \Delta_1 + v_i C_i' \Delta_1^v] + (a_i - 50)^2 [\delta_2 + v_i \delta_2^v + C_i' \Delta_2 + v_i C_i' \Delta_2^v] + X_i \beta + \varepsilon_i$$

Here, C_i is the vector of 6 age-at-arrival cohort dummies, v_i is a visible minority dummy, a_i is the age of the person and X_i is a vector of control variables. The full list of control variables we use includes personal characteristics: marital status (4 categories), and official language knowledge (4 categories⁴), human capital characteristics: age interacted with age at immigration, and education (12 categories), as well as controls for Census Metropolitan Area of residence (12 cities). Occupation variables are explicitly not part of our control variables. This is because if occupations are rationed, then including occupation related variables would hide earnings differences that are a product of immigrants not getting the same types of jobs as Canadian-born workers.⁵

We note that because the age-at-arrival cohort dummies sum to 1 for all immigrants, we do not include an immigrant dummy and do not exclude a category of this vector of dummies. In the square brackets, we include the 3-way interaction of age less 50, visible minority status and age-at-arrival cohort and the 3-way interaction of the square of age less 50, visible minority status and age-at-arrival cohort.

We note that when the age of a person is 50, the terms in square brackets get multiplied by zero. Thus, the coefficients on our age-at-migration dummies C_i may be interpreted as giving the difference in log-earnings between a 50-year-old white member of our age-at-arrival cohort and a Canadian-born white person with otherwise identical characteristics. Further, the sum of Δ_0 , Δ_0^v and γ give the difference in log-earnings between a 50-year-old visible minority member of our age-at-arrival cohort and a Canadian-born white person with otherwise identical characteristics. We report these two numbers in our Tables.

We include immigrants who arrived at or after the age of 30 in our regressions. This category is extremely heterogeneous, as it includes, e.g., both people who arrived as elderly people under family reunification programs and people who arrived as adult workers. Generally speaking, we do not much discuss the results for this group because we think they are too heterogeneous. We ran the regressions excluding this group (and the relevant dummy variable), and did not find any important differences in our overall conclusions. In a similar vein, we also ran regressions

⁴ These categories are, English only, French only, English and French and neither English nor French.

⁵ We do not include any controls for immigration intake category because this information is not collected by the census.

excluding the Canadian-born (and leaving out one category of our age-at-migration dummies), and did not find any difference in our qualitative findings.

Results

Table 1 shows population weighted frequencies for our groups of interest by sex. In our regressions, the actual number of observations is approximately one-fifth of these counts, so even the smallest groups have at least 2000 observations.⁶ As can be seen from Table 1, the numbers of visible minority child immigrants have risen dramatically over the 1991-2006 period.

Table 2 shows selected coefficients from 8 regressions (4 census periods by two sexes) in which the dependent variable is the log of earnings and the independent variables are personal characteristics (age, education, official language knowledge, marital status, Census Metropolitan Area, household size, and visible minority status) as well as age-at-immigration cohorts. Although we present estimated coefficients for immigrants arriving at age 30 plus in the tables, we do not discuss these estimates.

Table 2 is divided into 8 panels (each of which provides selected coefficients from one regression: four time periods by two genders). The upper left hand panel provides coefficients for females in 1990. Looking down the column we first present log earnings gaps for white immigrants for each of our age at immigration cohorts, followed by the estimated earnings gaps for Canadian visible minorities (in *italics*), followed by visible minority immigrants in each age at immigration cohort. For each regression we report the coefficient, the standard error and whether there is a statistically significant difference (at the 0.05 level) between the group of interest and the equivalent Canadian-born group (as identified by a “†”). For white groups, this test is identical to the p value because the comparison group is Canadian-born whites. For visible minorities, however, the “†” indicates whether the coefficient is statistically significantly different from the estimated coefficient for Canadian-born visible minorities (shown in *italics*). Thus for example, the “†” in the second-last line of results for visible minority men indicates that in 1990 there is a statistically significant difference in earnings between visible minority immigrant men who immigrated at age 25-29 and visible minority men born in Canada.

⁶ As per Statistics Canada confidentiality rules, all counts in Table 1 are population weighted and rounded to 0 or 5.

