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From Parent to Child: Emerging Inequality in Outcomes for Children in Canada and the U.S.

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Abstract
In this paper, we investigate the extent to which early-life differences in family income are associated with differences in outcomes between low- and high-income children ten years later. Separate, but comparable analyses are first conducted for rich compared to poor children living in Canada and the United States. We then also ask whether any rich/poor child outcome gaps that have emerged are greater (or smaller) in Canada compared to the U.S. To address these questions, we construct comparable samples of adolescents and young adults for whom we have current information about outcomes as well as information about family income ten years ago. Our data source for Canada is the Statistics Canada National Longitudinal Survey of Children and Youth and for the U.S. we use the National Longitudinal Survey of Youth, Child-Young Adult supplement.

Key words: inequality, children, child outcomes, Canada, United States
JEL Codes: J13, J18, I32, I21

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INTRODUCTION

Using comparable surveys from Canada and the United States, Corak et al. (2009, p. 11) illustrate that roughly three quarters of respondents in both countries rate 'being free to accomplish anything' at 8 out of 10 or higher as a defining aspect of the 'American Dream;' over half of respondents in both countries (55 percent in the U.S. and 54 percent in Canada) rate 'getting a college degree' at 8 out of 10 or higher. But, options for 'accomplishing anything' are not likely equally available to all children, regardless of their family economic background. Indeed, a significant body of research links family income to child outcomes (e.g., Case et al., 2002; Currie and Stabile, 2003; Dooley and Stewart, 2004; Mayer, 2002; Phipps and Lethbridge, 2006). And, it is also well-established in the literature on the intergenerational transmission of economic status that children with poor parents are more likely to become poor adults while children with rich parents are more likely to be rich themselves (e.g., Corak, 2006).

Although in an ideal world, social institutions such as public education and health care should play a mediating role between family income position and child outcomes predictive of future economic success, in reality, such mediation may be far from complete. If so, then income inequality will regenerate itself as children from lower-income families fall behind children from higher-income families in their educational attainments, for example.

In this paper, we investigate the extent to which early-life differences in family income (e.g., during pre-school years) are associated with differences in outcomes between low- and high-income children ten years later. We thus study early stages in the process of transmission of economic status from parent to child, but by looking back to family income ten years earlier, we have already provided time for part of the story to have unfolded. To sharpen the focus on inequality generation, we 'throw out' children who started life in the middle of the income

distribution, comparing only what has happened over ten years to children who started life at the bottom of the distribution compared to children who started life at the top.[1]

Separate, but comparable analyses are first conducted for rich compared to poor children living in Canada and rich compared to poor children living in the United States. We then also ask whether any rich/poor child outcome gaps that have emerged are greater (or smaller) in Canada compared to the U.S. Corak (2006) reports that nearly half of U.S. children born to low-income parents become low income adults, whereas only about a third of Canadian children born to low-income parents themselves become low-income adults. We ask whether child outcome differences predictive of later earnings differences are already evident for children by age 12 to 14? A Canada/U.S. comparison research strategy is potentially informative because, though the general social context is sufficiently similar to make comparisons relevant, there are nonetheless some important social policy differences (e.g., access to maternity/parental benefits; public health insurance; fewer private schools in Canada) that may mean different levels of policy mediation between early life family income position and adolescent/young adult outcomes.

Although limited by data comparability requirements, we are able to study rich child/poor child outcome gaps for a variety of adolescent/young adult outcomes likely to matter for their economic outcomes later in life. We first look at 'ten years later' differences in family incomes for children and adolescents (aged 10 to 17) who were economically disadvantaged versus economically advantaged while very young (aged 0 to 7). Plausibly, the 'stickier' are relative income positions, the more likely that starting life in a low- versus a high-income family will be associated with relatively low versus high attainments for the child. We next consider differences by early-life economic status in the self-reported educational aspirations of adolescents (12 to

[1] Though the loss of data is unfortunate, the goal here is not to develop the best possible model of the determinants for any one of the many child outcomes studied, but to focus on differences.

15). Do children have the same dreams and plans regardless of family economic background? Finally, we compare rich child /poor child outcome gaps in terms of actual educational attainments: 1) relative math scores at age 12 to 14; 2) completion of a high school diploma by age 19/21; and, 3) enrolment or completion of post-secondary education by age 19/21. All analyses are first conducted unconditionally, and then repeated conditioning on a set of early life 'risk factors' (e.g., mother's age at child's birth, education and marital status, mother's usual weekly paid hours and unemployment experiences, family size).

To carry out our analyses, we construct comparable samples of adolescents and young adults for whom we can track family income back ten years. Our data source for Canada is the Statistics Canada National Longitudinal Survey of Children and Youth and for the U.S. we use the National Longitudinal Survey of Youth, Child-Young Adult supplement.

