Intergenerational education mobility among the children of Canadian immigrants*

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Abstract

We analyze the intergenerational education mobility of Canadian men and women born to immigrants using the 2001 Census, and the Ethnic Diversity Survey. A detailed portrait of Canadians is offered as are estimates of the degree of generational mobility among the children of immigrants. Persistence in the years of schooling across the generations is rather weak between immigrants and their Canadian born children, and a third as strong as for the general population. Parental earnings is not correlated with years of schooling for second generation children, and if anything negatively correlated. Finally we find that the intergenerational transmission of education has not changed across the birth cohorts of the post-war period.

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1. Introduction

Terms such as “inclusion,” “exclusion,” “assimilation,” “integration,” and “social cohesion” have become important touchstones for the discussion of public policy in Europe, North America and other countries of the OECD. Much of this discussion, of course, focuses upon the place of immigrants in the economies and societies of these mature democracies, and is particularly moot in the wake of events during the first years of the new century. Race related riots in the streets of Paris but also on the beaches of Australia, controversial publications in newspapers most notably in Denmark but also in other European countries, heated controversy and protests over immigration legislation in the United States, all represent particular flashpoints of the much deeper and persistent challenges associated with adapting to and accepting increasingly diverse immigrant and visible minority populations into host countries that are themselves characterized by more inequality and less solidarity than in past decades.

At the same time many commentators have come to appreciate that an important test of a society’s ability both to adapt and to integrate also concerns the children of immigrants. The individuals throwing the Molotov cocktails in the streets of Paris in the autumn of 2005 were not immigrants to France, but the French born children of immigrants; the discussions of the place of Muslim immigrants in German society became much more salient with the realization that the adult children, particularly the

women, retained traditional values and were not integrating into the mainstream of society.

In this context the schooling of immigrant children is often cited as an important outcome related to their capacities to succeed in the labour market and to adapt to the values of the mainstream. For example, in a lead editorial during the aftermath of the French riots one of Canada's more influential newspapers asked the question that was on the minds of policy makers throughout the OECD, "Could it happen here?" and concluded by suggesting that even the citizens of this country, which is often held up as a model for successful accommodation of immigrants, "can only hope that their public education system and their public institutions can somehow impart a sense of shared values … That dream must be matched with the promise of equal opportunity." (Globe and Mail, 2005)

In this regard, the Canadian experience is an interesting case to examine because it is held up as an international success story. Accordingly, the assessment of the values held by immigrants and second generation immigrants has been the subject of recent study, but with differing interpretations. Soroka, Johnston, and Banting (2007), for example, conclude their analysis of data on national identity and belonging, social values and trust, and social and political participation by stating that "the largest challenges to social cohesion in Canada remain rooted not in the attitudes, beliefs and attachments of relative newcomers but in the historic fault lines between the oldest nations that make up the country." Reitz and Banerjee (2007) also look at similar indicators, but are less sanguine in their conclusions, suggesting that "experiences of discrimination and vulnerability remain, slowing the social integration of minorities. Furthermore, these

effects may be intensified for the children of immigrants, whose expectation of equality may be greater than was the case for their parents."

The objective of our research is to inform this discussion by focusing on the education outcomes of the children of immigrants. Our frame of reference is a growing literature on generational mobility of earnings and education that has come to complement the large number of studies on the social and economic position of immigrants. This literature examines the strength of the tie between the situation of immigrants and the adult outcomes of their children, the so-called "second generation." For example, Borjas (1992, 1993), Card, DiNardo and Estes (2000), and Card (2005) examine both the education and earnings outcomes of the children of immigrants born in the United States, and in particular on how well they do relative both to their parents and to children whose parents were also born in the US. Similar issues framed in roughly similar ways have also been studied in Europe, including among others: Van Ours and Veenman (2003) for the Netherlands; Hammarstedt and Palme (2005), Osterberg (2000), Rooth and Ekberg (2003), for Sweden; Nielson *et al.* (2003) for Denmark; Bauer and Riphahn (2007) for Switzerland; Dustmann and Theodoropoulos (2005) for Britain; and Gang and Zimmerman (2000), Riphan (2002 2003), and Fertig and Schmidt (2002) for Germany. Aydemir, Chen and Corak (2006) examine the intergenerational earnings mobility of immigrants to Canada.

In this context we ask three questions we feel are relevant in appreciating both the accomplishments of the past and the challenges of the future. First, what is the degree of generational education mobility in Canada, and is it different among immigrants and their children? Second, what factors are most tightly related to the schooling outcomes of

second generation Canadians, parental earnings or parental education? And third, has the strength of the tie between parent and child education outcomes changed over time?

The answers to these questions, in our view, help inform policy discussion around issues of "social cohesion" and "integration." The answer to the first question highlights whether the education system functions differently for immigrants. If the education outcomes of Canadian born children of immigrants are closely tied to parental circumstances—and indeed more closely tied than for the children of Canadian born parents—then there is a greater presumption that values and opportunities are based in and transmitted from the home rather than the broader community. In this context a reliance upon the education system to promote rather lofty integrative goals may be an overly optimistic strategy, that to be successful would require institutional reform or behavioural change. The answer to the second question would help to shed light on the worry that the current economic situation of immigrants has strong implications for the next generation. The relative decline in the economic status of immigrants and particularly recent immigrants has been well documented in Canada, as documented for example in Aydemir and Skuterud (2005), Baker and Benjamin (1994), Bloom, Grenier and Gunderson (1995), Frenette and Morissette (2003), Grant (1999), and Hou and Picot (2003). If money matters a good deal in determining the ultimate educational attainment of their children then there may be long-run challenges to their social and economic integration. Finally, the answer to the third question would help to put current challenges into context. If the patterns in the degree of intergenerational transmission of education are no different now than they were a generation or two ago then the suggestion would be to recognize a continuity in the capacity of Canadian society to deal with the challenges it

currently faces, rather than an indication that the current situation is something different and untested.

On all three of these issues our conclusions lead us to adopt a rather confident stance: the correlation between parent and child years of schooling is rather loose among immigrants and their children, and indeed much looser than it is for the Canadian born children of Canadian born parents; money has little to do with this intergenerational tie, indeed if anything lower earning immigrant parents have more educated children; and finally the strength of the tie between parent and child years of schooling has not changed across the birth cohorts of the post-war era. All of this also plays out in a context in which immigrants and their children have on average more years of schooling than Canadians who have been in the country for more than two generations. This said, we also underscore the fact that these results are global, referring to societal averages, and offer an overall view of how Canadian society functions with respect to the schooling of children and children of immigrants. This is not to say that there are not particular challenges that have to be faced, and we offer, in the final substantive section of the paper, some details on the nature of these. In line with previous research from a number of different perspectives we find that the potential hotspots concern the sons of immigrants from a small number of countries, particularly the Caribbean and West Africa. This perspective helps to reconcile the contrasting interpretations sometimes given by studies focused only on values: overall a sanguine perspective is appropriate, but specific yet important concerns remain to be addressed.

2. A descriptive overview

Our analysis is based upon the 2001 Canadian Census, and on an associated post-censual survey conducted in 2002, the Ethnic Diversity Survey (EDS). The Census analysis relies upon a new question referring to the birthplace of the respondent's parents. The so-called "Long Form" of the Census questionnaire, administered to 20% of the population, asks all persons age 15 and over in which country their father and mother were born.[1] On this basis the 2001 Census allows the precise identification of immigrants, second generation immigrants, and others born in Canada (which we refer to as third generation or higher). The Ethnic Diversity Survey uses the Long-Form respondents as a sampling frame, over-sampling those with an ethnic origin that is non Anglo-Saxon, permitting a more detailed analysis of Canadians by their ethnic and cultural background (Statistics Canada 2003). It also contains the same information on parental place of birth as the Census, permitting an analysis of immigrants and second generation immigrants in addition to the general population.

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[1] This is question 32 and the exact wording is as follows.

Remember, these questions are only for persons aged 15 and over.
PLACE OF BIRTH OF PARENTS.