The coefficients may be interpreted as log earnings differentials at age 50 (because age is normalized to zero at 50). In these regressions, the age-earnings profile may differ across immigrant and Canadian-born, across visible minority and white, and across age-at-arrival groups. The comparison group for the estimated coefficients is always Canadian-born white men or women. These results are comparable to those reported in Pendakur and Pendakur's (2002, 2007, 2011) work on Canadian-born ethnic minority earnings attainment. However, the levels of disparity are different in the current work, because we evaluate at age 50, but Pendakur and Pendakur average disparity at all ages.

One could use our estimated parameters to evaluate the level of disparity at a different age, e.g., 30 years old, by using the estimated interactions between age and its square and our age-at-arrival cohorts. For two reasons, we do not do so in this paper. First, we are mainly interested in long term outcomes, and 50 years old is at least three decades after migration for all of our young age-at-migration cohorts. Second, for the younger age-at-migration cohorts, these interactions are largely statistically insignificant, meaning that the disparity is roughly the same if evaluated at other ages. In particular, the interaction terms between age-at-arrival and age and its square are small in magnitude for all but our two oldest age-at-arrival cohorts, and are jointly statistically insignificant for our youngest 2 age-at-arrival cohorts. This means that for immigrants arriving before the age of 13 (our youngest 2 cohorts), the disparity at age 50 is statistically indistinguishable from that at other ages, and for those arriving between the ages of 13 and 24 (not in our oldest 2 cohorts), the disparity at age 50 is close to the disparity at other ages.

Looking first at Canadian-born visible minority (in italics), we see a slight earnings premium for visible minority women at the beginning of period, and none at the end of the period. For men, we see earnings parity at the beginning of the period and an earnings gap at the end of the period. For both men and women, the decline in relative earnings is about 6 percentage points. This decline is consistent with that observed Pendakur and Pendakur (2011).

Looking next at the results for immigrant women we see that female white immigrants arriving before they were 30 years old face low or no earnings differentials (7% or less), through the entire period. However we note that there has been a decline in outcomes over time with differentials being statistically indistinguishable from zero in 1990, but significant differences for the eldest cohorts in 2005.

Turning to female visible minority immigrants, we see disparities are larger than is the case for white women. For example, in 2005 visible minority women in the 25-29 age-at-arrival cohort, face an earnings gap of 13% compared to Canadian-born white women. This result is quite stark given that Canadian-born visible minority women do not have lower earnings than Canadian-born white women. Over time, as was seen for white immigrant women, earnings gaps increase. In 1990 and 1995, with the exception of the youngest age-at-arrival cohort, earnings are similar across the age-at-arrival groups.⁷ The situation in 2000 seems slightly different. With the exception of the youngest age-at-arrival cohort, we see a decrease in earnings attainment across the cohorts. This decrease is relatively large: visible minority women arriving between the ages of 8 and 12 face no earnings disparity, but those arriving as young adults aged 18 to 24 face a 5 per cent gap, and those in the next cohort face a 9 per cent gap. This decline across the age-at-arrival cohorts solidifies by 2005. In that year, the profile is uniformly declining over age, with no gap faced by visible minority women arriving before the age of 18, and gaps of 7 and 13 per cent, respectively, for women arriving between the ages of 18 and 24 and the ages of 25 and 29.

In summary, for both white and visible minority immigrant women arriving before age 30, disparity is larger for older age at arrival cohorts, but the magnitude of this disparity is only large for visible minority women who arrive as adults (age 18+). Further these disparities are relatively recent having emerged only since 2000.

Turning to white male immigrants, we see very little variation in earnings across age-at-arrival groups. Results for white immigrant men suggest that those who arrive prior to age 30 face small earnings gaps (of 5% or less) as compared to white men born in Canada. We also observe,

⁷ The youngest age-at-arrival group shows an estimated earnings gap of -.25%, but we note that the standard error of this estimate is very large (0.10).

particularly in 2005, that earnings disparities rise as age at migration increases, however, the magnitudes are small.