The remainder of the paper is organized is 4 sections. Section 2 describes the data, with particular attention to issues of cross-country comparability. Section 3 outlines empirical methods while Section 4 discusses estimation results. Section 5 provides some decomposition analyses and Section 6 provides a summary of conclusions from the project thus far.

2. DATA

The Statistics Canada National Longitudinal Survey of Children and Youth for Canada and the National Longitudinal Survey of Youth, Mother-child supplement for the U.S. both provide longitudinal data with information about family income and child outcomes. To construct comparable Canada/U.S. samples, we follow a 'lowest common denominator' approach. The U.S. NLSY data set was originally designed to follow U.S. youth who were aged 14 to 21 on

December 31, 1978. NLSY respondents who later became mothers were then surveyed about their children, who are the focus of our interest here. The original age restriction for the NLSY sample thus imposes an age restriction on the mothers we observe (i.e., they must be between 30 and 37 in 1994); we are also limited to cases where the *biological mother* is the survey respondent. In the Canadian NLSCY, the child rather than the parent is the main focus of the survey which began in 1994 with a representative sample of the child population aged 0 to 11 years. Since there is no restriction on mother age in the NLSCY, we impose the mother age restriction from the NLSY on the Canadian data and limit our attention to households where the biological mother present.

A further restriction in the U.S. data is that there are very few immigrant families (since the mother had to be present in the U.S. during her youth in order to be part of the original NLSY sample). We thus exclude immigrant families from both surveys. In the Canada data set, military families are not included; hence, these observations are dropped in the U.S. data. Since the NLSCY only carries out surveys every two years, our analyses follow the same pattern.

Adults (mothers in the case of the U.S. or 'persons most knowledgeable' in the case of Canada) provide most of the information about the family used for our analyses. In particular, adults provide the data about family income, family composition, parental education and labour market experiences, etc.

Children are not survey respondents in either Canada or the U.S. while they are young. However, in both the NLSCY and NLSY children begin to respond to their own questionnaire from the age of 10, and we use child-reported data for some of the outcomes we study (see below). In Canada, with parental permission, children complete a pen and paper survey. The survey is completed in privacy and returned to the interviewer so that parents do not see the

child's answer. In the U.S., depending upon question and age group, interview method can vary. We provide details in relevant sections below.

Both the NLSY and NLSCY provide longitudinal sampling weights which are employed in all of our analyses. In cases where we pool data for the two countries, weights are standardized so that the sum of within-country weights is equal to one. Although we take care not to include the same child twice, we do have sibling observations in both data sets. Thus, we adjust for clustering by mother's id for the U.S. and by household id for Canada.

Outcome Variables

Given some inevitable limitations in a cross-country comparison, we have, nonetheless, been able to construct a set of indicators which seem both important from the perspective of re-producing income inequality in the next generation as well as reasonably comparable in terms of wording of questions and ages of children asked.[2] These are described below.

Family Income

Our measure of family income is annual income from all sources, including transfers but not excluding taxes. In Canada, mothers are asked "What is your best estimate of your total household income from all sources in the past 12 months, that is, the total income from all household members, before taxes and deductions?" Data are not top-coded in the master files of the NLSCY that we use here. U.S. mothers report their household's income from 19 different categories including items such as wages and salaries, military income, business income, farm

[2] To the extent that any measures are not *exactly* comparable across countries, the research strategy of comparing rich/poor child outcome *differences* (rather than outcome levels) should be helpful.

income, transfers from government sources, and transfers from non-government sources.[3] The total household income is a constructed variable that sums up income from these various sources (Bureau of Labor Statistics (2008)). To capture economies of scale within household with respect to income, equivalent household income is calculated using the "Luxembourg Income Study" equivalence scale, that is, total household income divided by the square root of household size. All analyses of income levels are made in 2003 U.S. dollars. Nominal incomes from other years are converted to 2003 real values using country-specific CPI's. Canadian incomes are converted to U.S. dollars using the purchasing power parity index for 2003.[4]

Educational Aspirations

Adolescents (aged 12 to 15) from both countries answer a question about their education aspirations. For Canada, educational aspirations were recorded on a paper questionnaire. For the U.S., respondents (12-15 years old) were interviewed differently for different age groups. Those 15 years old were considered "young adults", thus they were interviewed primarily by telephone. Those 12-14 years old answered the aspiration question in the Self-Administered Supplement. This component was administered as a paper booklet in 2000, on hand-held personal data assistant (PDA) and on laptop in 2002 and 2004, and on laptop only in 2006 (Bureau of Labor Statistics (2009)).

Based on categorical responses to the educational aspirations question, a set of dichotomous dependent variables indicating different aspiration levels are defined. The wording of the Canadian question is: "How far do you hope to go in school?" For the U.S. 12-14 year

[3]U.S. mothers report income in paper-and-pencil interviews (PAPI) before 1993 and in Computer-assisted personal interviews (CAPI) beginning in 1993 (Bureau of Labor Statistics (2008).