32 Where was **each of** this person's parents born?
Mark " × " or specify country according to present boundaries.

(a) Father □ Born in Canada
Born outside Canada
Specify country

(b) Mother □ Born in Canada
Born outside Canada
Specify country

As the 2001 Census marks the first time since 1971 that information on parental place of birth is available we begin by offering a descriptive overview of the Canadian population that places second generation immigrants and their educational attainment in a broader context. Tables 1 and 2 present information representative of the Canadian population using the full 20% file for both men and women categorized by parental origin. The population is classified into three broad groups: (1) Canadian born, by which we mean either those of aboriginal ancestry or those who are third generation or higher Canadians; (2) immigrants, those born in a country other than Canada; and (3) second generation Canadian, those born in Canada whose parents were born elsewhere. Since there is some suggestion in the literature that long-run integration is related to language acquisition and age at migration we divide the immigrant population into two groups, those arriving before the age of 12 and those who were 12 or older when they arrived. The former group is likely to have spent some part of their schooling in the Canadian elementary system and are more likely to have developed better language skills. Research has suggested that these are important considerations in understanding the integration of immigrant children (Worswick 2004). This could also mean they may not differ in their adult outcomes from children who were actually born in Canada to immigrant parents, the second generation group. For the descriptive purposes of these two tables we categorize second generation Canadians into three sub-groupings according to whether only the father is an immigrant, only the mother, or both parents.[2]

Information of this kind last appeared in the Canadian Censuses in 1971 when a much more restrictive question was posed, asking only if the respondent's parents were born in Canada without identifying their country of birth.

[2] We restrict the Census data to non-institutional residents aged 16 to 65 years. Individuals who resided outside the ten provinces and non-permanent residents are also excluded. Non-permanent residents refer to persons in Canada on student or employment visas, Minister's permits, or refugee claimants.

The weighted population shares suggest that in 2001 almost 65% of the Canadian population aged 16 to 65 are of aboriginal origin or third generation, and in the neighbourhood of 20% are immigrants. The group we are focusing on—those with both parents born outside of the country—represent 7¾% of the male population and about 7¼% of the female population. A broader definition of a second generation immigrant based on having only one parent born outside of Canada would encompass just over 15% of the population, and close to 20% if those who immigrated to the country before the age of 12 were included. Immigrants and second generation immigrants form, in other words, a sizable proportion of the Canadian population.

A focus on those with both parents born abroad places the attention upon a sub-category that is likely harder to integrate than those having one Canadian-born parent. Conditional on being between 16 and 65, this group is on average 35 years of age, and tends to be slightly younger than their Canadian born counterparts with both parents born in the country, who are about 39 years of age on average. Just over 50% are less than 35 years of age, compared with under 40% for third generation or higher Canadians.

At the same time these second generation Canadians also tend to have more education: those with both parents born elsewhere having on average about 14 years of schooling, one year more than third generation Canadians. Around a third have at least 16 years of education, with over 20% of men and almost one-quarter of women having at least an undergraduate university degree. About 22% of third generation Canadians have this many years of education, while less than 15% have at least an undergraduate university degree. In fact almost 30% of third generation men and about a quarter of third generation women have less than 12 years of schooling, this proportion being

significantly lower at 16% and 14% for second generation Canadian men and women respectively.

These comparisons continue to favour second generation Canadians even when they are done within birth cohorts, as in Tables 3 and 4. Every ten year age cohort of second generation Canadians with both parents born elsewhere has a higher proportion with 16 or more years of education than third or more generation Canadians. This is particularly so for the younger cohorts. Over 44% of 25 to 34 year old men with both parents born abroad have at least 16 years of education, compared to 30% of those with parents born in the country. Slightly over one-half of second generation women in this age group have at least this many years of schooling, versus 35% of their third generation counterparts and higher than any other birth cohort across both genders. While this group of women has considerably more education than their male counterparts of the same age, for older cohorts—particularly the oldest—men tend to be more educated.

Our analysis is based essentially, but not entirely, upon this younger cohort. They are at once an old enough group for which we can reasonably begin to assume that the schooling process has been completed, yet young enough to permit an analysis across generations by using information on their parents in the 1981 Census.

3. Data and a framework for the analysis

The empirical approach is motivated by the regression to the mean model used in economic analysis to measure mobility in earnings, income, and other indicators of socio-economic status across the generations as described, for example, in Corak (2004) and

Mulligan (1997). This is depicted in equation (1), where Y represents an outcome of interest, in our case years of education attained, and t is an index of generations.

$$Y_{i,t} = \alpha + \beta\, Y_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

To use the example of education, in this equation the educational attainment of family i's child would be $Y_{i,t}$, which is equal to the average years of education of generation t children, as represented by α, plus two factors determining the deviation from this average: a fraction of parental education ($\beta\, Y_{i,t-1}$) and other influences not associated with parental education ($\varepsilon_{i,t}$).

Average educational attainment will evolve through time, and it is very likely that many or all members of a generation will have more education than their parents. This is captured in equation (1) by the value of α. However, and just as importantly, the equation reflects the idea that an individual's education is nonetheless related to his or her parents' education. This is captured by the value of β, which represents the fraction of education advantage that is on average transmitted across the generations. In other words, β summarizes in a single number the degree of generational education mobility in a society. It could conceivably be any real number. A positive value would indicate generational persistence of education in which higher parental education is associated with higher child education; a negative number would indicate generational reversal in which higher parental education is associated with lower child education. In fact, the published research shows that this coefficient has always been found to be positive, though varying significantly across countries and with the level of development as, for example, in the analysis of over 30 countries by Hertz *et al.* 2007.[3]

[3] Intergenerational mobility in education has of course been a longstanding concern in both economics and sociology. Some of the most related Canadian work in this area includes de Broucker and Lavallée (1998)

We implement this framework in two separate ways: indirectly using a grouped estimator from the Census, and directly using reported individual information on parental education from the Ethnic Diversity Survey. We follow the US analysis of Card, DiNardo and Estes (2000) and define second generation immigrants to be those Canadian born individuals whose mother and father were both born outside of Canada. First generation immigrants are defined as those who immigrated to Canada regardless of the age of arrival. In beginning it should be underscored that the 2001 Census does not permit a direct link between the adult outcomes of children and the status of their parents when they were raising their families. But it does permit the construction of a "grouped" estimator relating the average outcomes of second generation adults in 2001 with the average background characteristics of immigrant adults from the 1981 Census who were potentially their parents. An analysis of the generational mobility of immigrants using detailed country of origin along these lines is also offered in Borjas (1993) and Card, DiNardo and Estes (2000), and particularly in the research on the generational earnings mobility of the children of immigrants in Aydemir, Chen, Corak (2006).

The analytical files from the Census are constructed as follows. Immigrant fathers are drawn from the 1981 Census and restricted to those individuals whose spouse is also an immigrant, and who have Canadian-born children between the ages of 5 and 17 years. Using regression analysis average values of $Y_{i,t-1}$ are calculated for each country of origin for individuals matching these criteria. Correspondingly, the second generation sample

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using the *International Adult Literacy Survey*, Fournier, Butlin and Giles (1995) using the *Survey of Labour and Income Dynamics*, and Sen and Clemente (2006) using the *General Social Survey*. The latter is closest in spirit to the methodology we employ, but all of these studies find a strong positive association between parent and child education, though none focuses on immigrants. More recently attention has also shifted to the relationship between family background and actual literacy and numeracy outcomes for children, as opposed to formal schooling. See for example OECD and UNESCO (2003) based upon the *Programme for International Student Assessment*.

consists of individuals between 25 and 37 years of age in 2001, whose parents are both immigrants. Average values of $Y_{i,t}$ are calculated for each country that respondents report their fathers came from.

Since the variation in the outcome variables may arise from the differences in demographic characteristics between country groups, we construct age- and region-adjusted years of schooling and earnings outcomes for each country of origin. For the immigrant parents, we regress the variable of interest (years of education and also the logarithm of weekly earnings) on age, age-squared, country of origin dummies, dummies for the Canadian province of residence, and country of origin dummies interacted with age and age-squared. The inclusion of these interaction terms controls for differences in age-earnings profiles across countries. We then calculate predicted schooling or earnings for each source country at age 40.[4] For the second generation sons and daughters we construct age- and region-adjusted outcomes by regressing schooling on age, age-squared, dummies for father's country of origin, and region dummies, and then predict outcomes for each country group for a 31-year-old living in Ontario. These points in the life cycle correspond roughly to that used in Aydemir, Chen, Corak (2006) and in much of the Canadian generational earnings mobility literature, as well as roughly to the suggestion of Haider and Solon (2006) who examine life cycle biases in the derivation of permanent income.