Moving to the results for visible minority men, four features are apparent. First, no coefficients are positive. This contrasts with results for women, where many coefficients are positive, indicating that some child immigrant women outperform Canadian-born women. For visible minority men on the other hand, there is no age at arrival cohort in any year that outperforms Canadian-born visible minority men (or Canadian-born white men). Second, the gaps are in general much larger for visible minority immigrant men as compared to immigrant women (white or visible minority), and larger than those observed for white immigrant men. Third, overall we see an increase in disparity for most groups across the 4 census periods. This is similar to what we observe in the earnings gap faced by Canadian-born visible minorities in comparison to Canadian-born whites over this period, which increases from 2% to 9%.

Fourth, generally speaking, earnings gaps are larger for older age at arrival cohorts, especially in the later periods. In 1990 the youngest age at arrival cohort faced no earnings disparity but the next four age at arrival cohorts faced earnings gaps of about 20%. In 2005 the gaps had increased but the pattern across cohorts remained the same. The earnings gap faced by visible minority immigrant men in the youngest age at arrival cohort in comparison to Canadian born white men is 19%, but it is 28% and 36% respectively for those entering at age 18-24 and 25-29.

To sum up, those immigrants to Canada in the youngest age at arrival cohorts face less earnings disparity than those who arrive older. For women, we see a breakpoint at age 18 – with very large disparities above and little or no disparity below. The pattern is similar for white men. For visible minority men, all age at arrival groups face big disparities in comparison to Canadian-born visible minorities. Further, the relative performance of those in older age at arrival cohorts appears to have deteriorated over time.

Heterogeneity Within the Visible Minority Category

Table 3 shows results similar to those in Table 2 but with two differences. First, we break out the three largest origin groups from the visible minority aggregate -- Black/Caribbean/African,

South Asian and Chinese.⁸ This allows us to explore the degree to which there is heterogeneity within the visible minority category. Second, we show results only for 2005.

Looking first at women, we can immediately see that the visible minority category hides some important heterogeneity. For example results from Table 2 suggest that visible minority women born in Canada do not face an earnings gap. Results from Table 3, however show that Canadian-born Black women face an earnings gap of 15% while Chinese enjoy earning premia of 7%. The picture for immigrant Black women is uneven. The youngest cohorts do not face earnings disparity in comparison to white women born in Canada. Those arriving at age 25-29 face a large earnings gap similar to that faced by Canadian-born black women.

Broadly speaking, the youngest three age-at-arrival groups earn the same or more as compared to their Canadian-born counterparts (see Table 3). Canadian-born South Asian women do not face an earnings gap relative to white women, nor do any of the youngest 3 age-at-arrival cohorts. However, those who arrived older than 17 years of age face statistically significant earnings gaps of 12 per cent or more. Canadian-born Chinese women and Chinese immigrants in the 3 youngest age-at-arrival cohorts all earn large earnings premia (ranging from 7 to 12 per cent), but the older age-at-arrival cohorts do not enjoy earnings premia.

Turning to men, as we saw with the coarse visible minority category, the measured earnings gaps are larger and more negative than we saw for women. In Table 2, we saw an earnings gap for Canadian-born visible minority men of 9 per cent. When we disaggregate, we see considerable heterogeneity. Canadian-born Black men face earnings gaps of about 24 per cent, and South-Asian men face earnings gaps of about 12 per cent. However Canadian-born Chinese men do not face statistically significant earnings gaps.

Looking now at visible minority immigrant men, we see that South Asian and Chinese men earnings decline sharply as age-at-immigration increases. For example, South Asian immigrants in the youngest 2 age-at-arrival cohorts do not face earnings disparity in comparison with

⁸ Regressions also include a role up for the remaining visible minority groups, however because interpretation is difficult (it is not a single group) we do not include these coefficients in the table.

Canadian-born white men, but the next 3 age-at-arrival cohorts face earnings gaps of 17, 28 and 39 per cent, respectively.

In contrast, for Black immigrant men, we see large and statistically significant earnings gaps for all age-at-arrival cohorts. For the youngest three age-at-arrival cohorts, the disparity is statistically indistinguishable from that faced by Canadian-born Black men (24%). But, for Black immigrant men arriving at ages 18-24 and 24-29, we see even larger earnings gaps of 34 and 38 per cent, respectively.