[4] Canadian CPI is taken from CANSIM Table 3260002; US CPI is taken from CANSIM Table 3870007; PPP is taken from CANSIM Table 3800058.

olds, the question is: "How far do you think you will go in school?" For U.S. 15 year olds, the question is: "What is the highest grade or year of REGULAR school, that is, elementary school, high school, college, or graduate school that you would LIKE to complete?" Given our interest in emerging income inequality, it is of interest to compare percentages of affluent and non-affluent children who have "low" compared to "high" educational aspirations. We define 'less than high school' or 'just high school' as having "low" aspirations; we define 'more than one university degree' as having 'high' aspirations. [5]

Math Scores

Based on a math test administered to the youth at home, the Canadian NLSCY provides a classical scaled math score. This math test is made up of 20 computational questions. It is a shortened version of the Mathematics Computation Test of the second edition standardized Canadian Achievement Tests. "The CAT/2 mathematical operations test measures the student's ability to do addition, subtraction, multiplication and division operations on whole numbers, decimals, fractions, negatives and exponents. Problem solving involving percentages and the order of operations are also measured." (pp.148, Statistics Canada (2005)) The level of test is determined by the child's grade or by age if grade is unknown. The classical scaled math score is derived from national standards established by the Canadian Test Centre (CTC) in 1992 using a Thurstone procedure (Statistics Canada 2005 & 2007).

In the U.S. case, the NLSY provides an age-specific standard math score derived from percentile score, which is in turn derived from the raw score. The math test used here is a sub-component of the Peabody Individual Achievement Test (PIAT), which is "among the most

[5] Thus, we also avoid a potential cross-country comparability problem with 'college' which in Canada often means pursuing a two-year technical diploma at a 'community college' rather than a university degree.

widely used brief assessment of academic achievement having demonstrably high test-retest reliability and concurrent validity" (pp. 94, Bureau of Labor Statistics (2006)). The math sub-component includes 84 multiple-choice questions. It tests skills from recognizing numerals and to advanced concepts in geometry and trigonometry (Bureau of Labor Statistics (2006)).

Given concerns about lack of comparability in math tests, we focus simply on having a score that is 'less than average' (bottom two quintile) or having a score that is 'better than average' (top two quintiles), compared to all children who wrote the test (not just the rich and poor children in our sample).[6]

Educational Attainment

Young adults themselves report educational attainment in both countries.[7] Two dependent variables are used here: "dropout" and post-secondary enrolment (or completion). Dropout is a dummy variable coded 1 if the youth has not completed high school by age 19-21 and is not currently enrolled in school. Postsecondary enrolment is a dummy variable coded 1 if the youth is currently enrolled in a postsecondary institution or has completed some postsecondary education by age 19-21.

Some Caveats

We are not able to compare all outcomes for the same sample of children. Some outcomes are only available for older adolescents and young adults (e.g., post-secondary enrolment) whereas others (e.g., educational aspirations) are only asked of younger children.

[6] All analyses have also been conducted using: i) the normalized math score, i.e., math score demeaned and divided by the standard deviation; ii) the quintile position of the child's math score in own country. Results are extremely robust to these alternatives.

[7] In the U.S., the primary interview mode for young adults (15 years or older) had shifted from in-person to telephone interviewing beginning in 2000.

The NLSCY has not been running long enough to be able to follow one set of children all the way from pre-school years to early adulthood (the survey started in 1994 with a sample of children then aged 0 through 11). A caveat is thus that 'family income position ten years ago' refers to a different life stage, depending upon the outcome studied. Also, since small sample size is especially limiting in this work, where possible we pool observations from different cycles of data, always controlling for cycle effects in regressions (e.g., to account for possible differences such as mode of collection). Appendix A provides details for each outcome variable.

3. EMPIRICAL METHODS

The first goal of our analysis is simply to document differences in outcomes likely to be relevant for future economic well-being for adolescents who were members of 'rich' compared to 'poor' families ten years ago. Significant rich child /poor child outcome gaps would be an early indication of the passing on of inequality from one generation to the next.

We operationalize 'rich' very simply as having had family equivalent income in the top quintile for children of the same age and country ten years ago; 'poor' is analogously defined as having had family equivalent income in the bottom quintile. While we focus in the main body of our analysis on this relative concept of income difference which we feel is most appropriate for a study of emerging inequality, we have also carried out all analyses using the same equivalent income cut-points for both Canada and the U.S. For example, we use PPP-adjusted Canadian quintile cut-points for the U.S. or PPP-adjusted U.S. cut points for Canada. (Regression results using U.S. cut points for both Canada and the U.S. presented in Appendix C are qualitatively very similar to those use own-country quintile cut-points. However, we make note of differences as relevant.)