To avoid small sample size problems, we aggregate some countries in which observations are less than 30 into groups and arrive at a total of 70 countries. This is done

[4] The exclusion restrictions imposed on the underlying data differ slightly across the two variables of interest. For education we use all available observations; for weekly earnings we use only those observations in which respondents report positive earnings.

separately for sons and daughters. These 70 data points are used to estimate equation (1) for sons and daughters using years of education as the outcome, and weighted by population shares. As mentioned, we also calculate parental earnings in the same way, opening up the possibility of relating both parental education and earnings to the educational attainment of the children.

This grouped data estimator of equation (1) has both advantages and disadvantages. These are discussed in Card, DiNardo and Estes (2000). The most obvious disadvantage includes the potential slippage between the generations. The "parents" are the potential parents of the children, and there could be a slippage in how representative they are of the actual parents due to death or emigration. At the same time, however, it should be noted that the large sample size available to us through the use of the full 20% Census file reduces this problem to the largest extent possible in the literature with which we are familiar. In particular this is a tighter fit than possible with US data. For example, Card, DiNardo and Estes (2000) are able to develop a similar structure for only 30 source countries, and the data requires them to relate the earnings and education of all immigrants in 1980 to all second generation individuals aged 16 to 65 in 2000. Furthermore, as discussed in Aydemir and Borjas (2006), since the within cell means are based upon calculations that are samples their accuracy will vary with the number of observations available. The implication is that the sampling variation associated with the independent variable will cause an attenuation bias. Aydemir and Borjas (2006) examine the nature and extent of this bias, and also show that the use of the 20% Census file, as opposed to smaller sampling rates available in public use versions, affords a sufficiently large sample size to minimize its impact.

On the other hand, the advantage of this estimator is that it is more robust to measurement error. This is a particularly important concern in the analysis of the intergenerational transmission of earnings inequality as discussed, for example, in Solon (1999, 1992). In this literature researchers are faced with the difficulty of having to infer information on permanent income from annual earnings, and trying to minimize a classical errors in variables problem through instrumental variables or through multi-year averages from panel data on individual annual earnings. At first glance it might be reasonable to suppose that the measurement error problems in an outcome like education are not as severe as with earnings. Much of the literature implicitly and even explicitly assumes that in fact it is absent, but Ermisch and Francesconi (2004) using UK data on a commonly employed measure of socio-economic status point out that this need not be the case.

All of this said, we use the Census jointly with and as a complement to the Ethnic Diversity Survey, which has the advantage of offering individual level information on educational attainment across two generations. This is a post-censual survey representative of the entire population, but with the objective of providing information on the ethnic and cultural background of Canadians. A sample of just under 42,500 people 15 years of age and over were interviewed in 2002 using the one-in-five 2001 Census data as the sampling frame, and basing the sample selection on the ethnic origin, place of birth, and parental place of birth. Those who were not Canadian, British, French, American, Australian, or New Zealanders in their response to ethnic origin questions were over-sampled (Statistics Canada 2003). The limitations of the Ethnic Diversity Survey are that there is no information on earnings and income, and the smaller sample

size limits somewhat the degree to which specific countries of origin can be examined. It is in these ways that the Census can be a useful complement. The advantages over the Census are the retrospective information on parental education collected from survey respondents, and the capacity to estimate equation (1) for both the children of immigrants, for the entire population of Canadians, and for different birth cohorts.

The EDS contains all the information from the 2001 Census for each survey respondent including, most importantly for our purposes, the years of education attained. The information on parental education attainment, however, is recorded as one of nine categories. In converting this information into years of schooling we rely on the fact that in addition to actual years of education the Census also reports information categorically, and actually in more detail with 16 categories being used. We recode both the EDS categories and those in the 1981 Census into seven common categories.[5] We then match years of schooling from the Census to the EDS by cells defined according to: gender, country of origin, education category, and age (25 to 44 years, 45 to 54 years, and 55 and older). Within each of these cells we calculate from the 1981 Census the mode of the years of schooling and match this statistic to the individuals in the EDS in similarly defined cells according to the information they provided on their mothers and fathers.[6]

A summary of this information by broad region of origin is offered in Table 5 along with information from the Census. The average years of education for second generation men and women in panels 3 and 4 of the table are essentially the same across

[5] These are: (1) less than high school, including no schooling; (2) high school diploma; (3) some college without a diploma or certificate; (4) some university without a diploma or certificate; (5) college graduation with a diploma or certificate; (6) undergraduate university degree; and (7) graduate university degree.

[6] We also calculated the cell medians and cell means. These all led to similar results, but the mode came closest to the Census results in a comparison across broad regions of origin.

the two data sources, never differing by more than 0.3 to 0.4 of a year. This is not surprising since the EDS information is extracted from the Census, the differences likely reflecting sampling error. Second generation Canadians regardless of the region of the world in which their parents were born all have more years of education than Canadians with parents also born in Canada. The advantage is greatest for those with African and Asian origins.

The information in panels 1 and 2 compares the direct measures of the years of schooling from the Census to the data calculated from the categories reported in the EDS. The averages across these two sources are similar, with the possible exception of those from Africa, the Census reporting an average of 14.9 years and our derivations from the EDS implying 16.1 years. But the EDS information is based upon a rather small sample of just 68 observations, so it is likely that this differences is due to sampling variation. The next largest difference is 0.7 years for those from Asia.

Further, the information as a whole suggests that all groups made gains over their parents. Canadians 25 to 37 years of age with Canadian born parents have roughly two to three more years of education on average than their parents. Gains are also made by second generation Canadians, though in some cases not as great in absolute levels because of the higher starting point of their parents. However, the gains are particularly high for those whose parents were born in Southern and Eastern Europe. On average fathers had just under nine years of schooling, but the children obtained 15 years. Those with parents born in Asia also obtained significantly more education than their parents, about two to three years more on average. A more refined examination of this type of

mobility, in the context of equation (1), using both grouped data and individual data is discussed in the remainder of the paper.

4. Results

a. The degree and nature of intergenerational education mobility

Tables 6 and 7 offer results from the estimation of equation (1) using both the grouped data estimator from the Census, and individual level information from the EDS for men and women 25 to 37 years of age. This is done using father's years of education as the regressor in the first panel, mother's education in the second, and both at the same time as reported in the third and final panel of each of the tables. For men 25 to 37 years of age every additional year of education their fathers have is associated with 0.13 years of more education. This estimate is virtually the same regardless of whether the Census estimate or the EDS estimate is relied upon. This suggests that the grouping estimator does not suffer from undo problems associated with the use of potential as opposed to actual fathers, and that there is likely little measurement error in this information. For women the point estimates are different at 0.10 and 0.16, but the standard error is 0.03 suggesting that the confidence intervals overlap. Further, all of these estimates appear to be about the same—within one standard error—if mother's education rather than father's is used as the right hand side variable.

The second result from these tables is that at 0.13 and 0.16 the estimates are lower than those for third generation Canadians of the same age cohort. The educational attainment of men and women whose parents were born in Canada is much more strongly tied to that of their fathers and their mothers than it is for second generation Canadians.

For every additional year of parental education the child's education is in the neighbourhood of 0.37 to 0.4 years higher, triple the estimate for Canadian born children whose parents were immigrants. These results are also robust to using mother's education as the regressor. This contrasts with the finding in Aydemir, Chen and Corak (2006) showing that the intergenerational elasticity of annual earnings, estimated to be about 0.2, is the same among second generation Canadians as it is among the population as a whole.

Finally, the last panel of the table, by including both paternal and maternal years of education in the equation, makes explicit that for the second generation sample mother's and father's education have roughly the same association with the son's education. For every additional year of paternal education the education of second generation Canadian men is 0.8 years higher, and for every additional year of maternal education it is 0.1 years higher. The standard error of these estimates being 0.05. Paternal education seems to be more important in the case of women, as there is no statistically significant association with maternal education. The education of third generation men is more tightly associated with paternal years of schooling, but there is no difference between parental effects for women.

