Immigrant Retirement Prospects: From Bad to Worse?

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Abstract

We compare the retirement prospects of immigrant men with their native-born Canadian counterparts. Using data from the Survey of Labour and Income Dynamics (SLID), we show a substantial gap that is concentrated in the private portion of pension income and contributions. Furthermore, this gap is larger for more recently arrived immigrant cohorts. We link these findings to the now substantial evidence on earnings differences from Census microdata. We present new estimates of the lifetime earnings trajectories of immigrant cohorts and compare them to trajectories for both random and matched samples of the native born. We calculate the implications of these estimates for the pension gap and reconcile the results with the evidence from SLID. Our results suggest that a continuing failure to integrate immigrants into the workforce will incur long run costs for Canada's retirement programs.

Key words: immigrant, retirement, pensions, integration, earnings

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1. Introduction

An aging population and low fertility rates are acknowledged features of Canada's demographic landscape.[1] While immigration will expand the labour force, demographic projections demonstrate that this cannot entirely offset the effects of low fertility and an aging population, since the level of immigration required to do so is simply not feasible (Denton and Spencer, 2005). To a lesser extent, Canadian productivity growth and, concomitantly, our capacity to fund social benefits for all Canadians also depend on our labour force and immigration. Canada's retirement programs, public and private, may come under strain in an aging society. In the public sector, Canada's aging population and continued reliance on pay as you go financing of public pensions will strain the ability to maintain benefit levels with stable premiums and flexible retirement timing. In the private sector, increasing reliance on immigration for population growth also has implications if immigrants do not quickly integrate into the labour market. For example, Picot et al (2007) suggest that the new face of poverty in Canada is increasingly "immigrant", and recent work on labour market assimilation of immigrants confirm the deteriorating earnings prospects and lack of training opportunities for immigrants vis à vis earlier generations (see, for example, Hum and Simpson 2003, 2004). If immigrants are unable to achieve success in labour markets, this bodes ill for their retirement prospects.

These trends have implications for both individual retirement plans as well as public policies, especially for immigrants. A lower lifetime earnings for immigrants may lead to permanent hardship in retirement, although the extent of this problem has not been studied to date. In this paper we compare the retirement prospects of immigrant men with their native-

[1] See, for example, HRSDC (2007) "Older Workers: Challenges and Policy Issues", Background paper for the Expert Panel on Older Workers. Accessed on the web on 12/16/08 at: http://www.hrsdc.gc.ca/en/publications_resources/lmp/eow/2008/page01.shtml

born Canadian counterparts using both longitudinal income data from the Survey of Labour and Income Dynamics (SLID) and cross-sectional data from the Public Use Master Files of the Census. In section 2 we compare differences between immigrant men and native-born men in pension income drawn by those who are retired, and pension contributions paid by workers. We show that there is a substantial gap in retirement income and pension contributions that has two distinct features: it is concentrated in the private portion of pension income and contributions, and it is larger among more recent immigrant cohorts. These two features are consistent with the mounting evidence of declining earnings opportunities for more recently arrived immigrants. Since SLID is limited in sample size and scope, we link our evidence on pension income and contributions to earnings, and to the now substantial evidence from cross-sectional Census data in section 3. We present new estimates of the lifetime earnings trajectories of immigrants and native-born Canadians, compare them to the literature, and reexamine the pension gap in section 4. In section 5, we summarize our evidence and consider its implications for policy.

2. Evidence on the Pension Gap from SLID

We first examine the direct evidence on the pension gap with data from the Survey of Labour and Income Dynamics (SLID) 2002 Public File. SLID is designed as an overlapping 6-year panel to capture labour market activity and financial and income information for two panels of individual respondents in each survey period. In particular, SLID provides what amounts to tax record information for Registered Pension Plan (RPP) contributions as well as private pension income for respondents identified by immigration status, age and sex. Consequently, SLID is a valuable data source to address the pension gap question directly. We restrict our analysis to males, which allows us to compare our results to the Census evidence on earnings differences in section 4. One limitation of SLID is its small sample

size, particularly when focusing on specific groups, such as male immigrants over 55 who are retired.

We consider two questions about the "pension gap", which we define as the gap in actual or prospective pension incomes. First, we ask whether there is a difference in pension incomes, by age, between immigrant and native-born men **who have already retired**? We restrict our retirement group to those over the age of 55 who have declared their status as "retired."[2] Second, we examine the prospective pension gap and ask whether there is a difference in pension contributions for immigrant and native-born men **who are not yet retired and working**. We restrict our non-retirement group to those under the age of 55 who have declared their status as "working."

We begin with a visual overview of the evidence on the pension gap, based on nonparametric estimates of pension income and pension contributions by age for immigrants and the native born.[3] We start with the actual pension gap for men over 55 who are retired. Figure 1 shows the pattern of private pension plan income by age for immigrant and native born men, including all annuities and RRSP and RRIF withdrawals. Retired immigrants clearly declare less private pension income than retired native born at all ages, evidence of a substantial absolute gap in private pension incomes between the two groups. The gap is not uniform by age but appears to widen with age; in particular, there is a bigger gap at age 70 than at age 60 in the sample.

Of course, private pension income is supplemented by public pension income, including Canada Pension Plan or Quebec Pension Plan, Old Age Security and Guaranteed Income Supplement benefits. Figure 2 shows the pattern of public pension benefits by age

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[2] The SLID records major active group as retired, working, going to school or other.

[3] The nonparametric estimates are derived from locally weighted regressions that use the tricube weighting function in STATA8.0 LOWESS. Essentially, this just smooths the mean estimated pension income or contribution levels for immigrants and native born by age to permit us to see the trends. Those who responded, "don't know" to the question on immigrant status are deleted from our analysis.

for immigrant and native born men. As we would expect, there is little or no overall gap in public pension benefits between immigrants and the native born. There is, in fact, a slight advantage in public pension benefits for immigrant men up to the age of 63 that is offset by a slight public benefits disadvantage at older ages. The design of public pensions benefits, including the cap on CPP/QPP benefits and the income-tested design of GIS benefits, acts to equalize public pension benefits across groups whose private pension incomes, which are primarily derived from lifetime earnings, may differ widely.

Table 1 provides estimates on the actual pension gap, derived from the nonparametric estimates of pension income represented in Figures 1 and 2. The gap is estimated for all men 55-80 in SLID and for three specific ages: age 60, when early withdrawal of CPP is permitted; age 65, which is the traditional benchmark age when pensioners can access OAS/GIS; and age 69, when withdrawal of pension monies is often mandatory. The final column indicates an overall gap in private pensions of $7,579, which is 39.8% of the average native born private pension; that is, the pensions of immigrant men would have to rise by 39.8% at all ages from 55 to 80 to equal the average pension of native born men in the sample. At age 60, the gap is 25.6%, rising to 37.3% at age 65 and 43.7% at age 69. To rephrase the matter slightly, at certain conventional benchmark ages when retirement decisions must be considered, immigrants who have wish to retire will have approximately 25% less private pension income if they choose "early retirement" at age 60, and 37% to 43% less if they choose to delay retirement further. We again note that the estimates are based on a relatively small sample of 374 immigrant and 654 native born men.[4]

Table 1 also confirms that the pension gap is confined to private pensions. The difference in public pension benefits over all ages actually favours immigrant men by a

[4] Since there are very few observations at any one age group, we use nonparametric or smoothed estimates of pension income by age. The reliability of the estimates, especially the size of the pension gap (a difference of two estimates), is limited by the small sample size in the usual fashion.

modest $345 or 3.7%, although the gap favours native born men at ages 65 and 69, as noted earlier. Public pension benefits therefore have little effect on the sizeable amount of the gap in total pension income between immigrants and the native born, although it does reduce the relative size of the gap. The total pension of immigrant men would have to rise by 25.6% at all ages from 55 to 80 to equal the average pension of native born men in the sample, a figure which rises with age from 20.4% at age 60 to 30.2% at age 69. Since virtually the entire gap is created in private pension incomes, we shall focus in our subsequent discussion on the gap in private pension incomes between immigrant and native born males.