For each outcome studied, we follow the same procedure. We select children with the requisite child outcome data whose family equivalent income ten years previously placed them in *either* the bottom or the top quintile of the relative income distribution. That is, we 'throw out' middle-income children so that we start with a sample half of whom started life poor and half of whom started life rich. We then ask what happens over the next ten years? Presumably, some of these families will have moved out of low income during the subsequent ten years; some families who were affluent will have fallen on harder times. What about child outcomes? Are there differences in outcomes apparent for children who, ten years previously, were observed to be economically disadvantaged relative to those who, ten years ago, were economically advantaged? Within countries, we ask if significant differences in child outcomes are apparent. Across countries, we ask if significant differences in the size of the rich/poor outcome gaps are apparent. Results are represented graphically in Figures 1 through 16.

To determine statistical significance of within-country 'ten years later' gaps in adolescent outcomes between rich and poor children, we estimate simple regression models[8] of the following form for the pooled samples of cycle 1 top equivalent income quintile children and cycle 1 bottom equivalent income quintile children:

$$(1) \qquad Y_{ij} = \alpha_i + \beta_i \, BottomQuintile1_j + \varepsilon_{ij}$$

Where: Y_{ij} refers to outcome i for child j; α_i is the mean outcome for children from the top quintile in the first period; β_i measures the difference between children from the bottom and children from the top quintile. A statistically significant estimate for β_i is evidence for a within-country rich/poor 'ten years later' child outcome gap.

[8] OLS models are estimated for continuous outcomes; probit models are estimated for dichotomous outcomes.

To assess whether observed differences in emerging inequality between Canada and the U.S. are statistically significant, we pool the Canada and U.S. samples and estimate the following models for each child outcome, i:

$$(2) \qquad Y_{ij} = \alpha_{1i} + \alpha_{2i} US_j + \beta_{1i} BottomQuintile1_j + \beta_{2i} BottomQuintile1_j \text{ X } US_j + \varepsilon_{ij}$$

Where: US_j is a dummy variable = 1 for child j from the US and $BottomQuintile1_j$ X US_j is an interaction term. A statistically significant estimate for β_{2i} will indicate a Canada/U.S. *difference* in the rich/poor gap that has emerged 'ten years later,' smaller if β_{2i} is negative and larger if β_{2i} is positive.

4. EMPIRICAL RESULTS

Unconditional Results

Unconditional results are presented in a series of figures, illustrating, first, outcomes by early-life family income quintile within each country; and, second, rich child/poor child outcome gaps across countries. Regression results summarizing the statistical significance of unconditional outcome gaps are reported in Tables 1 through 4.

Current Family Income Differences for Adolescents Who Started Life in Top Quintile compared to Bottom Quintile Families

Figure 1 illustrates the 'stickiness' over a ten year period of children's within-country relative income positions in both Canada[9] and the U.S. In Canada, 51.2 percent of children who

[9] Burton and Phipps, 2009 present ten-year income transition analysis for the full sample of Canadian children. Immigrant children are included in that sample and exhibit even greater stickiness of relative income position.

were in the bottom quintile of the children's income distribution at age 0 through 7 are again in the bottom quintile at age 10 through 17;[10] only 3.2 percent of those who were in the top quintile have fallen to the bottom. This is a highly statistically significant difference as indicated in the first panel of Table 1 which reports probit estimates of the probability of being in the bottom quintile at age 10/17 regressed on the dummy indicator of having been in the bottom quintile at age 0/7 (i.e., the results of estimating (1) above). In this and all subsequent tables, we first report results for Canada, then for the U.S. In the final column, we report estimates obtained by pooling the two data sets and estimating (2) above.

In the U.S., 59.2 percent of those who were in the bottom quintile at age 0 to 7 are again in the bottom at age 10 to 17, compared to 3.9 percent for those who were in the top quintile in cycle 1, and again, this difference in the probability of being in the bottom is highly statistically significant. The rich child/poor child *gap* in the probability of now being at the bottom of the income distribution is larger in the U.S. than Canada (55.3 percentage points in the U.S. compared to 48 percentage points in Canada); however, this difference between countries is not statistically significant (see the final column in the first panel of Table 1 where the coefficient on the interaction term between U.S. and bottom quintile is not statistically significant).[11]

Figures 3 and 4 turn the spotlight toward the other end of the income distribution, where we find that 58 percent of Canadian children who were in the top quintile at age 0/7 are again in the top quintile at age 10/17 whereas only 2.1 percent of children from the bottom quintile made it to the top. In the U.S., 54.1 percent of children from the top quintile, remained in the top quintile; 4.4 percent from the bottom made it to the top (and Table 1, middle panel indicates that

[10] We lose many observations if we restrict attention only to children with reported income for all cycles, so restrict our attention to those with data for cycle 1 and cycle 6, spanning the ten-year period.