Traditionally in the child development literature maternal education is seen as the prime influence on child attainments, as for example in the discussion by Haveman and Wolfe (1994, pp. 99-101). But recent research has brought this into some question because of the lack of controls for paternal education in many of these studies. If there is assortative mating so that the education levels of parents are similar the use of only maternal education could be misleading (Behrman and Rosenzweig 2002). Indeed, Sen and Clemente (2006) offer an analysis of intergenerational educational attainments using

the Canadian General Social Survey and obtain results similar to ours. Their results are for the entire population and are best compared to those reported in Tables 6 and 7 under the heading "entire population." They also find that the probability of post-secondary education is positively related to that of both parents, but somewhat more strongly to fathers.[7] Much of our focus in the remainder of the paper is therefore on the relationship between child outcomes and paternal education.

Tables 8 and 9 amplify slightly the findings in Tables 6 and 7 by using quantile regressions to examine the underlying heteroscedasticity in the data, and highlighting which part of the distribution is contributing to the difference in the intergenerational covariance of years of education. The results are not strong and unambiguous. The first panels of Table 8 suggests, for example, that the least squares estimate of 0.134 for second generation men is driven more by those sons at and below the median than those above, but that the estimate of 0.4 for third generation men is driven by the those in the top half of the distribution. That is, the link between parent and child education is stronger for high achieving sons among the native population, but stronger for low achieving sons for the second generation population. But overall there are no really strong differences. The second generation estimates are always much lower than those for the third generation throughout the entire distribution of child attainments. This general conclusion also holds for women, as reported in Table 9.

[7] The results they report in the second columns of their Tables 2 and 3 are not, however, directly comparable in magnitude to our findings because they deal with the probability of any post-secondary education or any university education rather than years of education. They are also not restricted to the age cohort upon which we focus. Their linear probability model of any post-secondary education leads to coefficients of 0.28 and 0.24 for indicators of whether the father attended post-secondary and whether the mother attended post-secondary. They also control for age, gender, marital status, and province. The coefficients are estimated to be 0.27 and 0.18 when the probability of any university education is being examined.

b. Parental education and earnings

Table 10 offers Census based least squares results examining the association of both paternal education and income with child education attainment. The results reported in the first column repeat, for the sake of reference, the results from the first columns of Tables 6 and 7, indicating the small positive association between father-child years of schooling. These coefficients are statistically significant at any marginal significance level, being three times as great as the standard error, and explaining about a fifth to a third of the total variance depending upon whether the focus is on men or women. This is in sharp contrast with the findings in column 2, which are based on only the log of paternal weekly earnings as the regressor. The coefficient is not statistically different from zero for men nor for women, explaining none of the variation in the data. Finally, and not surprisingly, when both paternal years of education and earnings are used in the model education dominates. It actually turns out that earnings are negatively associated with the child's years of schooling—being on the margin of statistical significance at the 95% level—and the coefficient on education becomes larger in magnitude.

The suggestion in all of this is that on average paternal earnings on its own has no strong association with the education outcomes of children, sons or daughters. The education outcomes of second generation children is much more closely tied with the education of their parents, and relatedly to the institutional structure of an education system that does not appear to limit access according to income.

c. Changes in the intergenerational association of education

Tables 11 and 12 offer an expanded version of the Ethnic Diversity Survey results presented in Tables 6 and 7 by fully interacting equation (1) with birth cohort effects. The base case is the cohort 25 to 34 years of age, and separate intercepts and slopes are added for those 35 to 44 years, 45 to 64 years, and finally those 65 and older.[8] Three results follow from this exercise for both men and women.

First, for both the second generation and the third generation populations the slope coefficients seem to be the same across all birth cohorts. Rarely are the estimated coefficients for the interaction terms with paternal education greater than one standard error, and they are never greater than two standard errors. Individually these coefficients are not statistically significant from zero, but also F-tests do not reject the null hypothesis that collectively they equal zero.

Second, the estimates of the constant term make clear that second generation Canadians obtain more years of schooling than those born in the country with Canadian born parents. To be precise, for those 25 to 34 years of age the difference in years of schooling for men is four years in favour of second generation Canadians; for women it is almost 2 ½ years.

Third, the separate intercepts for each birth cohort suggest that only in the case of the very oldest cohort, those older than 65 years in 2001, are the years of schooling different. This cohort obtained from 2 ¾ to 4 ⅔ years fewer schooling than all younger cohorts. This could reasonably be attributed to changes in school leaving legislation as these individuals would have been 15 years of age at some point before 1950

[8] Our original inclination was to use 10 year age cohorts, but the group 55 to 64 represented about 7% of the samples, and we decided to aggregate it with 45 to 54 year olds after preliminary regressions revealed no statistically significant results.

(Oreopoulos 2005). It is the statistically significant result for this single cohort drives the results of F-tests to a point that we cannot reasonably reject the null that all intercepts are collectively equal to zero.

With the possibility of this last exception, the results from this model show that for both men and women the intergenerational association in educational attainment, including overall average attainment, has been stable across all birth cohorts. None of the findings associated with Tables 5 and 6 need be modified: the Canadian born sons of immigrants obtain about 0.13 years more schooling for every additional year their fathers have, and daughters about 0.16; this is significantly lower than the tie between the Canadian born children of Canadian born parents who obtain an additional 0.3 to 0.4 years of schooling for each additional year. In particular, the degree of intergenerational mobility among most recent second generation Canadians is no stronger or no weaker than it has always been, and has not changed relative to third generation Canadians.

5. Some refinements

These findings all pertain to averages, speaking to the overall patterns in the country. However, the large sample size of the Census allows us to explore the variation in the data in more detail than possible with any other data file. Figures 1 and 2, for example, offer scatter plots of parent and child years of schooling used in the regression analysis presented in the first column of Tables 6 and 7. This illustrates the grouped information from each of the 70 countries making up our analytical file. A picture of this sort would be available from the EDS but, because of the smaller sample size, for only about 30 countries. The weighted least squares regression line with slopes of 0.136 for father-son

years of schooling, and 0.102 for father-daughter years of schooling are included in the figures, as are the average years of schooling for Canadian born fathers and their Canadian born children. These latter points are for illustrative purposes and are not used in the regression.[9]

The figures make clear that the children of immigrants are more educated than their counterparts with Canadian born parents: the educational attainment of the latter lies below the level predicted by the regression line for the number of years of schooling their fathers on average had. While there is rapid regression to the mean among immigrant children—much more rapid than for the native Canadian population—it should be clear that this mean is an immigrant based mean that is higher than the overall Canadian mean. The children of immigrants are regressing to a different, higher, mean than their counterparts.

The pictures also make clear that in spite of the general tendencies there is a good deal of variation about the estimated regression lines. For the strong majority of countries immigrant fathers have more than the average education of Canadian born fathers, and this advantage is passed on to the next generation, both sons and daughters having more years of schooling then their Canadian born cohort with Canadian born parents. In only four countries do immigrants have an education disadvantage that continues to be reflected in the next generation of sons and daughrers. For all the other countries in which

[9] We examined the robustness of the regression estimates by successively dropping a single observation from the estimation and recalculating the slope before then re-including it in the estimation and dropping the next observation. There are no particularly influential observations in the data, the estimated slope not changing at all. The only exceptions to this—for both sons and daughters—were the estimates excluding the UK, Italy, and Portugal. Without the UK the slope for father-sons is just over 0.16, and similarly without Italy; without Portugal it is 0.11. These are all within one standard error (0.038) of the original estimate of 0.136. The general patterns and conclusion also hold for the father-daughter analysis. Also to be strictly correct the averages depicted in the figures are for the reference case of someone living in Ontario.

father's education is less than the average, the children make relative gains and exceed the Canadian average.

We use the information in these figures combined with similar information on weekly earnings in Aydemir, Chen, and Corak (2006) to highlight particular communities of concern. One could imagine that matters of integration into the broader community would be particularly salient under at least the following two circumstances. First, father's come to the country with greater than average schooling, yet earn less than the average. This might in part be the situation currently playing itself out because of the reported difficulties in having foreign education credentials recognized in the Canadian labour market. If these fathers then witness a similar scenario occurring for their children, it can reasonably be imagined that a sense of frustration or lack of belonging to the host country could develop both among them and among their now adult sons and daughters. They may be willing to shoulder the costs of below average earnings in spite of having above average education, but to see that these costs do not lead to an improved situation for their children may change their perspective. The second particularly pertinent scenario might be one of intergenerational transmission of low income and education: fathers who come to the country with below average education and below average earnings see their children to grow up to also have lower education and earnings than the mainstream. This is a scenario in which there is a higher likelihood that disadvantage and poverty will have intergenerational consequences, and might also be a case in which the chances of social exclusion are greater.