Immigrants now drawing pension incomes typically arrived in Canada quite a long time ago and belong, in the parlance of the immigrant integration literature, to quite "old immigrant arrival cohorts". Since SLID collects information on the year of immigration, we can divide immigrants into cohorts to see whether retirement income patterns have been affected by time of arrival. Figure 3 presents the pattern of private pension income by age for native born men, and for each of three cohorts of immigrant men in the sample: (1) immigrants who arrived less than 20 years ago, (2) immigrants who arrived 20 to 39 years ago, and (3) immigrants who arrived more than 40 years ago. The results show that the oldest cohort, immigrants who arrived more than 40 years ago, do better relative to the native born, at least after age 65; that is, their pension gap is smaller. The youngest cohort, those who immigrated in the last 20 years, do the worst.

Table 2 breaks down the private pension gap reported in Table 1 by immigrant cohort. The gaps are very large for immigrants who arrived in the last 20 years, about 65% for all ages, compared to gaps of 42% and 33% for immigrants who arrived 20 to 39 years ago and 40 or more years ago, respectively. Again, these estimated gaps are based on fairly small sample sizes but, in any case, they provide a misleading picture of the pension prospects of more recent immigrant cohorts because most of those immigrants are still

working. Since age equals age at arrival plus potential years of work experience in Canada plus retirement years, retired immigrants who arrived in Canada more recently almost certainly have fewer potential years of work experience over which to accumulate pension income, and this is undoubtedly an important factor in the patterns we see in Table 2 and Figure 3.[5]

As we noted at the outset, the more recently arrived immigrant cohorts are of particular concern because they appear to be having greater difficulty integrating into the labour market, and are suffering greater earnings disadvantage relative to their native born counterparts. In order to obtain a better assessment of the pension prospects of these more recently arrived cohorts, we now examine their pension contribution rates while working, which will determine in large part their pension incomes once retired. We do this in Figures 4 and 5 and in Table 3.

Figure 4 shows the pattern of registered pension plan contributions by age for immigrant and native born men. A gap in RPP contributions emerges at a very early age, increases steadily to about age 50, and then declines somewhat. As expected, there is no difference in CPP/QPP contributions between immigrant and native born workers up to age 30, although a small gap emerges thereafter. The final column of Table 3 indicates the mean size of the private and public pension contribution gaps at all ages and at ages 30, 40 and 50. The RPP gap between immigrant and native born workers averages 22.8% per year and, although the gap rises in absolute terms to age 40, it falls in relation to native born contribution levels from 41% at age 30 to 39.6% at age 40 to 29.3% at age 50. These

[5] We do not consider how retirement age may vary with age at arrival in this paper, although we note that there is evidence that Canada's public pensions have a major influence on work incentives (Baker et al 2003) and that private pensions likely also impact retirement behaviour to some degree. In addition, immigrants who arrive later in life may bring with them more income from abroad but it is not clear how this would be captured, if at all, in reported private pension income. The pension gap may be smaller than it appears if immigrants who arrive later is life have greater savings to use at retirement or if they retire later.

substantial relative gaps are consistent with the wide private pension income gaps we observed in Figure 1 and Table 1. The CPP/QPP gap is only 1.3% over all ages, although a modest gap of 7.8% between immigrant and native born workers does appear by age 30, as shown in Figure 5, rising to 10.1% by age 40 and falling to 6.6% by age 50. The small differences in CPP/QPP contributions are, of course, consistent with the more egalitarian design of the public pension program. Again, the effect of public pension contributions is to reduce the total pension gap compared to the private RPP pension gap. The total pension gap is 9.2% at all ages, 17.5% at age 30, 21.7% at age 40, and 16.5% at age 50.

Finally, we again look at differences across broadly defined immigrant cohorts.[6] Figure 6 presents the visual evidence for the RPP contributions of native born workers and for immigrant cohorts arriving less than 20 years ago, 20-39 years ago, and 40 or more years ago. There is clear evidence that the cohort of immigrant workers that arrived in the last 19 years contributes less than the cohort that arrived 20 to 39 years ago. Indeed, the pattern of contributions of the immigrant cohort that arrived 20 to 39 years ago differs little from the pattern for native born workers, consistent with the evidence that earlier cohorts have done relatively better in the labour market, achieving parity relatively quickly with native born workers and enabling them to make comparable RPP contributions.[7]

Table 4 confirms that the gap in RPP contributions between immigrant and native born workers is explained primarily by the contribution patterns of immigrants who have arrived in the last 19 years. For this immigrant cohort, the gap is 24.9% over all ages, 26.1% at age 30, 31.1% at age 40 and 29.7% at age 50. On the other hand, the overall gaps for the

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[6] The limited size of the immigrant samples in SLID prevents an examination of pension income or contributions by more finely defined cohorts. We address this issue in the next section where we look at the evidence on earnings from the much larger Census public use microdata files.

[7] The sample of workers who immigrated 40 or more years ago is small and confined necessarily to the upper age brackets but, to take age 50 as an example, this group has RPP contributions similar to immigrants who arrived 20 to 39 years ago.

other two immigrant cohorts, who immigrated 20 or more years ago, are negative; that is, their RPP contributions exceed those of native born workers over all ages, although native born workers at ages 40 and 50 contribute modestly more.

In summary, our results confirm that there is a gap in both private pension income and private pension contributions between immigrant and native-born men in Canada. The SLID analysis is limited, however. The small sample of immigrants, retired or working, allows the pattern of the pension gap by immigrant cohorts to be analyzed only in very broad terms, comparing immigrants who arrived less than 20 years ago with immigrants who arrived earlier. Moreover, it is necessarily the case that the samples of immigrants who arrived less than 20 years ago and are retired, and immigrants who arrived 20 or more years ago and are still working, will be small and confined to the older age groups, limiting further the reliability of comparisons across cohorts. This cannot be remedied by examining earlier evidence from SLID because information on private and public pension contributions was not collected prior to 1999, and major activity information was not collected consistently prior to 2000.[8]

Therefore, we now turn to the much more detailed evidence from the Census regarding earnings differences between immigrant cohorts and their native born counterparts. We revisit the already considerable evidence and suggest a new method of comparison of immigrant and native born earnings. We also suggest how the evidence on earnings can provide estimates of the gap in prospective private pension benefits between immigrant cohorts and the native born. We then can compare these estimates with our results from SLID in this section.

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[8] See the SLID codebook (last accessed Nov 5, 2008) at: http://www.statcan.ca/english/Dli/Metadata/slid/2002/slid2002cbk.pdf . Of course, SLID provides no data prior to its inception in 1992.

3. Immigrant Integration Earnings Profiles with Census Data

We now concentrate on the role of private pension contributions and income, since the differences in public pension income are much smaller. In turn, private pension contributions largely arise from individual earnings such that the gap in earnings between immigrants and the native born should provide both an explanation of the pension gap and a forecast of its future evolution for current workers. In the next two sections, we revisit the issue of immigrant earnings integration and assess its implications for the pension gaps we observed in section 2. This will provide us with more concrete projections of the future pension gap and its implications for public policy.