Discussion

The bottom line here is that age-at-migration matters greatly to the earnings performance of immigrants to Canada, but only to visible minority male immigrants. It plays a much smaller, or even negligible, role for white immigrants (male and female) and visible minority female immigrants. These findings add nuance to Schaafsma and Sweetman (2001) who argue that age-at-migration matters, but do not emphasize how it matters differently for white versus visible minority workers. We are able to investigate this margin because we use the confidential main base files of the Censuses, which are 7 times larger than the public-use samples, and because there are many more visible minorities in the labour force in the 2000s than there were in the 1980s.

There are a number of mechanisms that might result in these types of disparities. The most obvious relates to human capital differences correlated with age at migration and visible minority status. For example, if visible minorities arriving as adults have lower quality education than Canadian-born visible minorities, or if that education is not recognized, it could result in big gaps for older age at arrival groups. However, this would not explain the large gaps faced by visible males who arrive as children. Another possibility relates to accent penalties. Those who arrive younger than 13 are less likely to speak with an accent (see Johnson and Newport 1989), and if accent is correlated with barriers in the labour market, then we would expect to see a breakpoint around age 13. We do not observe this. The true explanation for the age at arrival disparities reported in this paper must account for both the differences between men and women and the

differences between white and visible minority immigrants. Neither accent nor human capital provide full explanations.

Skuterud (2010) shows that visible minority immigrant men arriving before age 12 have lower earnings than Canadian-born men in the same ethnic groups. We extend this finding to consider women (where we see much less variation) and to consider 6 age-at-entry groups rather than just the group defined by those aged less than 12. Additionally, because we estimate models on workers aged 25 to 64 rather than aged 20 to 64, our estimates are less polluted by school attenders. Neither we nor Skuterud exclude school attenders, but they are a large part of the 20 to 24 year old population, especially for Canadian-born and child immigrant visible minorities. This difference in estimation sample explains why Skuterud finds a difference in earnings for Chinese child immigrants but we do not (detailed estimation results for this are available on request from the authors).

Since the heterogeneity in outcomes between immigrants who arrived at different ages is so large, our findings suggest that studies of immigrant integration should avoid pooling child immigrants with teenage and adult immigrants. Such pooling will tend to underestimate the disparity in economic outcomes faced by adult immigrants. Thus, investigations of immigrant disparity should either exclude child immigrants, or condition on the age-at-migration in a way that allows for different effects between men and women and between whites and visible minorities.

Some authors point to language ability and accent penalties as a driver of lower earnings (see Bleakly and Chin 2004, Davila et al 1993). These researchers point to differential earnings based on facility with the host language and lack of an accent (which is correlated with age at immigration). It would be interesting and useful to illuminate the role of language ability and accent in the determination of earnings for child immigrants, but Census data cannot underlie this effort because they do not have information on language ability or accent (though they do have gross information on language knowledge). Unfortunately, non-Census survey data sources are likely to have too few visible minority child immigrants to effectively pursue this line of enquiry.

From an immigration policy standpoint, the long-term outcomes for visible minority immigrant families with young children are much better than those for immigrant families with adult children. Two important policy prescriptions are thus evident. First, processing lags for family applicants should be minimized. Processing lags for India, for example, have been longer than 6 years recently, which would completely eliminate the advantage of early schooling in Canada for the children of aspiring Indian immigrants. Second, integration assistance, which is already provided to primary applicants and immigrant spouses, should be extended to the older child immigrants arriving with immigrant families.