In order to illustrate the relevance of these two possibilities we cross-classify the information in Figures 1 and 2 with similar information on parent-child weekly earnings.

The results are offered in Tables 13 and 14, panels 1 looking at countries of origin in which fathers have on average more years of schooling than their Canadian counterparts; panels 2 in which they have less. Focusing for the moment on Table 13, dealing with the father-son relationship, it is notable, firstly, that there are no cases of downward education mobility: if fathers have above average education so do the sons. Second, in 57 of 70 countries the fathers have above average education, and in two-thirds of these they also have below average earnings. But in 11 of these 38 cases the sons go on to earn less than the Canadian average in spite of having above average education. So only a very small number of countries representing a small total population occupy this potentially challenging position. That said these are dominated by the Caribbean countries, and with the addition of West Africa likely represent a visible minority group highlighted by Reitz and Bannrjee (2007), and the basis for their rather pessimistic perspective on the integration of second generation immigrants.[10]

To address our second potential hotspot, there are only 12 countries in which fathers have less than average years of schooling and less than average earnings, and in all but two of these cases the sons go on to have above average earnings, breaking out of this potentially challenging starting point. Some of these sons do this by having above average education (six of ten), while others continue to have below average education in spite of having higher earnings. There are only two cases of an intergenerational transmission of disadvantage in education and earnings: Cyprus and Greece, and neither

[10] The fact that Japan is also included in this group might be a bit of an anomaly. A closer look at the data shows that with respect to weekly earnings the data for both fathers and sons are essentially the same as the Canadian average, differing by less than 0.01 log points. The Japanese could just as easily be included as above the average, as below.

of these countries have been highlighted by the existing literature as being particular flashpoints for discontent.

The situation for daughters, presented in Table 14, is in fact even better than for sons. There is only one case of downward education mobility, Norway, and only one case in which fathers with above average education and below average earnings have daughters who grow up to also have above average education and below average earnings. For 37 of the 38 countries of origin with fathers in this situation the daughters go on to have both higher education and higher earnings than their Canadian counterparts. Furthermore, there are no examples of the intergenerational transmission of relative disadvantage in education and earnings. There are 13 countries of origins in which fathers on average have less education than the Canadian average, and in 12 of these they have below average earnings. But there are no cases in which the daughters find themselves with below average education and earnings.

6. Conclusion

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Table 1
Descriptive overview of the Canadian male population 16 to 65 by birthplace and parental birthplace, 2001

	Canadian Born		Immigrants		Second Generation Canadian Born		
	Aboriginals	Third generation or more	11 yrs or younger upon arrival	12 yrs or older upon arrival	Only Father is immigrant	Only Mother is immigrant	Both parents immigrant
Number (unweighted)	128,918	1,159,886	72,544	304,794	84,983	61,683	143,115
Population share (%)	2.65	61.5	3.90	16.5	4.48	3.27	7.74
Average age (years)	35.2	38.8	35.7	44.1	39.7	39.3	34.9
Age (% distribution)							
16 to 24 years	26.0	18.9	25.8	7.27	21.5	20.7	26.1
25 to 34 years	24.8	19.1	22.8	16.2	18.3	18.7	26.8
35 to 44 years	24.1	25.7	21.5	26.3	19.3	20.0	25.8
45 to 54 years	15.8	22.3	22.1	26.2	19.8	25.1	11.0
55 to 65 years	9.27	14.0	7.81	24.0	21.1	15.7	10.3
Average years of Schooling	11.2	13.0	14.0	13.9	13.6	13.7	14.1
Years Schooling (%)							
less than 12 years	52.7	28.4	19.0	21.5	22.4	21.0	16.5
12 years	22.4	22.3	19.6	14.5	22.9	23.0	20.2
13-15 years	17.4	27.3	29.8	25.3	27.3	28.1	30.8
16 + years	7.50	22.0	31.6	38.6	27.4	27.9	32.6
Highest Degree (%)							
less than High School	48.2	28.3	22.2	22.7	24.1	23.2	19.7
High School	27.5	31.2	31.3	24.3	30.9	30.8	31.8
Certificate	20.9	26.5	25.9	25.5	26.7	26.7	27.7
Undergraduate degree	2.87	11.1	16.3	18.4	14.2	15.1	17.2
Graduate degree	0.53	2.87	4.31	9.13	4.14	4.17	3.68

Source: Tabulations by the authors using microfiles from the 2001 Census respondents to the Long-Form, a 20% sample of the Canadian population. All calculations and proportions are based upon weighted data.

Table 2
Descriptive overview of the Canadian female population 16 to 65 by birthplace and parental birthplace, 2001

	Canadian Born		Immigrants		Second Generation Canadian Born		
	Aboriginals	Third generation or more	11 yrs or younger upon arrival	12 yrs or older upon arrival	Only Father is immigrant	Only Mother is immigrant	Both parents immigrant
Number (unweighted)	132,076	1,187,527	70,789	331,788	89,656	62,344	140,682
Population share (%)	2.81	61.0	3.69	17.4	4.56	3.2	7.3
Average age (years)	35.4	39.2	36.0	43.7	40.2	39.6	35.1
Age (% distribution)							
16 to 24 years	24.9	17.9	24.4	6.84	19.9	19.9	25.4
25 to 34 years	25.3	19.1	22.7	18.2	18.4	18.9	26.9
35 to 44 years	24.7	26.1	22.5	26.5	19.5	20.0	25.9
45 to 54 years	15.9	22.5	22.6	25.8	20.4	25.1	11.1
55 to 65 years	9.18	14.3	7.75	22.6	21.9	16.2	10.8
Average years of Schooling	11.6	13.2	13.8	13.2	13.6	13.7	14.3
Years Schooling (%)							
less than 12 years	46.3	24.3	18.1	24.4	19.9	18.7	13.4
12 years	22.3	23.1	21.8	16.3	24.1	24.7	20.5
13-15 years	22.0	30.6	31.1	28.7	30.3	30.4	32.7
16 + years	9.36	22.0	29.0	30.6	25.7	26.2	33.3
Highest Degree (%)							
less than High School	42.8	24.5	20.5	26.1	21.7	20.8	16.1
High School	28.0	31.4	32.5	26.5	30.8	30.8	31.3
Certificate	23.9	29.2	26.7	25.4	29.0	29.2	29.1
Undergraduate degree	4.75	12.6	17.0	16.8	15.4	15.9	20.4
Graduate degree	0.58	2.26	3.37	5.19	3.1	3.26	3.19

Source: Tabulations by the authors using microfiles from the 2001 Census respondents to the Long-Form, a 20% sample of the Canadian population. All calculations and proportions are based upon weighted data.

Table 3
Percentage distribution of educational attainment by age cohort, men 16 to 65 years in 2001