We use the Canadian Public Use Master Files (PUMFs) and the "quasi-panel" approach employed in the majority of recent analyses of the lifetime earnings profiles for immigrants and the native born. Specifically, the Census provides annual earnings at time t for immigrants who arrived in cohort i, denoted y_{it}^1 , and for native born, denoted y_t^0. Assume these Censuses occur 5 years apart. For any cross-section t one can then estimate the predicted earnings difference between immigrant cohorts i and $i+5$ relative to the native born, where the earlier cohort i is associated with longer years since migration, as

$$\hat{y}_{i,t}^1 - \hat{y}_{i+5,t}^1 = \left[\left(\hat{y}_{i,t}^1 - \hat{y}_{i,t-5}^1\right) - \left(\hat{y}_t^0 - \hat{y}_{t-5}^0\right)\right] + \left[\left(\hat{y}_{i,t-5}^1 - \hat{y}_{i+5,t}^1\right) - \left(\hat{y}_{t-5}^0 - \hat{y}_t^0\right)\right] \qquad [1]^9$$

The first term on the right hand side of equation [1] then captures the difference in the growth of earnings for immigrant cohort i and the native born from Census period $t-k$ to Census period t. This within-cohort growth measures the extent of immigrant integration of cohort i relative to the native-born comparison group. The second term on the right hand side of equation [1] captures the difference in growth between cohort i in period $t-k$ and cohort $i+k$ in period t, or across-cohort growth for given years since migration, relative to

[9] This equation is found in Baker and Benjamin (1994, equation [8], 381), Grant (1999, equation [3], 939), and Frenette and Morissette (2003, equation [4], 2).

the native born counterfactual. The second term represents the bias associated with cross-sectional estimates of within-cohort earnings growth.

Much of the focus in the literature is on the growth of earnings of **entering immigrants** in the first five years after landing; that is, an immigrant's "early years" in Canada. This is a very unreliable guide in the context of assessing the pension gap between immigrants and the native-born. However, longer segments of the immigrant integration profiles can be calculated from equation [1] for a sequence of Census cross-sections. In particular, consider immigrant cohort i that entered k Census periods earlier. One can estimate the entry effect, the difference in earnings between the entering immigrant cohort and the native born as $\hat{y}^1_{t-5k} - \hat{y}^0_{t-5k}$, evaluated for the characteristics of immigrant cohort i. Then the within-cohort growth measures for immigrant cohort i relative to the native born over Census periods $t, t-5, \ldots, t-5k$ provide fairly lengthy estimates of the integration profile (the earnings gap for years since migration) for immigrants who arrived a long time ago.

Quasi-panel analyses have typically relied on regression analysis that compares the earnings outcomes for various immigrant cohorts with about 20% of the large native born sample, chosen randomly. A major problem with this approach is that the characteristics of the immigrant and native born samples may not be similar. Indeed, several authors of quasi-panel studies have observed important differences between the two groups, including the fact that immigrants tend to be better educated than the native born (Baker and Benjamin, 1994, Table 1; Frenette and Morissette, 2003, Table 1) and that immigrants are older, have more potential work experience, are regionally concentrated in Ontario and British Columbia, and are more ethnically diverse than the native born (Grant, 1999, Table 1). Some studies have attempted a limited match of the immigrant and native born samples for specific characteristics, particularly recent immigrants with native born labour market entrants

(Frenette and Morissette, 2003; McDonald and Worswick, 1998; and Green and Worswick, 2003). We extend the spirit of this approach by using a "nearest neighbour propensity score matching technique" to develop a native born sample with regressor characteristics that are comparable to those of the immigrant sample for each Census file. There is now a substantial technical literature advocating this approach to construct a suitable counterfactual sample (Heckman et al, 1998; Ho et al, 2006; Smith, 2006).[10]

[Figures 7 about here]

Figure 7 portrays the immigrant integration profile that incorporates the entry and within-growth effects at 5-year intervals, estimated for a randomly drawn native born comparison group as in past studies, and a matched native-born comparison group, for the immigrant arrival cohorts from 1976-80 to 1991-95. The horizontal axis represents the gap between the mean earnings of an immigration cohort and its native born counterparts, using OLS regression (the conventional method) and propensity score matching (marked with an M) to determine the native-born comparison group. We use the fairly sparse specification in Baker and Benjamin (B&B) (1994) which includes only years of schooling, work experience and its square, hours worked per week, weeks worked per year, marital status, and an indicator of black visible minority status for men who worked at least 48 weeks in the previous year. This allows us to use all Census PUMFs from 1981 to 2001 on a consistent basis.[11] The regression and matching results on which Figure 7 is based are provided in Appendix Tables A1 and A2, respectively.

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[10] Further discussion of the matching methods and regression results are available from the authors upon request.

[11] We have also estimated the richer Frenette and Morissette (2003) specification that includes visible minority (rather than just black) and urban/regional variables (Montreal, Toronto, Vancouver, Quebec except Montreal, Ontario except Toronto, Manitoba, Saskatchewan, Alberta, B.C. except Vancouver), but the results are very close to those obtained from the Baker and Benjamin specification we report here. This broader specification can only be calculated for the Censuses from 1986 because visible minority was

We highlight the following results of Figure 7. First, the estimates of the entry effects from the matched comparison group are consistently larger than those for the randomly drawn comparison group for all cohorts except 1976-80. This will be important in estimating future private pension entitlements, as we show below. Second, the assimilation (within growth) effects are substantial and do not necessarily suggest that later cohorts will not achieve parity. For example, the largest entry effect for the 1991-95 cohort is combined with a substantial assimilation effect (about 15%) in years 5-10 which, if it continues, would permit parity within 20 years. Third, projections based on particular specifications of the form of immigration integration profile are unreliable. It is difficult to project assimilation rates because they are not uniform; for example, cohorts IM76-80 and IM86-90 faltered in the first five years (especially with the matched sample) and IM81-85 falters after doing well in the first five years. Contrary to Grant's (1999) projection, her IM81-85 may not achieve parity with the native born. As we show in the next section, however, this is not crucial to estimates of future private pension entitlements. In summary, our estimates suggests that past studies may have underestimated the extent to which recent immigrants are experiencing difficulties in integrating in the labour market: that is, the entry disadvantage may be larger than estimated in the past, and convergence may be slower.

4. Calculation of the Lifetime (Pensionable) Earnings Gap

The immigrant integration profiles depicted in the previous section reflect the percentage gap in mean earnings between an immigrant cohort and that of a comparable group of native-born workers. We can use these profiles to calculate the cumulative lifetime difference in earnings between these two groups (suitably discounted) to provides an estimate

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not defined before then. Our results for the Frenette and Morissette specification are available upon request.

of the "retirement gap" between the two groups and the proportionate difference in pensionable earnings since— absent inheritances, lottery winnings, or other unexpected windfalls—it is the pattern of lifetime earnings (and savings) that will determine the economic resources available at retirement.

There are, of course, immigrants who enter Canada late in life, principally through the family reunification and refugee categories, and typically participate little in the labour market. For these immigrants our analysis has little relevance. Rather, our analysis applies to what is now the majority of applicants who are admitted under the points system at a young age. These economic immigrants, more and more, dominate the evidence regarding immigrant integration because their labour market activity is relatively continuous.

One useful measure is the net present value of the earnings gap --- which represents the lump-sum gap in career earnings that an immigrant could expect at entry. This can be expressed as a percentage of the earnings of a comparable native-born worker. If private pension income, and to a lesser extent CPP/QPP income, is closely related to earnings, the lump-sum earnings gap will give a measure of the pension gap between immigrants and the native born.