[11] Note, however, that in full sample estimates, we find a statistically higher probability of remaining in the bottom for the U.S. than Canada. See Appendix B, Table B1, top panel.

these within country differences between children are highly statistically significant.) In this case, the cross-country difference in the gap between early-life rich and early-life poor children in the probability of being top-quintile as adolescents is smaller in the U.S. than in Canada (though since so few children from the bottom make it to the top in either country, we are dealing with very small samples here).

Figures 5 and 6 compare levels of real family equivalent income for adolescents who started life at the bottom compared to the top of the income distribution for other children the same age. Table 1 shows results for OLS regressions of family equivalent income (expressed in 2003 USD) at age 10/17 on the dummy indicator of having been in the bottom quintile of own-country children's income distribution at age 0/7. For both Canada and the U.S. separately we find, not surprisingly, that children who were in the bottom quintile 10 years ago have much lower incomes now than children who were in the top quintile ten years ago. (All results for this section are highly statistically significant.) The 'Canada' column indicates that children from the lowest 20 percent of the Canadian young child family equivalent income distribution have equivalent family incomes ten years later that are, on average, 37.8 percent of those received by children from the top 20 percent of the distribution. The 'U.S.' column in Table 1 again shows a strong link between current income and past family income position, with children who were in the bottom quintile 10 years ago having family equivalent income only 24 percent of that received by children who started life in the top quintile.

Comparing sizes of these rich child/poor child *gaps* across the countries (see the 'pooled' column in Table 1), we find that the income gap in the U.S. is significantly larger than the income gap which has emerged over the ten-year period between rich and poor children in Canada (see the negative and significant coefficient on the interaction term between 'U.S.' and

'bottom quintile in first year[12]).' Children who started out in the top 20 percent of the U.S. children's income distribution are now much richer than children who started out in the top 20 percent of the Canadian children's income distribution (equivalent incomes are 122.4 percent of the Canadian top 'ten years later'). Children from the bottom quintile in the U.S. ten years ago now have equivalent family incomes that are 77.5 percent of those who started life in the bottom of the Canadian distribution.[13]

Aspiration Differences for Adolescents Who Started Life in Rich Compared to Poor Families

Figures 7 through 10 illustrate that by ages 12 to 15 in both Canada and the U.S., children who started life in poor families already have more limited educational aspirations than children from rich families. They are more likely to plan to drop out or just get through high school (15 percentage points higher in Canada; 13.8 percentage points higher in the U.S.). They are much less likely to aspire to a professional designation (17.8 points less likely in Canada; 14 points less likely in the U.S.). Table 2 confirms that these are statistically significant differences between rich and poor children within countries.[14] Notice, however, that there is no statistically significant difference in the rich child/poor child aspiration gaps across countries (final column of Table 2).

[12] This difference also holds if we use U.S. quintile cut-points for Canada, though in selecting Canadian children whose family income ten years ago would have put them in either the bottom or top of the U.S. income distribution, we lose some observations, in particular because fewer than 20 percent of Canadian children had family incomes high enough to place them with the top 20 percent of U.S. incomes. It is also true that 21.4 percent of Canadian children had family equivalent incomes less than the cut point for the bottom U.S. quintile.

[13] If we regress (log of) equivalent income now on (log) of equivalent income ten years ago for Canada, we obtain an estimated $\beta = 0.562$ for Canada and $\beta = 0.578$ for the U.S.

[14] These outcome variables reported by child while all explanatory variables reported by parent, thus reducing spurious correlation. At any rate, endogeneity of income position is much less an issue for child outcomes than adult outcomes, and income from 10 years ago is particularly unlikely to be endogenous to child's current educational aspirations or attainments

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Math Score Differences for Adolescents Starting Life in Rich Compared to Poor Families

Figures 11 through 14 move on to consider rich/poor gaps in math scores for children now 12 to 14 whose families were poor when the children were 2/4, compared to the scores for children whose families were rich when they were 2/4. In Canada, over half of children with low-income backgrounds have 'less than average' math scores whereas only a third of children with high-income backgrounds have 'less than average' scores, a rich child/poor child gap of 21 percentage points. The same pattern is evident in the U.S., where there is a 38.3 percentage point gap. Both within-country differences are statistically significant; the U.S. gap is, in this case, significantly larger than the Canadian gap.[15] The same pattern, but in reverse, is evident for performing 'better than average' in math tests (see Figures 13 and 14).