References

- Åslund, O., A. Bohlmark and O. Nordström Skans.
2012. "Childhood and Family Experiences and the Social Integration of Young Migrants"
Norface Discussion Paper Series. Norface Research Programme on Migration, Department
of Economics, University College London.
- Aslund O. Bohlmark A. and O. Nordstrom-Skans.
2009. "Age at Migration and Social Integration". IZA Institute for the Study of Labour.
Discussion Paper Series. June 2009.
- Aydemir, A., W.H. Chen and M. Corak.
2009. "Intergenerational Earnings Mobility Among the Children of Canadian Immigrants."
Review of Economics and Statistics. 91(2): 377-397.
- Beaudry Paul and Thomas Lemieux.
1999. "The Evolution of the Female Labour Force Participation Rate in Canada", *Canadian
Business Economics*, Summer 1999: 57-70.
- Beck. A. et al.
2012. "Age at Immigration and the Adult Attainments of Child Migrants to the United States."
SAGE Publications.643 (1): 134-159.
- Bleakley, H. and Chin A.
2004. "Language Skills and Earnings: Evidence from Childhood Immigrants". *The Review of
Economics and Statistics*. 86(2): 481-496.
- Bonikowska, A. and Hou.
2010. "Reversal of Fortunes or Continued Success? Differences in Education and Earnings of
Childhood Immigrants." *International Migration Review*. 44(2): 320–353.

Boyd, M.

2002. "Educational Attainments of Immigrant Offspring: Success or Segmented Assimilation?," *International Migration Review*. 36(4): 1037-1060.

Boyd, M.

2005. "Diverse Fortunes in Different Countries?: Earnings of White and Black Immigrant Generations in Canada and the United States". Paper presented at the 2005 Annual meeting of the Population Association of America.

Boyd, M. and S. Parker.

2008. "Who lives at home? Variations in Socioeconomic Outcomes of Second Generation Young Adults." *Canadian Diversity*. 62(2): 42-46.

Bratsberg, B. and J. Ragan.

2002. "The Impact of Host-Country Schooling on Earnings: A Study of Male Immigrants in the United States," *The Journal of Human Resources*. 37(1): 63-105

Browning, M., I. Crawford and Marike Knoef.

2015. "An Entropy-Based Approach to the APC Problem, with Applications to Female Mortality and Labour-Force Participation", unpublished working paper, University of Oxford Department of Economics.

Canada.

2015. *Consolidation: Employment Equity Act 1995*. Ottawa: Canada.

Carlson, H. and M. McHenry.

2006. "Effect of accent and dialect on employability," *Journal of Employment Counselling*. 43(2): 70-83.

Christophides L and R. Swidinsky.

1994. "Wage determination by gender and visible minority status: Evidence from the 1989 LMAS," *Canadian Public Policy*. 20(1): 34-51.

Corak, M.

2012. "Age at immigration and the education outcomes of children.", in Ann S. Masten, Karmela Liebkind, Donald J. Hernandez (eds) *Realizing the Potential of Immigrant Youth*. Cambridge UK: Cambridge University Press.

Davila, A., K. Bohara and R. Saenz.

1993. Accent penalties and the earnings of Mexican Americans. *Social Science Quarterly*. 74(4): 902-916

Delahousse, I.

2009. "The Effect of Age at Immigration on Employment Income." Major Research Paper presented to the Department of Economics, University of Ottawa.
- Lee, S. and B. Edmonston.
2011. "Age-at-Arrival's Effects on Asian Immigrants' Socioeconomic Outcomes in Canada and the U.S.". *International Migration Review*. 45(3): 527-561.
- Frenette, M. and R. Morissette.
2005. "Will They Ever Converge? Earnings of Immigrant and Canadian-born Workers over the Last Two Decades." *International Migration Review*. 39(1): 228-257.
- Galarneau, D. and R. Morissette.
2004. 'Immigrants: Settling for less?' *Perspectives on Labour and Income* 5(6): 5-16.
- Gonzales, A.
2003. "The education and wages of immigrant children: the impact of age at arrival". *Economics of Education Review*. 22(2): 203–212
- Howland, J and C. Sakellariou.
1993. 'Wage Discrimination, Occupational Segregation and Visible Minorities in Canada.' *Applied Economics*. 25(11): 1413-1422.
- Hum, D. and W. Simpson.
1999. 'Wage Opportunities for Visible Minorities in Canada.' The Income and Labour Dynamics Working Paper Series. Ottawa: Statistics Canada.
- Hum D. and W. Simpson.
2004. "Economic Integration of Immigrants to Canada: A Short Survey." *Canadian Journal of Urban Research*. 13(1): Pages 46-62
- Johnson, J. and E. Newport
1989. "Critical period effects in second language learning: The influence of maturational state on the acquisition of English as a second language," *Cognitive Psychology* 21(1): 60–99.
- Kim, A. and M. Boyd.
2009. "Housing Tenure and Condos: Ownership by Immigrant Generations and the Timing of Arrival," *Canadian Journal of Urban Research*. 18(1): 47-73.
- Li, Peter S.
2003. "Initial Earnings and Catch-Up Capacity of Immigrants." *Canadian Public Policy*. 29(3): 319-337
- McDonald, T. and C. Worswick.