The logic of our calculation is as follows. Suppose we normalize native-born earnings to \$1 per year over a working career of T years and suppose that r is the real rate of interest and discount rate. Then initial native-born earnings will have a present value of \$1 and the value at retirement will be $\$1(1+r)^T$. Over T years, the stream of earnings will have a present value of $P_{nb} = \sum_{i=1}^{T} \$1/(1+r)^i$ and a value at retirement of $L_{nb} = \sum_{i=1}^{T} \$1(1+r)^i$.

Suppose now that immigrants initially earn a proportion $1-\gamma_0$ of native-born earnings, where γ_0 is the entry gap that is eroded with time spent in Canada. Parity with native-born earnings ($\gamma_i = 0$) may be achieved at some year i during the work career (or

years since migration). Suppose further that a constant portion s of earnings is saved for a private pension, such that an annuity is financed from a retirement earnings pool of sL_{nb} with a present value of sP_{nb}. Then the corresponding present value of earnings for the foreign born will be $P_{fb} = \sum_{i=1}^{T} (1-\gamma_i)/(1+r)^i$ and the value at retirement will be $L_{fb} = \sum_{i=1}^{T} \$(1-\gamma_i)(1+r)^i$. Assuming a common savings rate for foreign and native born workers, the retirement earnings pool will be sL_{fb} with a present value of sP_{fb} such that the pension gap will be

$$\left[sP_{nb} - sP_{fb}\right] / sP_{nb} = \sum_{i=1}^{T} \gamma_i /(1+r)^i \Big/ \sum_{i=1}^{T} 1/(1+r)^i \qquad [2]$$

which corresponds to a pension gap at retirement of

$$\left[sL_{nb} - sL_{fb}\right] / sL_{nb} = \sum_{i=1}^{T} \gamma_i (1+r)^i \Big/ \sum_{i=1}^{T} (1+r)^i \qquad [3].$$

Consider the 1976-80-immigrant cohort whose lifetime earnings pattern, relative to the native born, is captured by subsequent Censuses to 2001. We adopt the Baker and Benjamin (1994) specification, which is compatible with all previous Censuses to 1981. We use the estimates derived from the traditional OLS estimates first. For this cohort, the estimated immigrant integration profiles imply a pension gap of 11.4% using a discount rate (r) of 5% and a pension gap of 13.1% using a discount rate of 10%. A larger pension gap is occurs with higher discount rates because the smaller differences between native and foreign-born earnings in the future (arising as immigrant integration proceeds) are more heavily discounted.

Our alternative estimates derived from propensity score matching produce a slightly more pessimistic picture of the immigrant integration profile, and hence a slightly larger

pension gap. For the 1976-80 cohort, we estimate a pension gap of 16.7% at a 5% discount rate and 17.4% at a 10% discount rate.

For other immigrant cohorts, the pension gap is more difficult to estimate because the immigrant integration profile is incomplete. Our approach is simply to "eyeball" the trajectory of the immigrant integration profile for each cohort; this produces the results reported in Table 5 for each cohort from 1976-80 to 1991-95. More sophisticated approaches could be employed but are unlikely to produce very different pension gap estimates since the estimated earnings later in the working lifetime are discounted more heavily. Note that our concerns about the reliability of immigrant integration profiles for more recent immigrant cohorts are less important in this exercise, since earnings later in the working lifetime have a less important role in pension income accumulation; that is, our results are largely driven by the earnings gap in the early career years after entry and this gap is clearly growing for more recent immigrant cohorts.

As might be expected, the rising initial earnings disadvantage (entry effect) for more recent cohorts produces a growing pension gap. The OLS estimates suggest that the pension gap has doubled from 11% to 22% between the 1976-80 and 1991-95 cohorts, compared to the matching estimates that indicate the gap increasing from 17% to 28%, for a discount rate of 5%. With a discount rate of 10%, the OLS estimates again suggest a doubling of the pension gap from 13% to 26%, while the matching estimates suggest an increase from 17% to 33%. Our results in Table 5 quantify the growing prospective pension gap. This growing pension gap should not be a surprise since it is a mirror of the declining labour market fortunes of more recent immigrant cohorts.

We now assess how these estimates of the prospective private pension gap compare with our estimates of the pension gap in section 2 based on actual observations of pension income and contributions from SLID. The oldest cohorts, those who immigrated between

1976 and 1985, correspond to immigrants who, in 2002, had immigrated 17 to 26 years ago. We compare the estimates for these cohorts in Table 5 with the observed private pension income results in Table 2 for those who immigrated 20 to 39 years ago. The estimated pension gap in Table 5 using Census earnings data is 11.4% to 29.2%, which is considerably smaller than the estimated gap of 24.4% to 49.7% from SLID pension income data at various ages in Table 2. The matched estimates with higher discount rates, which provide estimated gaps of 17.4% for the 1976-80 cohort and 29.2% for the 1981-85 cohort, are closest to the results in Table 2.

Because there are few observations of actual pension income for recently arrived immigrants, we compare the estimates of the pension contribution gap from SLID in Table 4 with the estimates based on Census earnings in Table 5 for those immigrants most recently arrived. In particular, we compare those who arrived less than 20 years ago in Table 4 with those who arrived between 1986 and 1995, or 7 to 16 years ago in terms of 2002. The estimate in Table 4 of 24.9% over all ages, and somewhat higher gaps at ages 30, 40 and 50, is again quite similar to the range of estimates provided by our matched estimates, 26.7% to 32.6%. Thus, at least for those who have arrived recently, our estimates of the pension gap based on Census earnings analysis and on pension contributions are similar, in the range from 25% to 33%. Since our concern is primarily with how more recent immigrant cohorts are faring in the Canadian labour market and its implications for future pension income, this correspondence of results from two very different sources is reassuring.

5. Concluding Remarks

Canada's commitment to admitting and integrating new immigrants is part of this nation's historical social contract. We hold out for new Canadians a promise of economic success that converges to that enjoyed by all other Canadians. But unlike the cohorts that

entered in the 1960s, immigrants to Canada within the last three decades have not fared as successfully. And over time, a continuing failure to integrate immigrants into the workforce will incur long run costs for Canada's social benefits, including its suite of retirement programs.

This paper compares the retirement prospects of immigrants with their native-born Canadian counterparts employing data from the SLID and the Census. SLID is a useful data source because it provides direct evidence on private and public pension income for those who are retired, and private and public pension contributions for those who are still working. These data provide rough evidence of a gap in private pension incomes and private pension contributions that appears to be wider for more recently arrived immigrant cohorts. The gap in public pension incomes and public pension contributions is small, and contributes little to the absolute size of the gap, as one would expect from the egalitarian design features of public pension programs.

We also examine data from the public use master files of the Census from 1981 to 2001. We employ the now conventional quasi-panel approach that combines Census cross-sections to estimate an economic integration time path. Using matching methods to determine an appropriate comparison group for immigrant earnings, we compare these results with standard OLS estimates based on a random sample of the native born. We show how the estimated lifetime earnings trajectories can be used to calculate the future pension gap, defined as the net present value of the earnings gap between immigrant and native born workers. This pension gap represents the lump-sum gap in career earnings that an immigrant can expect at entry, expressed as a percentage of the earnings of a comparable native-born worker. Our results from the analysis of SLID and Census data provide similar estimates of the private pension gap for more recently arrived immigrants of about 25% to 33%, which

should provide a reasonable basis to inform retirement policy in Canada respecting both immigrants and native born individuals.

Canada's commitment to admitting and integrating new immigrants is unyielding and irreversible. Nonetheless, failure to integrate immigrants effectively into Canada's workforce will, over time, engender long run costs for Canada's social benefits, including its retirement programs. A new social contract may be necessary if Canada continues to welcome large numbers of immigrants but fails to integrate them in the economy, all the while wanting generous retirement benefits despite sluggish productivity.