	Canadian Born		Immigrants		Second Generation Canadian Born		
	Aboriginals	Third generation or more	11 yrs or younger upon arrival	12 yrs or older upon arrival	Only Father is immigrant	Only Mother is immigrant	Both parents immigrant
	(column percent distribution within each cohort)						
16 to 24 years of age							
less than 12 years	59.1	31.9	29.0	24.2	27.0	28.0	22.3
12 years	26.6	28.2	23.4	23.0	28.5	29.0	23.3
13 to 15 years	12.0	30.0	34.0	36.4	32.5	31.3	36.5
16 or more years	2.21	9.85	13.7	16.5	12.0	11.7	17.9
25 to 34 years of age							
less than 12 years	43.2	16.6	9.31	13.9	10.6	8.78	7.85
12 years	25.7	21.9	16.9	14.3	20.2	21.7	17.1
13 to 15 years	21.5	31.3	29.3	26.7	30.7	31.1	30.8
16 or more years	9.60	30.1	44.6	45.2	38.5	38.4	44.2
35 to 44 years of age							
less than 12 years	48.5	23.1	14.7	17.2	15.8	15.7	11.9
12 years	21.7	23.2	20.0	14.2	22.8	22.8	20.5
13 to 15 years	20.1	29.1	29.6	25.7	28.5	29.8	30.8
16 or more years	9.78	24.6	35.8	43.0	32.9	31.7	36.8
45 to 54 years of age							
less than 12 years	53.1	28.7	18.4	20.3	19.5	19.8	15.3
12 years	18.1	21.1	18.4	13.7	22.8	22.1	20.2
13 to 15 years	19.1	25.8	28.4	24.9	25.8	26.7	28.1
16 or more years	9.76	24.3	34.9	41.1	31.9	31.4	36.5
55 to 64 years of age							
less than 12 years	70.7	49.2	28.4	32.0	36.5	34.9	36.9
12 years	11.1	15.1	17.2	13.4	19.8	18.6	19.4
13 to 15 years	11.2	17.1	22.2	21.2	19.5	20.5	19.1
16 or more years	6.90	18.7	32.2	33.5	24.2	26.1	24.6
25 to 65 years of age							
Average years of schooling	11.2	13.1	14.4	14.0	13.8	14.0	14.4
less than 12 years	50.5	27.6	15.6	21.3	21.1	19.1	14.4
12 years	20.9	20.9	18.3	13.9	21.4	21.5	19.1
13 to 15 years	19.2	26.7	28.3	24.5	25.9	27.3	28.8
16 or more years	9.35	24.8	37.8	40.4	31.6	32.1	37.8
Highest Degree							
Less than High School	42.3	25.4	15.9	21.9	20.5	18.9	15.5
High School	27.6	29.2	26.8	22.5	27.2	27.5	26.3
Certificate	25.8	29.0	31.3	26.6	30.5	30.7	32.6
Undergraduate degree	3.63	12.9	20.2	19.3	16.7	17.7	20.6
Graduate degree	0.71	3.51	5.72	9.80	5.22	5.22	4.87

Source: Tabulations by the authors from the 2001 Census respondents to the Long-Form, a 20%. All calculations use weighted data.

Table 4
Percentage distribution of educational attainment by age cohort, women 16 to 65 years in 2001

	Canadian Born		Immigrants		Second Generation Canadian Born		
	Aboriginals	Third generation or more	11 yrs or younger upon arrival	12 yrs or older upon arrival	Only Father is immigrant	Only Mother is immigrant	Both parents immigrant
	(column percent distribution within each cohort)						
16 to 24 years of age							
less than 12 years	53.4	25.8	25.8	20.9	23.3	23.7	18.2
12 years	26.7	24.7	21.1	22.1	24.3	25.6	19.2
13 to 15 years	16.6	35.1	37.0	37.5	35.8	35.4	39.1
16 or more years	3.34	14.5	16.2	19.6	16.6	15.3	23.5
25 to 34 years of age							
less than 12 years	36.6	11.8	7.14	14.4	7.31	7.34	4.77
12 years	23.4	19.3	14.9	14.8	18.0	17.7	14.0
13 to 15 years	27.3	33.7	30.5	29.7	31.7	31.4	31.1
16 or more years	12.7	35.2	47.5	41.1	43.0	43.6	50.1
35 to 44 years of age							
less than 12 years	40.2	17.6	12.7	18.2	11.6	11.6	8.27
12 years	22.5	26.1	24.1	15.9	25.7	26.1	24.1
13 to 15 years	25.6	32.7	32.0	30.0	32.6	32.8	33.5
16 or more years	11.8	23.6	31.2	35.8	30.1	29.5	34.2
45 to 54 years of age							
less than 12 years	47.0	26.2	20.2	25.2	17.4	17.9	13.0
12 years	19.3	24.9	26.8	16.2	27.8	28.3	25.8
13 to 15 years	21.8	28.5	27.6	28.7	28.9	28.7	30.1
16 or more years	11.8	20.5	25.4	29.7	25.9	25.1	31.2
55 to 64 years of age							
less than 12 years	69.64	48.4	35.19	39.78	36.87	35.62	36.83
12 years	12.12	18.04	23.79	15.84	24.36	24.63	26.12
13 to 15 years	12.59	20.73	22.41	23.86	23.49	22.92	22.31
16 or more years	5.66	12.83	18.61	20.52	15.27	16.82	14.73
25 to 65 years of age							
Average years of schooling	11.7	13.2	14.1	13.2	13.8	13.9	14.5
less than 12 years	44.0	24.0	15.6	24.6	19.0	17.4	11.8
12 years	20.9	22.8	22.1	15.8	24.1	24.5	21.0
13 to 15 years	23.8	29.7	29.2	28.1	29.0	29.2	30.5
16 or more years	11.4	23.6	33.1	31.5	28.0	28.9	36.7
Highest Degree							
Less than High School	37.6	22.5	15.5	26.0	19.1	17.7	12.7
High School	27.1	29.6	28.9	25.0	27.7	27.8	26.6
Certificate	28.8	31.3	31.2	26.2	32.3	32.7	33.2
Undergraduate degree	5.81	14.0	20.1	17.3	17.1	17.9	23.4
Graduate degree	0.77	2.71	4.39	5.52	3.81	4.03	4.12

Source: Tabulations by the authors from the 2001 Census respondents to the Long-Form, a 20%. All calculations use weighted data.

Table 5
Years of schooling by parent's region of origin for second generation men and women 25 to 37 years of age: Census and Ethnic Diversity Survey

	Census	Ethnic Diversity Survey
1. Fathers		
North America, Northern and Western Europe	13.9	13.8
Caribbean, Central and South America and Oceania	13.0	13.4
Southern and Eastern Europe	8.8	8.7
Africa	14.9	16.1
Asia	13.6	14.3
Canadian born	11.3	11.9
2. Mothers		
North America, Northern and Western Europe		
Caribbean, Central and South America and Oceania		
Southern and Eastern Europe		
Africa		
Asia		
Canadian born		
3. Second generation men		
North America, Northern and Western Europe	14.8	14.5
Caribbean, Central and South America and Oceania	14.8	14.8
Southern and Eastern Europe	14.8	15.1
Africa	16.3	16.4
Asia	16.3	16.1
Canadian born, third generation or more	14.0	14.2
4. Second generation women		
North America, Northern and Western Europe	15.2	15.1
Caribbean, Central and South America and Oceania	15.6	15.8
Southern and Eastern Europe	15.4	15.0
Africa	16.8	16.9
Asia	16.6	16.4
Canadian born, third generation or more	14.6	14.5

For information from the Census "Fathers" and "Mothers" in panels 1 and 2 refers to "potential" fathers and mothers from the 1981 Census as described in the text, while from the Ethnic Diversity Survey the labels refers to retrospective information reported by the survey respondents with categorical information on parental education converted to years as described in the text.
Second generation men and women refer to those 25 to 37 years of age in 2001 with both parents born outside of Canada. The sample sizes from the 1981 Census for panels 1 and 2 are 80,651 and _____ . For panels 3 and 4 they are 45,415 and 41,927 for the second generation. The sample size from the Ethnic Diversity Survey used is 1,673 (789 men and 884 women).

Table 6

Least squares estimates of regression to the mean models of education mobility across the generations: Men 25 to 37 years of age

		Census	Ethnic Diversity Survey		
		Second Generation	Second Generation	Third Generation and higher	Entire Canadian born population 25 to 37 years
1.	Father's Education	0.136	0.134	0.400	0.329
		0.038	0.031	0.031	0.023
	Constant	13.6	16.3	3.13	6.40
		0.433	9.38	7.10	5.74
	Sample Size	70	739	1455	2965
	R-squared	0.30	0.111	0.170	0.145
2.	Mother's Education		0.162	0.381	0.309
			0.036	0.038	0.028
	Constant		21.6	6.33	9.31
			9.39	7.34	5.94
	Sample Size		729	1443	2946
	R-squared		0.106	0.115	0.095
3.	Father's Education		0.080	0.320	0.267
			0.046	0.036	0.028
	Mother's Education		0.104	0.213	0.144
			0.053	0.043	0.034
	Constant		20.0	-2.37	3.13
			9.47	7.16	5.82
	Sample Size		697	1392	2840
	R-squared		0.121	0.196	0.160

Note: The results using the Ethnic Diversity Survey in the last three columns are based upon regressions that also include controls for age, age squared, and the Canadian province of residence. Standard errors are reported below the least squares coefficient estimates.