2010. "Visible Minority Status, Immigrant Status, Gender, and Earnings in Canada: A Cohort Analysis," in T. McDonald, E. Ruddick, A. Sweetman and C. Worswick, eds. *Canadian Immigration: Economic Evidence for a Dynamic Policy Environment*. Montreal: McGill-Queen's University Press.
- Munro, M.
2003. A Primer on Accent Discrimination in the Canadian Context. *TESL Canada Journal*. 20(2): 38-51
- Myer, D. X. Gao and A. Emeka.
2009. "The Gradient of Immigrant Age-at-Arrival Effects on Socioeconomic Outcomes in the U.S. *International Migration Review*, 43(1): 205-229.
- Ours, J. and J. Veenman.
2006. "Age at immigration and educational attainment of young immigrants," *Economics Letters* 90(3): 310–316
- Pendakur, Krishna and Ravi Pendakur.
1998. "The colour of money: wage differentials across ethnic groups," *Canadian Journal of Economics*. 31(3) 518-548.
- Pendakur, Krishna and Ravi Pendakur.
2002. "[Colour My World: Has the Minority-Majority Earnings Gaps Changed Over Time?](#)" *Canadian Public Policy*. 28(4):489-512.
- Pendakur, Krishna and Ravi Pendakur.
2007. "[Minority Earnings Disparity Across the Distribution](#)", *Canadian Public Policy*, 33(1): 41-62.
- Pendakur, Krishna and Ravi Pendakur.
2011. "[Colour by Numbers: Minority Earnings](#)", *Journal of International Migration and Integration*, August 2011, Volume 12, Issue 3, pp 305-329.
- Pendakur K. & R. Pendakur.
2015. "Colour of Money Redux: Immigrant and Ethnic Group Earnings Differential in Canada from 1991 to 2006." In C. Teixeira and W. Li. (editors). *The Housing and Economic Experiences of Immigrants in U.S. and Canadian Cities*, Toronto: University of Toronto Press.
- Rumbaut, R.
2004. "Ages, Life Stages, and Generational Cohorts: Decomposing the Immigrant First and Second Generations in the United States". *International Migration Review*. 38(3): 1160-1205.

Ryder, Norman B.

1965. "The Cohort as a Concept in the Study of Social Change". *American Sociological Review* 30: 843—861.

Schaafsma A. and J. Sweetman.

2001. "Immigrant Earnings: Age at immigration matters." *Canadian Journal of Economics*. 34(4): 1066-1099

Skuterud, M.

2010. "The visible minority earnings gap across generations of Canadians." *Canadian Journal of Economics*. 43(3): 860–881

Statistics Canada.

2013. *Immigration and Ethnocultural Diversity in Canada*. Ottawa: Statistics Canada.

Table 1

Weighted Frequency counts for selected Canadian-born and immigrant workers by age-at immigration, visible minority status and sex 1991.