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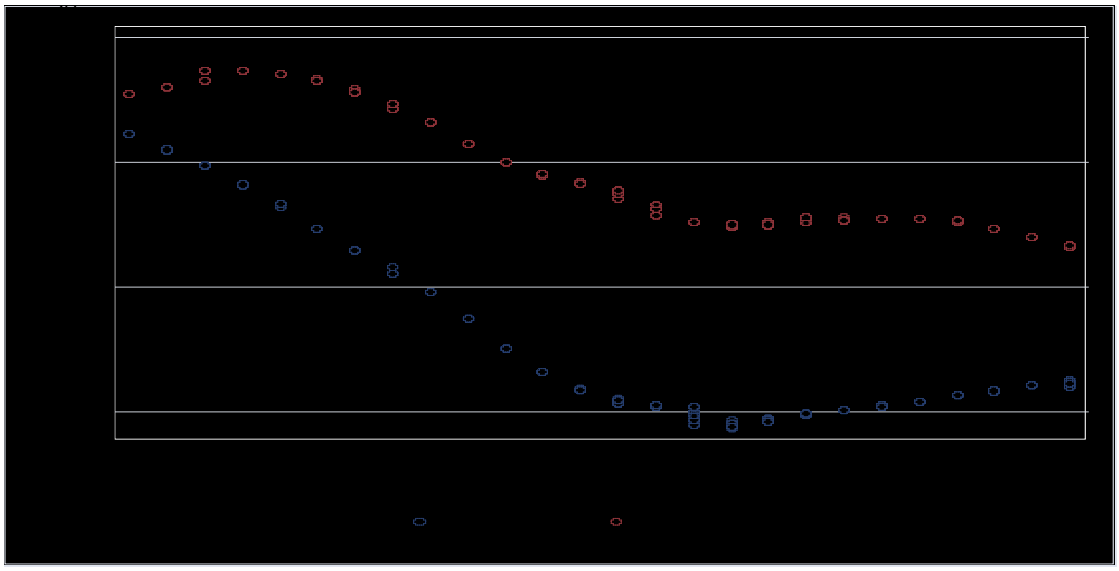
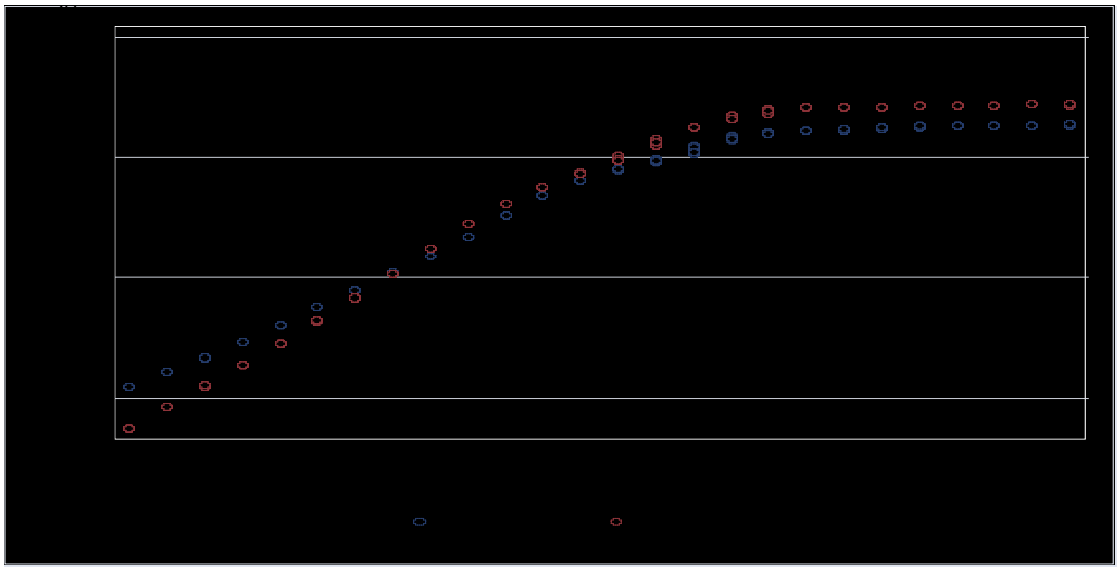
Figure 1. Private pension income by age for Immigrant and Native Born Men



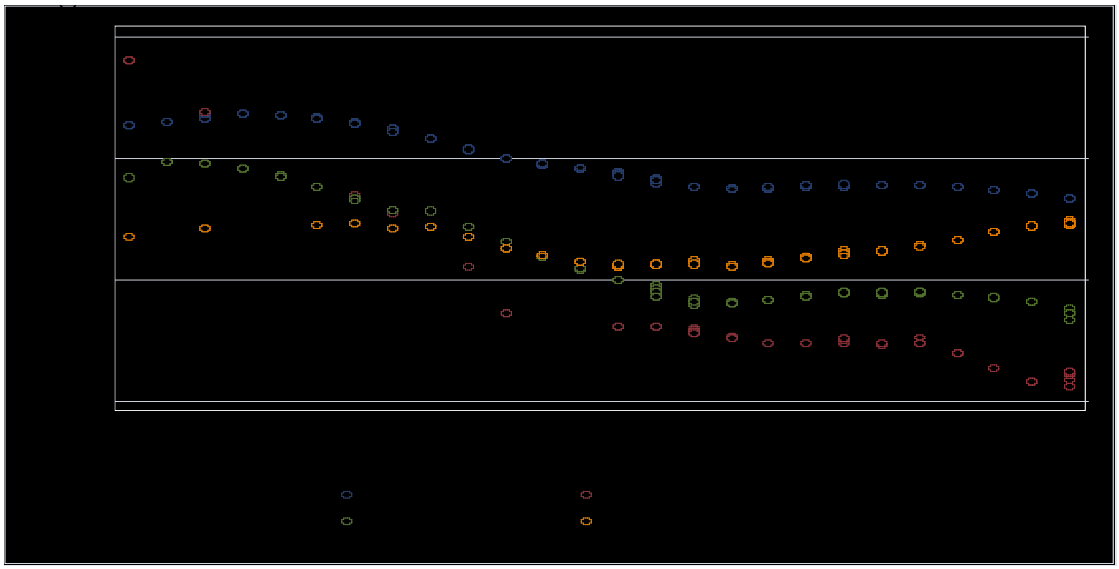
Source: 2002 SLID public file. Private pension income includes annuities and RRSP and RRIF withdrawals (pen42+rspwi42). Sample includes men 55-80 whose immigration status is stated.