Table 7

Least squares estimates of regression to the mean models of education mobility across the generations: Women 25 to 37 years of age

		Census	Ethnic Diversity Survey		
		Second Generation	Second Generation	Third Generation and higher	Entire Canadian born population 25 to 37 years
1.	Father's Education	0.102 0.031	0.163 0.033	0.370 0.029	0.292 0.021
	Constant	14.4 0.365	10.0 12.2	1.04 6.96	3.76 5.78
	Sample Size R-squared	70 0.22	815 0.078	1734 0.162	3481 0.128
2.	Mother's Education		0.128 0.036	0.403 0.034	0.298 0.026
	Constant		6.21 12.3	2.71 7.02	3.46 5.83
	Sample Size R-squared		824 0.043	1768 0.154	3553 0.109
3.	Father's Education		0.160 0.045	0.249 0.032	0.206 0.024
	Mother's Education		0.0098 0.048	0.252 0.036	0.167 0.029
	Constant		9.27 12.7	-0.116 6.81	2.46 5.66
	Sample Size R-squared		786 0.079	1683 0.206	3372 0.150

Note: The results using the Ethnic Diversity Survey in the last three columns are based upon regressions that also include controls for age, age squared, and the Canadian province of residence. Standard errors are reported below the least squares coefficient estimates.

Table 8

Quantile regression estimates of regression to the mean models of education mobility across the generations: Men 25 to 37 years of age

	Least Squares	25th percentile	50th percentile	75th percentile
Second Generation Men				
1. Father's Education	0.134	0.150	0.154	0.111
	0.031	0.023	0.031	0.036
2. Mother's Education	0.162	0.178	0.200	0.148
	0.036	0.032	0.031	0.042
3. Father's Education	0.080	0.075	0.061	0.051
	0.046	0.022	0.048	0.028
Mother's Education	0.104	0.151	0.150	0.109
	0.053	0.026	0.057	0.032
3rd Generation and higher				
1. Father's Education	0.400	0.379	0.496	0.439
	0.031	0.014	0.014	0.040
2. Mother's Education	0.381	0.333	0.500	0.333
	0.038	0.000	0.000	0.000
3. Father's Education	0.320	0.322	0.372	0.282
	0.036	0.027	0.059	0.034
Mother's Education	0.213	0.191	0.265	0.224
	0.043	0.033	0.059	0.041

Note: Standard errors are reported below the quantile regression coefficient estimates.

Table 9

Quantile regression estimates of regression to the mean models of education mobility across the generations: Women 25 to 37 years of age

	Least Squares	25th percentile	50th percentile	75th percentile
Second Generation Women				
1. Father's Education	0.163	0.169	0.160	0.148
	0.033	0.026	0.043	0.041
2. Mother's Education	0.128	0.143	0.147	0.083
	0.036	0.051	0.039	0.043
3. Father's Education	0.160	0.167	0.151	0.152
	0.045	0.034	0.040	0.054
Mother's Education	0.0098	0.018	0.055	-0.034
	0.048	0.034	0.046	0.065
3rd Generation and higher				
1. Father's Education	0.400	0.382	0.444	0.359
	0.031	0.002	0.037	0.032
2. Mother's Education	0.381	0.333	0.500	0.400
	0.038	0.014	0.000	0.042
3. Father's Education	0.160	0.228	0.320	0.229
	0.045	0.023	0.027	0.028
Mother's Education	0.0098	0.252	0.260	0.264
	0.048	0.025	0.030	0.030

Note: Standard errors are reported below the quantile regression coefficient estimates.

Table 10

Least squares estimates of regression to the mean models of education mobility across the generations: Parental education and income, for men and women 25 to 37 years of age

	(1)	(2)	(3)
Men 25 to 37 years of age			
Father's Education	0.136		0.198
	0.038		0.054
Father's *ln* Earnings		0.465	-2.09
		0.980	1.06
Constant	13.6	12.1	27.1
	0.433	6.70	6.72
Sample Size	70	70	70
R-Squared	0.30	0.01	0.40
Women 25 to 37 years of age			
Father's Education	0.102		0.153
	0.031		0.047
Father's *ln* Earnings		0.284	-1.69
		0.815	0.935
Constant	14.4	13.7	25.2
	0.365	5.57	5.94
Sample Size	70	70	70
R-Squared	0.22	0.00	0.31

Note: Standard errors are reported below the least squares coefficient estimates.

Table 11

Least squares estimates of regression to the mean models of education mobility across the generations: Fully interacted model with birth cohorts, men 25 years and older

	Second generation	Entire population	Third generation and higher
Father's Education	0.104 0.034	0.307 0.0255	0.371 0.0349
Father's Education * 35 to 44 years of age	0.077 0.053	-0.0198 0.0362	-0.0286 0.0489
Father's Education * 45 to 64 years of age	0.052 0.082	0.0556 0.0419	0.0253 0.0531
Father's Education * 65 or more years of age	0.106 0.099	0.0699 0.0642	0.0609 0.0914
Constant	14.2 0.45	11.2 0.339	10.2 0.454
35 to 44 years of age	-0.944 0.637	0.081 0.441	0.231 0.584
45 to 64 years of age	-1.06 0.875	-1.05 0.469	-0.653 0.594
65 or more years of age	-3.73 0.964	-2.95 0.656	-2.76 0.908
Sample Size	1770	9180	4755
R-Squared	0.197	0.187	0.198
F test for slope interactions = 0	0.92 (0.430)	1.48 (0.218)	0.54 (0.653)
F test for intercept interactions = 0	5.03 (0.0018)	9.30 (0.00)	4.30 (0.0049)
F test for all interactions = 0	14.7 (0.00)	24.37 (0.00)	12.1 (0.00)

Note: Standard errors are reported below the least squares coefficient estimates. The marginal significance levels of the F-tests are reported in parentheses.

Table 12

Least squares estimates of regression to the mean models of education mobility across the generations: Fully interacted model with birth cohorts, women 25 years and older

	Second generation	Entire population	Third generation and higher
Father's Education	0.157 0.036	0.246 0.024	0.311 0.032
Father's Education * 35 to 44 years of age	0.0067 0.055	0.060 0.037	0.0250 0.049
Father's Education * 45 to 64 years of age	-0.067 0.076	0.0509 0.035	0.0173 0.044
Father's Education * 65 or more years of age	0.130 0.072	0.106 0.055	0.0847 0.085
Constant	13.8 0.46	12.3 0.32	11.4 0.43
35 to 44 years of age	-0.626 0.62	-1.34 0.43	-0.909 0.57
45 to 64 years of age	-0.727 0.81	-1.82 0.41	-1.35 0.52
65 or more years of age	-4.67 0.76	-4.12 0.54	-3.92 0.79
Sample Size	1952	10892	5703
R-Squared	0.258	0.231	0.238
F test for slope interactions = 0	1.74 (0.156)	1.76 (0.153)	0.36 (0.784)
F test for intercept interactions = 0	13.9 (0.00)	20.0 (0.00)	8.50 (0.00)
F test for all interactions = 0	32.1 (0.00)	65.0 (0.00)	36.8 (0.00)

Note: Standard errors are reported below the least squares coefficient estimates. The marginal significance levels of the F-tests are reported in parentheses.