	1991		1996		2001		2006	
	White	Visible minority	White	Visible minority	White	Visible minority	White	Visible minority
Females								
Born in Canada	3,655,130	43,725	3,748,200	45,840	4,099,530	73,780	4,315,275	114,380
immigrated child (0-7)	105,870	11,395	111,680	20,630	115,495	30,410	119,165	40,365
at age								
pre-teen (8-12)	55,995	16,200	57,575	21,320	59,625	29,300	54,780	41,550
teen (13-17)	52,820	26,260	51,600	31,905	50,580	47,251	44,215	62,410
youth (18-24)	160,065	106,485	139,635	124,750	122,435	160,015	105,595	183,450
young adult (25-29)	87,445	79,215	76,390	96,465	77,835	123,865	75,475	152,995
Adult (30+)	90,440	107,435	85,525	138,855	100,130	197,905	113,265	263,830
Males								
Born in Canada	4,114,965	46,715	4,052,935	48,400	4,295,005	75,110	4,361,615	114,035
immigrated child (0-7)	113,550	12,160	118,715	23,440	120,135	33,080	121,530	42,835
at age								
pre-teen (8-12)	63,285	17,195	64,230	22,705	64,290	29,015	58,820	41,270
teen (13-17)	60,135	28,895	57,290	34,235	55,505	48,215	44,655	62,195
youth (18-24)	174,454	99,065	138,815	115,270	115,015	135,840	93,085	143,655
young adult (25-29)	117,775	85,830	93,725	103,825	87,925	126,080	76,250	142,770
Adult (30+)	124,900	127,420	111,095	158,320	120,510	226,785	127,655	293,010

Selection: Permanent residents age 25-64 whose primary source or income is from wages and salaries, excluding people reporting Aboriginal origins, immigrants arriving in census year or previous year, people reporting non-zero schooling and people reporting earnings from wages and salaries less than 100 dollars

Table 2: Selected coefficients from regressions assessing the impact of age at immigration on earnings, compared to Canadian-born white men and women, Canada, 1990 - 2005

sex	group	age at imm	1990			1995			2000			2005			
			coef	s.e.	sig.	coef	s.e.	sig.	coef	s.e.	sig.	coef	s.e.	sig.	
females	observations		912,560			951,455			1,024,605			1,116,350			
	r2		0.13			0.13			0.13			0.15			
	White	1-7	0.057	0.014	* †	0.034	0.013	* †	0.045	0.009	* †	0.045	0.008	* †	
		8-12	0.036	0.016	* †	-0.012	0.014		0.052	0.012	* †	0.018	0.012		
		13-17	0.015	0.013		-0.024	0.013		-0.016	0.013	†	-0.003	0.014		
		18-24	-0.004	0.007		-0.042	0.008	* †	-0.028	0.009	* †	-0.026	0.010	* †	
		25-29	-0.013	0.010		-0.059	0.011	* †	-0.052	0.012	* †	-0.074	0.013	* †	
		30+	-0.124	0.011	* †	-0.265	0.012	* †	-0.291	0.012	* †	-0.340	0.010	* †	
	Visible	<i>Canadian-born</i>	<i>0.057</i>	<i>0.018</i>	*	<i>0.023</i>	<i>0.021</i>		<i>0.025</i>	<i>0.017</i>		<i>-0.002</i>	<i>0.014</i>		
	Minority	1-7	0.039	0.076		-0.253	0.100	* †	-0.053	0.070		0.047	0.038		
		8-12	0.091	0.109		-0.001	0.070		0.059	0.045		-0.011	0.026		
		13-17	0.016	0.050		-0.019	0.038		-0.031	0.027		0.009	0.017		
		18-24	0.061	0.017	*	0.026	0.012	*	-0.045	0.009	* †	-0.066	0.008	* †	
		25-29	0.056	0.014	*	-0.038	0.011	* †	-0.095	0.010	* †	-0.126	0.009	* †	
		30+	-0.170	0.010	* †	-0.337	0.010	* †	-0.392	0.008	* †	-0.458	0.007	* †	
	males	observations		1,034,925			1,035,275			1,075,555			1,125,825		
		r2		0.17			0.16			0.15			0.16		
White		1-7	0.029	0.012	* †	0.020	0.011		0.032	0.008	* †	0.014	0.008		
		8-12	0.061	0.012	* †	0.020	0.010	* †	0.018	0.011		0.023	0.011	* †	
		13-17	-0.014	0.010		-0.032	0.011	* †	-0.019	0.012		-0.005	0.013		
		18-24	-0.020	0.006	* †	-0.032	0.007	* †	-0.016	0.008	* †	-0.034	0.010	* †	
		25-29	-0.016	0.007	* †	-0.038	0.009	* †	-0.016	0.010		-0.046	0.012	* †	
		30+	-0.124	0.008	* †	-0.240	0.010	* †	-0.263	0.009	* †	-0.291	0.009	* †	
Visible		<i>Canadian-born</i>	<i>-0.017</i>	<i>0.016</i>		<i>-0.050</i>	<i>0.018</i>	*	<i>-0.061</i>	<i>0.017</i>	*	<i>-0.086</i>	<i>0.014</i>	*	
Minority		1-7	0.000	0.079		-0.214	0.067	* †	-0.139	0.043	*	-0.189	0.032	* †	
		8-12	-0.205	0.062	* †	-0.161	0.044	* †	-0.194	0.035	* †	-0.161	0.032	* †	
		13-17	-0.200	0.027	* †	-0.266	0.029	* †	-0.218	0.025	* †	-0.204	0.019	* †	
		18-24	-0.166	0.013	* †	-0.225	0.013	* †	-0.226	0.009	* †	-0.279	0.008	* †	
		25-29	-0.179	0.011	* †	-0.277	0.010	* †	-0.329	0.009	* †	-0.360	0.009	* †	
		30+	-0.488	0.008	* †	-0.668	0.009	* †	-0.670	0.008	* †	-0.696	0.006	* †	