Figure 2. Public pension benefits by age for Immigrant and Native Born Men



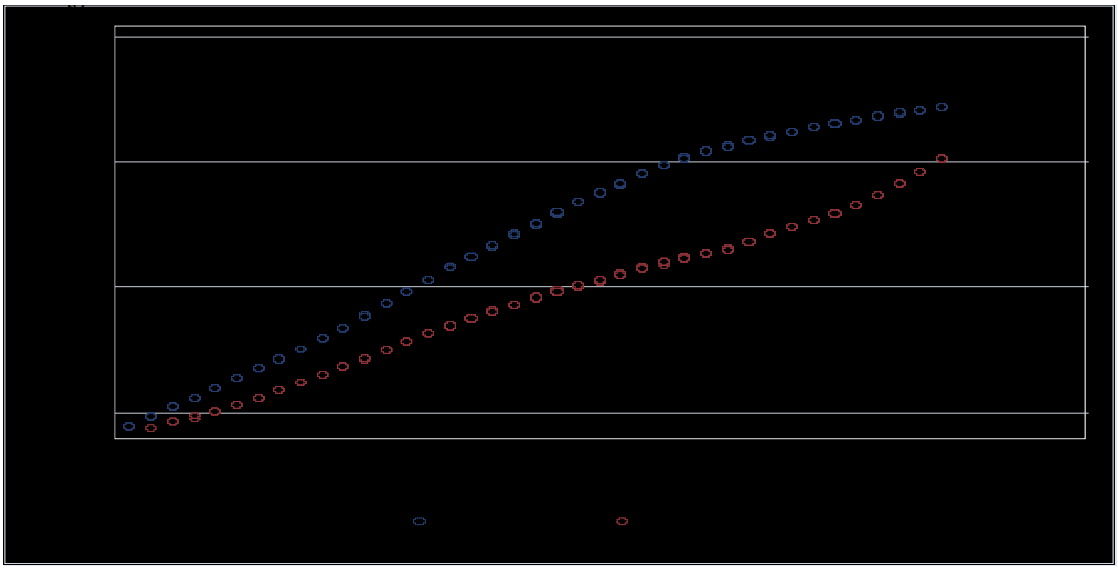
Source: 2002 SLID public file. Public pension benefits includes CPP/QPP and OAS/GIS benefits. Sample includes men 55-80 whose immigration status is stated.

Figure 3. Private pension income by age for Immigrants by Cohort and for Native Born Men



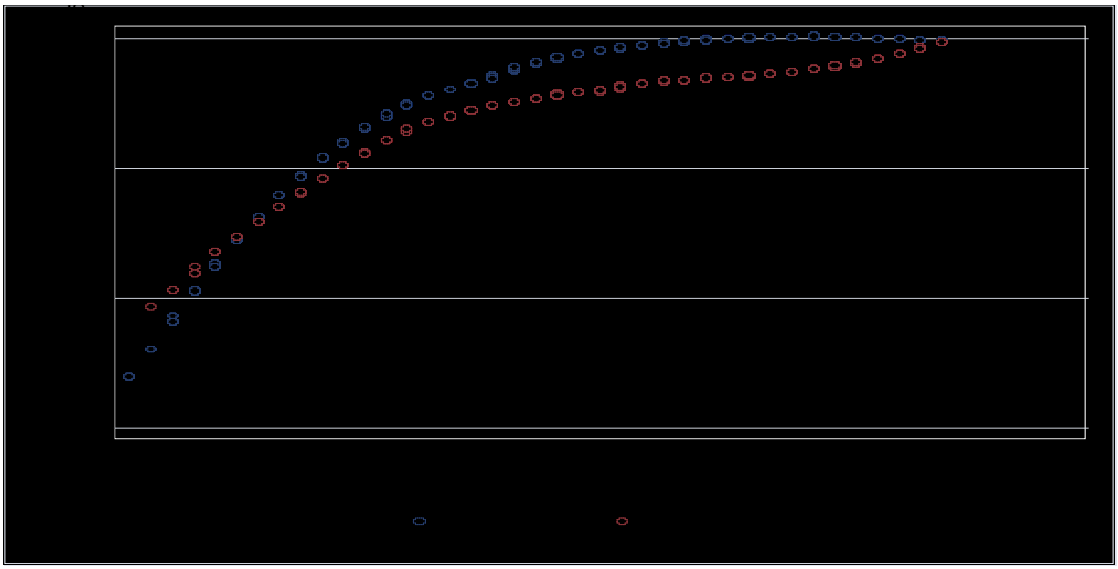
Source: 2002 SLID public file. Private pension income includes annuities and RRSP and RRIF withdrawals (pen42+rspwi42). Sample includes men 55-80 whose immigration status is stated.

Figure 4. Registered pension contributions by age for Immigrant and Native Born Working Men under 55 years of age



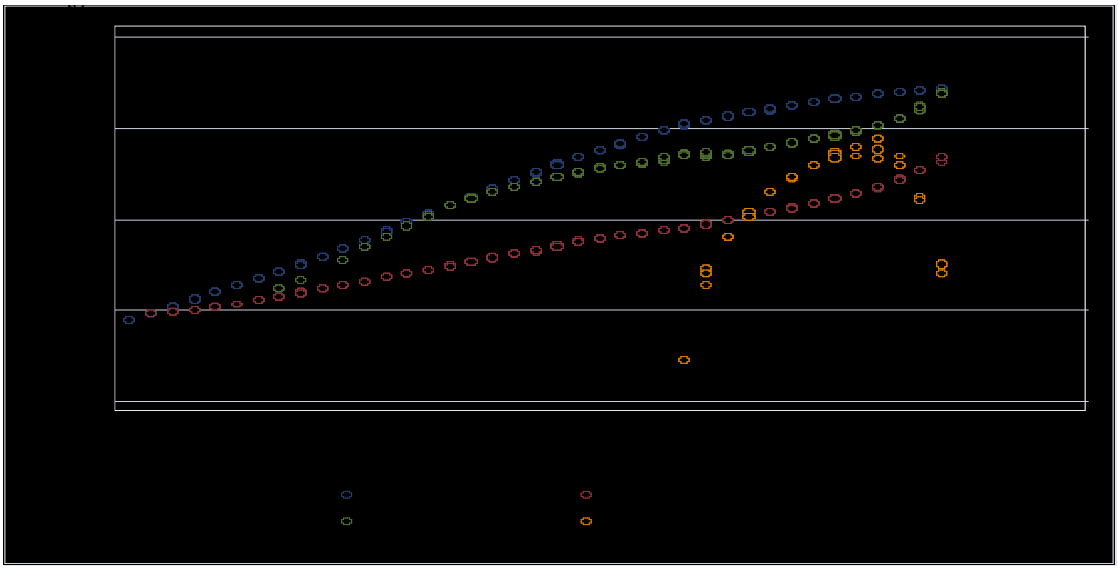
Source: 2002 SLID public file. Sample includes working men under 55 whose immigration status is stated.

Figure 5. CPP/QPP contributions by age for Immigrant and Native Born Working Men under 55 years of age



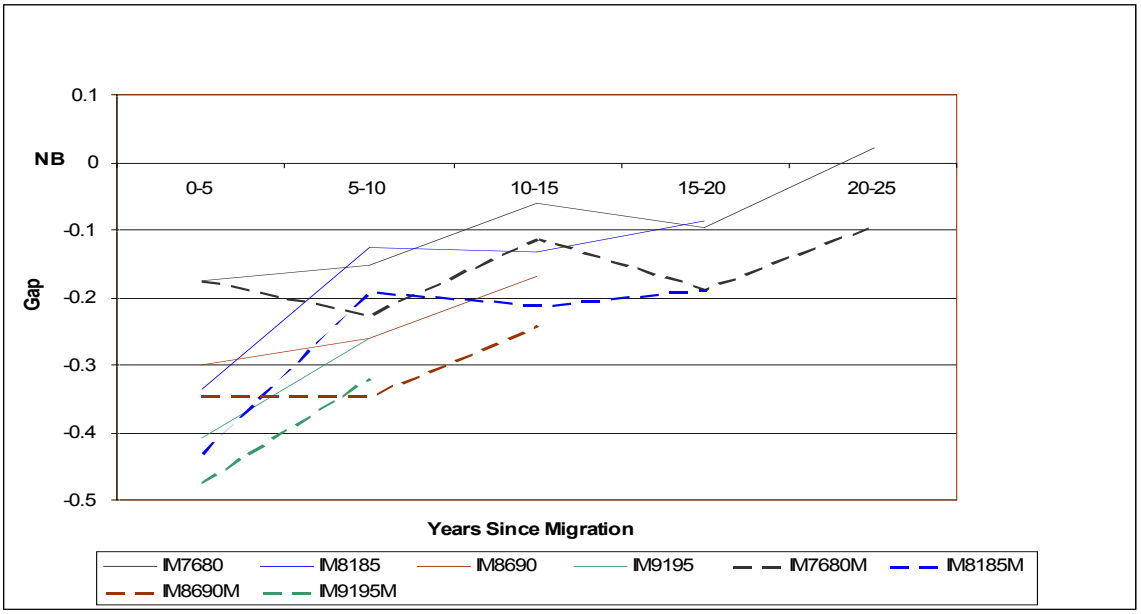
Source: 2002 SLID public file. Sample includes working men under 55 whose immigration status is stated.