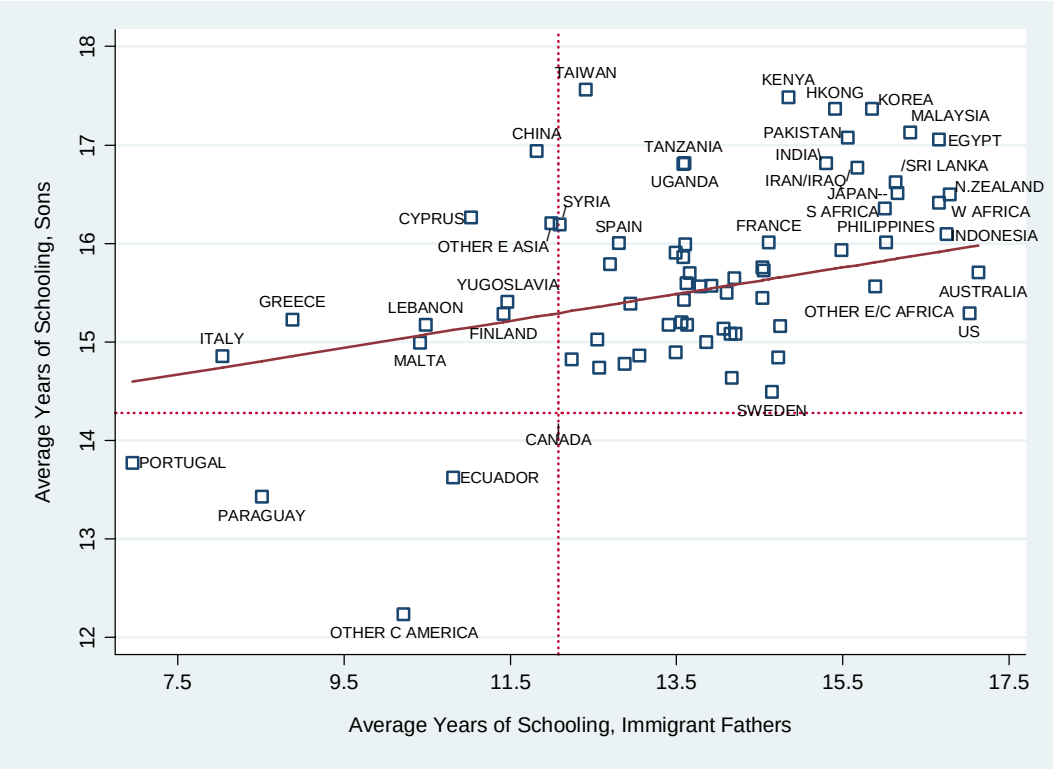
Table 13
Countries of father's birthplace categorized by father's status and son's outcomes for 2nd generation
Canadians: Census, 70 countries

	Son's education greater than Canadian average				Son's education less than Canadian average	
	Earnings less than average	Earnings greater than average			Earnings less than average	Earnings greater than average
1. Father's education greater than Canadian average						
a. Father's earnings less than average	BARBADOS COLOMBIA OCEANIA GRENADA GUYANA HAITI JAMAICA JAPAN ST LUCIA TRINIDAD W AFRICA	ARGENTINA BRAZIL/CHILE HONG KONG INDIA IRAN/IRAQ ISRAEL KENYA KOREA MOROCCO NETHERLANDS	OTHER N AFRICA OTHER S AMERICA OTHER W ASIA OTHER W EUROPE PAKISTAN/NEPAL PHILIPPINES POLAND ROMANIA RUSSIAN	SPAIN/OTHER S EUROPE SRI LANKA SWITZERLAND SYRIA TAIWAN TANZANIA TURKEY UGANDA		
b. Father's earnings greater than average	OTHER CARIBBEAN OTHER E/C AFRICA UNITED STATES	AUSTRALIA AUSTRIA CZECH/BULGARIA DENMARK EGYPT FRANCE	GERMANY HUNGARY INDONESIA IRELAND MALAYSIA & SINGAPORE	NETHERLANDS NORWAY S AFRICA SWEDEN UK		
2. Father's education less than Canadian average						
a. Father's earnings less than average	CYPRUS GREECE	CHINA ITALY	LEBANON MALTA	OTHER E ASIA YUGOSLAVIA		ECUADOR OTHER C AMERICA PARAGUAY PORTUGAL
b. Father's earnings greater than average	FINLAND					

Table 14
Countries of father's birthplace categorized by father's status and daughter's outcomes for 2nd generation Canadians: Census, 70 countries

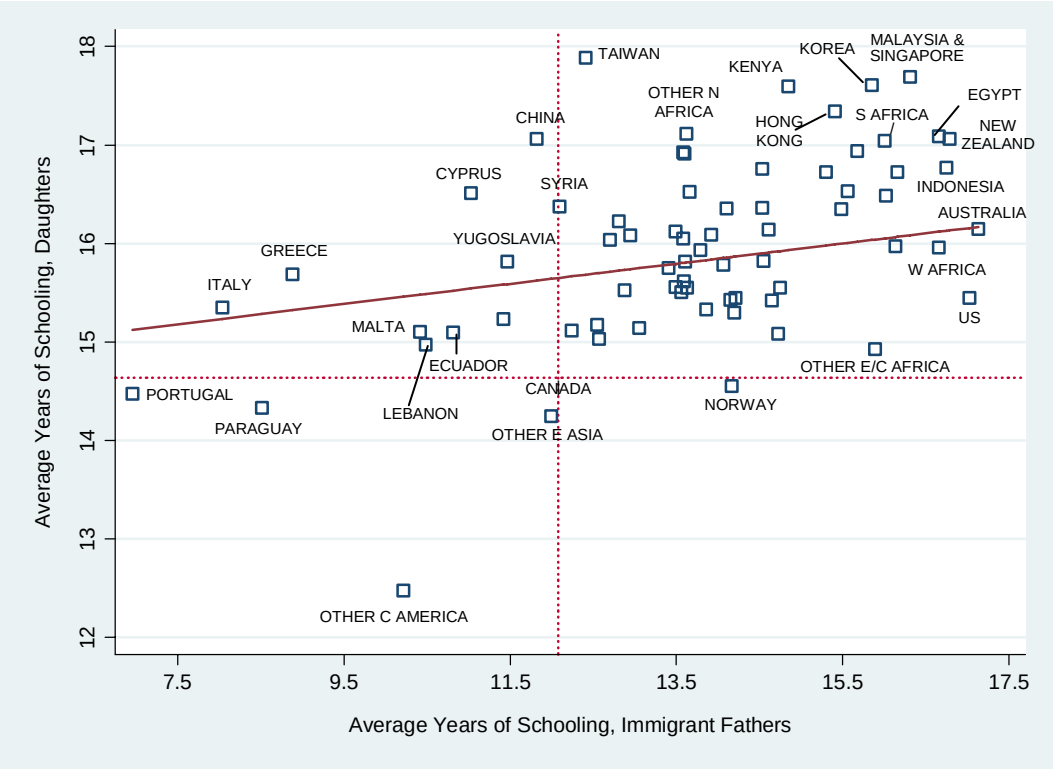
	Daughter's education greater than Canadian average		Daughter's education less than Canadian average	
	Earnings less than average	Earnings greater than average	Earnings less than average	Earnings greater than average
1. Father's education greater than Canadian average				
a. Father's earnings less than average	OTHER S AMERICA	ARGENTINA BARBADOS BRAZIL/CHILE COLOMBIA OCEANIA GRENADA GUYANA HAITI HONG KONG INDIA IRAN/IRAQ ISRAEL JAMAICA JAPAN KENYA KOREA MOROCCO NETHERLANDS OTHER N AFRICA OTHER W ASIA OTHER W EUROPE PAKISTAN/NEPAL PHILIPPINES POLAND ROMANIA RUSSIA ST LUCIA SPAIN/OTHER S EUROPE SRI LANKA SWITZERLAND SYRIA TAIWAN TANZANIA TRINIDAD TURKEY UGANDA W AFRICA		
b. Father's earnings greater than average		AUSTRALIA AUSTRIA CZECH/BULG DENMARK EGYPT FRANCE GERMANY HUNGARY INDONESIA IRELAND MALAYSIA & SINGAPORE NEW ZEALAND OTHER CARIBBEAN OTHER E/C AFRICA S AFRICA SWEDEN UK UNITED STATES	NORWAY	
2. Father's education less than Canadian average				
a. Father's earnings less than average		CHINA CYPRUS ECUADOR GREECE ITALY LEBANON MALTA YUGOSLAVIA	OTHER C AMERICA	OTHER E ASIA PARAGUAY PORTUGAL
b. Father's earnings greater than average		FINLAND		

Figure 1
Scatter plot of grouped data of years of schooling for immigrant fathers and second generation sons: Census data, for 25 to 37 year old Canadian born children of immigrants



Note: The dashed vertical and horizontal lines are the average years of schooling for Canadian born fathers and their Canadian born sons, 12.1 and 14.3 years respectively. These data are not used in the regression analysis between father and son years of education, the results of this weighted least squares regression being represented by the solid line with slope of 0.136.

Figure 2
Scatter plot of grouped data of years of schooling for immigrant fathers and second generation daughters: Census data, for 25 to 37 year old Canadian born children of immigrants



Note: The dashed vertical and horizontal lines are the average years of schooling for Canadian born fathers and their Canadian born daughters, 12.1 and 14.6 years respectively. These data are not used in the regression analysis between father and daughter years of education, the results of this weighted least squares regression being represented by the solid line with slope of 0.102.