Educational Outcome Differences for Adolescents Starting Life in Rich Compared to Poor Families

Completing High School

Disturbingly large differences in rates of self-reported high school completion exist in an era when education is increasingly important for future economic outcomes. In Canada, 23.6 percent of youth aged 19 to 21 from disadvantaged economic backgrounds ten years earlier have neither completed a high school diploma nor are currently enrolled in any form of educational programme compared to 6.5 percent of young people from advantaged backgrounds (see Figures 15 and 16). An even higher 29.7 percent of youth from disadvantaged backgrounds in the U.S. have 'dropped out,' though dropping out is rare for youth from affluent families (only 2.5 percent). Both within-country gaps are highly significant; the gap between rich and poor

[15] This is also true when we use U.S. cut points for Canadian children. See Appendix Table C3.

children in terms of high-school completion is significantly higher in the U.S. than Canada (see Table 4).[16]

Enrolment in Post-Secondary Education

A more encouraging number is that 54 percent of Canadian youth from low-income families at age 10/11 are enrolled in some form of post-secondary education at age 19/21, though this is still much lower than the 84 percent post-secondary enrolment rate for Canadian youth from affluent families – a 30 percentage point gap (see Figures 17 and 18). Self-reported post-secondary enrolment rates are lower over-all in the U.S, but a rich-child/poor-child gap is also evident (40 percentage points). In this case, the U.S. gap is not statistically larger than the Canadian gap (see final panel of Table 4).

Regression Results Controlling for Starting Year Risk Factors

Thus far, our focus has been on unconditional differences in mean outcomes for children who were economically advantaged compared to children who were economically disadvantaged. In both Canada and the U.S., emerging rich-child/poor child gaps are apparent for all outcomes studied. No cross-country difference in the size of the gap is evident for child educational aspirations, either for having low or for having high aspirations. However, a larger rich-child/poor child gap is evident in the U.S. for math scores and high-school completion. No Canada/US *difference* in rich-child/poor child gap is apparent for post-secondary enrolment.

An important next step is to control for other 'risk factors' that may be pathways from low (or high) income status to child outcomes. For example, family structure is one of the most important correlates of family income position (see Burton and Phipps, 2009 or Picot et al.,

[16] Again, this remains true if we use U.S. cut points for Canadian children.

1999). Children from lone-parent families may have lower educational attainments because they have low income and/or because lone parents may be more stressed, have less time to spend helping with homework, etc. Adding a vector of 'early life risk factors' to our within-country rich compared to poor child outcome regressions allows us to ask if relative economic background plays a role in explaining rich-child/poor-child outcome gaps even after we have controlled for vulnerable circumstances correlated with income.

In this section, we now estimate:

$$Y_{ij} = \alpha_i + \beta_i \, BottomQuintile1_j + \gamma'_i \, X_j + \varepsilon_{ij}$$

where Y_{ij} again refers to outcome i for child j and X_j refers to a vector of early-life risk factors, described below.

We again also estimate child outcome models pooling data from Canada and the U.S. That is, we estimate, for each child outcome, i:

$$Y_{ij} = \alpha_{1i} + \alpha_{2i} \, US_j + \beta_{1i} \, BottomQuintile1_j + \beta_{2i} \, BottomQuintile1_j \, X \, US_j + \gamma'_i \, X_j + \varepsilon_{ij}$$ [17]

While within country analysis is relatively straightforward, data size and comparability issues limit our selection of "risk factor" variables. In general, these pertain to the mother, ten years before the current child outcome was assessed. We control, first, for the mother's age at the child's birth, since very young mothers may be more economically vulnerable, for example.[18] A second important risk factor, limiting resources of both time and money, is family structure. For both Canada and the U.S., we add a 'lone mother' dummy variable if the mother did not have a spouse or partner at the time of interview (i.e., we do not rely on legal marital status).

[17] This is essentially a 'difference in difference' specification where 'treatment' is living in the U.S., though we don't push this interpretation.

[18] We tried to use a 'teen-age mother' indicator but had insufficient numbers for Canada. We also estimated a quadratic in age (since children of older mothers may have additional health concerns, for example) but found the linear specification in mother age to be the best fit.

Mother's education level is modelled with two dummy variables: less than high school or with college or university degree.[19] Finally, we include two indicators of mother's labour market attachment ten years ago. First, we include mother's weekly work hours. For the U.S., this is total number of hours worked divided by total number of weeks worked in past calendar year. For Canada, this variable is the mother-reported usual weekly hours in the past 12 months. Second, we flag mother's experience of unemployment in the past 12 months (Canada) or in the past calendar year (U.S.).

We also control number of siblings ten years ago. For both countries, this includes siblings of all age and includes all full, half, step, adopted and foster siblings of the child. We also note if the child is first born. For U.S. sample, this variable is coded 1 if the birth order of the child is 1. For the Canadian sample, this variable is coded 1 if the child did not have any older siblings (including full, half, step, adopted and foster siblings) living in the household. This may not exactly be the child's birth order if an older sibling of the child born to the same mother was not living in the same household or if the child had any older siblings who lived in the same household but were not born to the same mother.