Figure 6. Private (RPP) pension contributions by age for Immigrants by Cohort and for Native Born Men



Source: 2002 SLID public file. Sample includes working men under 55 whose immigration status is stated.

Figure 7. Immigrant Integration Profiles, Baker and Benjamin (1994) specification, OLS (random NB sample) and matching NB samples



Source: Tables A1 and A2, based on analysis of Census Public Use Master Files, 1981-2001

Table 1. Private, public and total pension income estimates for Immigrant and Native Born Men 55-80 years of age

	Native Born	Immigrants	Pension Gap ($,%)
Private pension income			
Mean of all ages 55-80	$19.026	$11,447	$7,579 (39.8%)
Age 60	23,239	17,288	5,951 (25.6)
Age 65	19,981	12,534	7,447 (37.3)
Age 69	18,122	10,210	7,912 (43.7)
Public pension income			
Mean of all ages 55-80	$9,258	$9,602	$ 344 (-3.7%)
Age 60	3.161	3.724	563 (-17.8)
Age 65	8,035	7,567	468 (5.8)
Age 69	10,574	9,830	744 (7.0)
Total pension income			
Mean of all ages 55-80	$28,285	$21,051	$7,234 (25.6%)
Age 60	26,400	21,012	5,388 (20.4)
Age 65	28,015	20,100	7,915 (28.3)
Age 69	28,696	20,035	8,661 (30.2)
Observations	645	374	1,019

Source: Nonparametric estimates of pension income by age from the 2002 SLID public file for men 55-80 whose immigration status is stated.

Table 2. Private pension income gap estimates for Immigrant Cohorts relative to Native Born

Immigrant Arrival Cohort	0-19 yrs ($,%)	20-39 yrs ($,%)	40 yrs or more ($,%)
Mean of all ages 55-80	$12,506 (65.7%)	$8,027 (42.2%)	$6,276 (33.0%)
Age 60	n.a.	5,689 (24.4)	8,793 (37.8)
Age 65	12,734 (63.7)	6,965 (34.9)	7,434 (37.2)
Age 69	12,059 (66.5)	9,001 (49.7)	6,914 (38.1)
Imm cohort observations	52	122	200

Source: Nonparametric estimates of pension income by age from the 2002 SLID public file for men 55-80 whose immigration status is stated.

Table 3. Private, public and total pension contribution estimates for Immigrant and Native Born Men under 55 years of age

	Native Born	Immigrants	Pension Gap ($,%)
Private RPP contributions			
Mean of all ages 16-54	$751	$580	$171 (22.8%)
Age 30	529	312	217 (41.0)
Age 40	948	573	375 (39.6)
Age 50	1,168	826	342 (29.3)
Public CPP/QPP contributions			
Mean of all ages 16-54	$1,309	$1,292	$ 17 (1.3%)
Age 30	1,278	1,178	100 (7.8)
Age 40	1,476	1,327	149 (10.1)
Age 50	1,506	1,407	99 (6.6)
Total contributions			
Mean of all ages 16-54	$2,061	$1,871	$ 190 (9.2%)
Age 30	1,807	1,490	317 (17.5)
Age 40	2,424	1,899	525 (21.7)
Age 50	2,673	2,232	441 (16.5)
Observations	3,151	883	4,034

Source: Nonparametric estimates of RPP and CPP/QPP contributions by age from the 2002 SLID public file for men under 55 whose immigration status is stated.

Table 4. Private pension contribution gap estimates for Immigrant Cohorts relative to Native Born

Immigrant Arrival Cohort	0-19 yrs ($,%)	20-39 yrs ($,%)	40 yrs or more ($,%)
Mean of all ages 16-54	$514 (24.9%)	-$206 (-9.5%)	-$148 (-7.2%)
Age 30	472 (26.1)	- 47 (- 2.6)	n.a.
Age 40	753 (31.1)	202 (8.3)	n.a.
Age 50	794 (29.7)	241 (9.0)	115 (4.3)
Imm cohort observations	487	347	49

Source: Nonparametric estimates of RPP and CPP/QPP contributions by age from the 2002 SLID public file for men under 55 whose immigration status is stated.

Table 5. Estimated Pension Gaps as Percentage of Native Born

	Discount rate	IM7680	IM8185	IM8690	IM9195
OLS estimates	5.0%	11.4%	17.5%	21.0%	21.7%
	10.0%	13.1%	20.4%	23.5%	26.3%
Matched estimates	5.0%	16.7%	26.4%	26.7%	27.9%
	10.0%	17.4%	29.2%	29.3%	32.6%

Source: Estimates of immigrant earnings profiles from the Canadian Censuses of 1981, 1986, 1991, 1996 and 2001 from Appendix Tables A1 and A2 plus imputed ("eyeballed") estimates of the profile over a working career of 25 years.

Appendix

Table A1. Quasi-Panel Model Estimates for Immigrants and Random Sample of Native Born, 1981-2001 Censuses

	(1) 81 Imm	(2) 81 NB	(3) 86 Imm	(4) 86 NB
Yrs schl	0.045***	0.064***	0.051***	0.076***
	(0.001)	(0.002)	(0.002)	(0.002)
Experience	0.036***	0.048***	0.042***	0.061***
	(0.002)	(0.001)	(0.002)	(0.002)
Exp squared	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
1-19 hrs	-0.438***	-0.686***	-0.599***	-0.698***
	(0.033)	(0.030)	(0.037)	(0.033)
20-29 hrs	-0.367***	-0.376***	-0.413***	-0.450***
	(0.036)	(0.033)	(0.038)	(0.032)
30-34 hrs	-0.052*	-0.135***	-0.301***	-0.222***
	(0.031)	(0.027)	(0.034)	(0.031)
35-39 hrs	0.058***	0.017	0.040**	-0.028*
	(0.013)	(0.014)	(0.016)	(0.016)
45-49 hrs	0.034**	0.045***	0.046**	0.021
	(0.016)	(0.017)	(0.018)	(0.018)
50+ hrs	0.003	-0.063***	-0.047***	-0.132***
	(0.012)	(0.012)	(0.013)	(0.013)
40-48 weeks	-0.114***	-0.089***	-0.149***	-0.137***
	(0.012)	(0.012)	(0.015)	(0.014)
Married	0.200***	0.264***	0.256***	0.268***
	(0.013)	(0.012)	(0.015)	(0.013)
Black	-0.099***	-0.225	-0.148***	-0.034

	(0.028)	(0.186)	(0.028)	(0.178)
Imm pre46	8.795***		8.558***	
	(0.036)		(0.048)	
Imm 46-55	8.750***		8.570***	
	(0.029)		(0.034)	
Imm 56-60	8.702***		8.560***	
	(0.028)		(0.034)	
Imm 61-65	8.658***		8.503***	
	(0.029)		(0.034)	
coh66t70	8.668***		8.460***	
	(0.033)		(0.036)	
coh71t75	8.570***		8.389***	
	(0.027)		(0.032)	
coh76t80	8.516***		8.338***	
	(0.028)		(0.032)	
coh81t85			8.161***	
Constant		8.310***		7.967***
		(0.025)		(0.029)
Obs	19,277	19,277	18,710	18,710
R-squared	0.99	0.24	0.99	0.27