† For white immigrants, coefficient is significantly different from 0 at 0.05; for visible minority immigrants, coefficient is significantly different from Canadian-born visible minority at 0.05

* significantly different from Canadian-born whites at 0.05 or better

Note: These regressions also control for age and its square (plus interactions with visible minority status), schooling, marital status, official language knowledge, and census metropolitan area.

Table 3: Selected coefficients from regressions assessing the impact of age at immigration for specific groups by sex, 2005

Group	age at imm	female			males		
		coef	s.e.	sig.	coef	s.e.	sig.
Observations		1,116,350			1,125,825		
R2		0.15			0.16		
White	1-7	0.045	0.008	* †	0.014	0.008	
	8-12	0.017	0.012		0.023	0.011	* †
	13-17	-0.004	0.014		-0.005	0.013	
	18-24	-0.027	0.010	* †	-0.034	0.010	* †
	25-29	-0.075	0.013	* †	-0.047	0.012	* †
	30+	-0.341	0.010	* †	-0.292	0.009	* †
Black	Canadian-born	-0.151	0.028	*	-0.239	0.027	*
	1-7	-0.005	0.073		-0.372	0.079	*
	8-12	-0.094	0.059		-0.246	0.058	*
	13-17	-0.022	0.033	†	-0.275	0.047	*
	18-24	-0.049	0.018	* †	-0.339	0.022	* †
	25-29	-0.126	0.023	*	-0.381	0.024	* †
S Asian	30+	-0.307	0.019	* †	-0.620	0.018	* †
	Canadian-born	0.024	0.062		-0.120	0.048	*
	1-7	-0.003	0.090		-0.097	0.077	
	8-12	0.043	0.052		-0.049	0.075	
	13-17	0.009	0.034		-0.167	0.037	*
	18-24	-0.121	0.015	* †	-0.282	0.016	* †
Chinese	25-29	-0.147	0.020	* †	-0.395	0.017	* †
	30+	-0.544	0.015	* †	-0.743	0.012	* †
	Canadian-born	0.069	0.025	*	-0.049	0.026	
	1-7	0.120	0.062		-0.087	0.048	
	8-12	0.080	0.037	*	-0.147	0.052	*
	13-17	0.078	0.034	*	-0.140	0.028	* †
	18-24	0.004	0.016	†	-0.253	0.017	* †
	25-29	0.005	0.017	†	-0.277	0.018	* †
	30+	-0.471	0.013	* †	-0.704	0.012	* †

† For white immigrants, coefficient is significantly different from 0 at 0.05; for other immigrants, coefficient is significantly different from Canadian-born Black / South Asian / Chinese at 0.05

* significantly different from Canadian-born whites at 0.05 or better

Note: These regressions also control for age and its square (plus interactions with visible minority status), schooling, marital status, official language knowledge, and census metropolitan area. The number of observations includes members of ethnic groups not included in the table.

Selection: Permanent residents age 25-64 whose primary source of income is from wages and salaries, excluding people reporting Aboriginal origins, immigrants arriving in census year or previous year, people reporting non-zero schooling and people reporting earnings from wages and salaries less