Finally, although not 'risk factors,' we also control for child gender and age since both are relevant for child outcomes. For both countries, child age is age as of December 31st of the survey year ten years prior to the survey year in which the relevant outcome was measured.

Table 5 compares means for all risk factors for children now 10 through 17 from the bottom compared to top family income quintile ten years ago when they were 0 to 7.[20] In Canada, while mother's age at child's birth and family size are fairly similar between bottom and top quintile children, dramatic differences are evident for all other risk factors. Education levels

[19] We also tried to include a indicator that the mother was attending school at the original survey date, but sample size did not allow us to use this indicator. Mother's health status was similarly a problem with the Canadian data.
[20] Note that sample size falls due to non-response to some of the risk factor variables.

are much lower (23.4 percent of bottom quintile mothers have less than high school compared to 1.4 percent of top quintile mothers); lone-parenthood is much more likely (37.1 percent are lone parents in the bottom compared to 1.4 percent in the top); weekly paid hours are lower (10 per week compared to 25.5); unemployment is more likely (20 percent of bottom quintile mothers experienced unemployment during the last year compared to 4.2 percent of top-quintile mothers).

Similar patterns are apparent when we compare bottom and top quintile mothers in the U.S. Some differences in top/bottom quintile differences in family circumstances between the countries are also interesting to consider. For example, mothers in the bottom quintile of the U.S. distribution are, on average, 3.6 years younger than those in the top (whereas there is only a 1 year difference in Canada). Lone-parenthood is particularly more likely for U.S. bottom quintile families (55.3 percent versus 37.1 percent in Canada). On the other hand, differences in weekly paid hours are not so large, mostly because mothers from the bottom quintile of the U.S. income distribution do twice as many paid hours as Canadian mothers from the bottom of the distribution.

Tables 6 through 9 essentially repeat Tables 1 through 4. The difference between the two sets of tables is that 'risk factors' have been included in the estimated models reported in Tables 6 through 9. In the interests of space, we do not report all estimated coefficients, but focus only on what happens to the estimated size and significance of 'bottom quintile in first cycle' after risk factors have been included.

Tables 6 and 1 focus on the association between being in the bottom quintile at age 0/7 and being in the bottom quintile 10 years later at age 10/17. The basic story here is that there are few changes. After risk factors are added to the model, the size of association falls somewhat but remains statistically significant for both countries. The same is true for (log of) family

equivalent income at age 10/17. It also remains true that there is no Canada/U.S. difference in the gap between starting out poor/rich children in current probabilities of being in the bottom quintile. And, it remains true that, after controlling for risk factors, children from the bottom U.S. quintile at age 0/7 have lower incomes that their Canadian counterparts at age 10/17 while children from the top quintile have higher incomes than their Canadian counterparts – the difference in (log) equivalent incomes is greater between top and bottom in the U.S.[21]

More changes are evident between Tables 2 and 7 that report estimated models of educational aspirations without and with risk factors, respectively. Although, for both countries, children who were bottom quintile at age 2/5 were much more likely to have low educational aspirations at age 12/15, this association between having a low income position ten years ago and current educational aspirations is entirely mediated by family structure, mother's education, etc. Another interesting point is that, once we are controlling other circumstances, we find a significantly *smaller* gap in the educational aspirations between U.S. children from rich compared to poor early-life backgrounds than is evident between Canadian children from rich compared to poor background.

A comparison of Tables 3 and 8 indicates that, for Canada, even when we control for other relevant circumstances, including mother's education level, a strong association between family income position during pre-school years and math scores during adolescence is evident. More mediation of this association is apparent in the U.S., but it also remains significant. It also remains true that, even controlling for other early-life risk factors, the rich-child/poor-child *gap* in math performance is larger in the U.S.

[21] We are unable to run models of the probability of being in the top quintile, since there are too few lone mothers, for example, in the top quintile.

Tables 4 and 9 suggest that in Canada, the relationship between early-life family income and the probability of completing high school disappears after we control for early-life risk factors; this is not the case for the U.S.; a very large association with family income position ten years ago remains. Not surprisingly, then, a much larger rich-child/poor-child gap in the probability of finishing high school is evident in the U.S. than in Canada.

Finally, a comparison of Tables 4 and 9 also indicates that controlling for other early life risk factors also mediates the unconditional relationship between early family income and the probability a young adult will be enrolled in (or have completed) post-secondary education in Canada but not in the U.S. Indeed, the gap actually increases in size for the U.S. However, no cross-country difference in the rich-child/poor child post-secondary enrolment gap is evident.

The purpose of this section has been to ask if rich-child/poor child outcome gaps remain after we have controlled for identifiable early life risk factors. This is relevant for the direction of policy aimed at reducing the intergenerational transmission of economic inequality (i.e., do we target income alone or can we also focus policy attention on these other mediating channels?). Within countries, controlling for early-life risk factors generally reduces the estimated size of the rich-child/poor child gap, which even becomes mostly statistically insignificant for educational aspirations (in both countries) and for educational attainments (for Canada only). The Canada/U.S. rich-child/poor-child gaps identified above are largely unaffected (in either size or significance).