Notes: See below for results for 1991, 1996 and 2001 Censuses

Table A1 (continued). Quasi-Panel Model Estimates for Immigrants and Random Sample of Native Born, 1981-2001 Censuses

	(1) 91 Imm	(2) 91 NB	(3) 96 Imm	(4) 96 NB	(5) 01 Imm	(6) 01 NB
Yrs Schl	0.0521***	0.0815***	0.0587***	0.0820***	0.0581***	0.0786***
	(0.0014)	(0.0016)	(0.0016)	(0.0018)	(0.0016)	(0.0018)
Experience	0.0398***	0.0582***	0.0335***	0.0619***	0.0246***	0.0561***
	(0.0016)	(0.0014)	(0.0018)	(0.0016)	(0.0018)	(0.0015)
Exp squared	-0.0006***	-0.0009***	-0.0005***	-0.0010***	-0.0004***	-0.0009***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
1-19 hrs	-0.5211***	-0.7425***	-0.6391***	-0.8411***	-0.7928***	-0.9320***
	(0.0287)	(0.0245)	(0.0289)	(0.0262)	(0.0310)	(0.0278)
20-29 hrs	-0.4748***	-0.5764***	-0.6341***	-0.6242***	-0.6385***	-0.6712***
	(0.0304)	(0.0264)	(0.0301)	(0.0267)	(0.0314)	(0.0269)
30-34 hrs	-0.2646***	-0.2230***	-0.3789***	-0.3584***	-0.3934***	-0.4009***
	(0.0283)	(0.0252)	(0.0295)	(0.0272)	(0.0311)	(0.0273)
35-39 hrs	0.0175	0.0178	0.0101	-0.0225	-0.0077	-0.0437***
	(0.0140)	(0.0132)	(0.0177)	(0.0162)	(0.0185)	(0.0164)
45-49 hrs	0.0649***	0.0855***	0.0946***	0.0906***	0.1236***	0.1019***
	(0.0170)	(0.0161)	(0.0178)	(0.0169)	(0.0185)	(0.0170)
50+ hrs	0.0403***	-0.0259**	0.0221*	0.0054	0.0667***	0.0508***
	(0.0119)	(0.0110)	(0.0124)	(0.0117)	(0.0124)	(0.0113)
40-48 weeks	-0.1262***	-0.1203***	-0.1520***	-0.1268***	-0.1534***	-0.0908***
	(0.0128)	(0.0122)	(0.0135)	(0.0134)	(0.0131)	(0.0127)
Married	0.2031***	0.2525***	0.1564***	0.2140***	0.1550***	0.2356***
	(0.0128)	(0.0107)	(0.0137)	(0.0116)	(0.0135)	(0.0111)
Black	-0.1377***	-0.3087***	-0.0903***	-0.0383	-0.1666***	-0.1597***
	(0.0225)	(0.0936)	(0.0217)	(0.0773)	(0.0209)	(0.0596)
Imm pre46	9.0458***		9.0897***		9.4753***	

	(0.0648)		(0.1288)		(0.1952)	
Imm 46-55	9.1453***		9.1898***		9.4831***	
	(0.0319)		(0.0385)		(0.0422)	
Imm 56-60	9.1312***		9.1862***		9.4082***	
	(0.0313)		(0.0373)		(0.0407)	
Imm 61-65	9.0973***		9.1880***		9.4550***	
	(0.0315)		(0.0373)		(0.0404)	
Imm 66-70	9.0850***		9.1490***		9.4381***	
	(0.0296)		(0.0347)		(0.0366)	
Imm 71-75	8.9849***		9.0873***		9.3944***	
	(0.0288)		(0.0335)		(0.0354)	
Imm 76-80	8.9525***		8.9624***		9.3044***	
	(0.0288)		(0.0330)		(0.0349)	
Imm 81-85	8.8898***		8.9278***		9.1992***	
	(0.0293)		(0.0337)		(0.0346)	
Imm 86-90	8.7252***		8.8113***		9.1266***	
	(0.0281)		(0.0317)		(0.0327)	
coh91t95			8.6628***		9.0353***	
			(0.0315)		(0.0321)	
coh96t00					8.9749***	
					(0.0330)	
Constant		8.4031***		8.3994***		8.6144***
		(0.0255)		(0.0292)		(0.0286)
Obs	29,342	29,342	28,086	28,086	31,761	31,761
R-squared	0.99	0.28	0.99	0.27	0.99	0.25

Notes: Dependent variable is log of earnings; standard errors are in parentheses; * denotes significant at 10%; ** significant at 5%; *** significant at 1%

Table A2. Matching Estimates of Log Earnings for Immigrant and Native Born Working Men, 1981-2001 Censuses

	1981 Imm	1981 NB	1981 Diff	1986 Imm	1986 NB	1986 Diff
Imm pre46	9.934927	9.816104	0.118823	10.18295	10.1956	-0.01265
Imm 46-55	9.910438	9.877682	0.032756	10.24762	10.25479	-0.00717
Imm 56-60	9.850884	9.837544	0.01334	10.22732	10.24087	-0.01355
Imm 61-65	9.765417	9.783343	-0.017926	10.12424	10.19429	-0.07005
Imm 66-70	9.826353	9.896182	-0.069829	10.12035	10.22568	-0.10533
Imm 71-75	9.681878	9.832711	-0.150833	10.01467	10.17973	-0.16506
Imm 76-80	9.564622	9.738963	-0.174341	9.93336	10.15876	-0.2254
Imm 81-85				9.705362	10.1371	-0.431738

Table A2 (continued). Matching Estimates of Log Earnings for Immigrant and Native Born Working Men, 1981-2001 Censuses

1991 Imm	1991 NB	1991 Diff	1996 Imm	1996 NB	1996 Diff	2001 Imm	2001 NB	2001 Diff

Imm pre46	10.291	10.293	-0.00159	10.389	10.233	0.156	10.75503	10.65662	0.09841
Imm 46-55	10.488	10.458	0.02964	10.562	10.5712	-0.00944	10.680	10.613	0.06666
Imm 56-60	10.474	10.466	0.00798	10.523	10.523	-0.00069	10.581	10.619	-0.03819
Imm 61-65	10.427	10.460	-0.03296	10.509	10.548	-0.03967	10.611	10.619	-0.00809
Imm 66-70	10.440	10.459	-0.01904	10.514	10.560	-0.04563	10.635	10.636	-0.00094
Imm 71-75	10.297	10.417	-0.12021	10.420	10.511	-0.09113	10.611	10.639	-0.02805
Imm 76-80	10.239	10.350	-0.11109	10.243	10.430	-0.18722	10.492	10.584	-0.09193
Imm 81-85	10.148	10.339	-0.19083	10.191	10.402	-0.21171	10.355	10.542	-0.18748
Imm 86-90	9.936	10.282	-0.34531	10.042	10.385	-0.34364	10.258	10.499	-0.24095
Imm 91-95				9.851	10.325	-0.473969	10.151	10.469	-0.31761
Imm 96-00							10.112	10.507	-0.39539

Notes: Matching estimates are derived from a nearest neighbour match using STATA9 psmatch2 and the regressor characteristics in Table A1, i.e. years of schooling, work experience, hours and weeks worked, marital status, and black visible minority status. Diff represents of log earnings difference between the matched immigrant and native born samples for each immigrant arrival cohort and each Census year.