5. DECOMPOSITION ANALYSIS

The previous section paid no attention to which early life risk factors were most important predictors of the rich-child/poor child outcome gaps studied here. A particular parent or child characteristic may be an important part of the emerging inequality story if: a) there is a big

difference in mean values of the characteristic for children who were rich in early life compared to children who were poor; b) if there are strong correlations between that early-life characteristic and the current child outcome of interest. To get a closer look at this, we now pose the following question: to what extent are the within-country top-bottom outcome differences explained by observable differences in characteristics between the two groups? We use the familiar Blinder-Oaxaca decomposition (Blinder (1973); Oaxaca (1973)) to answer this question.

Let Y_j^B denote the current outcome for child j whose equivalent family income was in the bottom quintile ten years ago. By the same token, let Y_j^T denote the current outcome for a child j from the top quintile. Assuming a linear functional form, the two equations below express the outcome of child j as a function of his/her own or family characteristics (X_j^B for a child from bottom quintile and X_j^T for a child from the top quintile), including potential risk factors as well as other explanatory variables.

$$Y_j^B = \alpha^B + X_j^{B\prime}\gamma^B + \varepsilon_j^B, \qquad j=1, \ldots, N^B$$

$$Y_j^T = \alpha^T + X_j^{T\prime}\gamma^T + \varepsilon_j^T, \qquad j=1, \ldots, N^T$$

The following equation illustrates the application of the Blinder-Oaxaca decomposition to a linear model. The first term to the right of the equation provides the part of the top-bottom outcome difference that can be attributed to the mean differences in observed characteristics. The second term reflects the top-bottom outcome difference that is due to unobserved characteristics as well as potential top-bottom differences in the association between observed characteristics and the outcome, namely, the differences between γ^T and γ^B.

$$E(Y_j^T)-E(Y_j^B) =[E(X_j^T)-E(X_j^B)]'\gamma^* + [E(X_j^T)'(\gamma^T-\gamma^*)+E(X_j^B)'((\gamma^*-\gamma^B)+(\alpha^T-\alpha^B)]$$

A well-known problem with this method is that the decomposition result is not invariant to the choice of γ^*, referred to by Oaxaca (1973) as the "index number problem". For example,

using the values of γ^T for γ^* will lead to different "explained" and "unexplained" parts than using the values of γ^B. There is usually no theoretical justification in favoring γ^T over γ^B or vice versa (Jann (2008)). Researchers have proposed a number of ways to get around this problem. Reimers (1983) suggests using the average of γ^T and γ^B. Cotton (1998) proposes to weight γ^T and γ^B by group size, N^T and N^B. Neumark (1988) and Oaxaca and Ransom (1994) recommend using γ^P from the following pooled model.

$$Y_j^P = \alpha^P + X_j^{P\prime} \gamma^P + \varepsilon_j^P, \qquad j=1, \ldots, N^T + N^B$$

Most recently, Fortin (2008) and Jann (2008) argue that using γ^P from the pooled model above will inadvertently shift part of the "unexplained" component to the "explained" part if group differences in the observed characteristics are large. To tackle this issue, a more preferred method would be to estimate the pooled model including a group dummy G_j^P indicating membership in the bottom quintile as outlined below.

$$Y_j^P = \alpha^P + G_j^P \delta^P + X_j^{P\prime} \gamma^P + \varepsilon_j^P, \qquad j=1, \ldots, N^T + N^B$$

In this paper, we will follow this improved pooled approach by using the STATA 'Oaxaca' package (Jann (2008)) when the outcome is a continuous variable (e.g., family income) and using the STATA 'Fairlie' package (Jann (2006)) when the outcome (e.g., education attainment) is a binary variable[22]. The 'Fairlie' package written by (Jann (2006)) is based on Fairlie (1999) and Fairlie (2005) who extended the linear Blinder-Oaxaca decomposition to probit and logit models. Probit is the chosen model in this paper. One feature of the non-linear Blinder-Oaxaca decomposition is that the results are sensitive to the ordering of the explanatory

[22] The 'Oaxaca' package (i.e., OLS model) was also used for binary outcome variables. The results are omitted for space considerations. One caveat is that the 'Oaxaca' package allows adjusting for clustering (say, by mother's identification number in the case of siblings), whereas the 'Fairlie' package does not.

variables. To address this issue, the 'Fairlie' package offers an option to randomize the order of the independent variables (over 500 iterations), which has been adopted in this paper.

In general, it is difficult to disentangle the contribution in the 'unexplained' part of unobserved characteristics from the contribution of between-group differences in coefficients on observed characteristics. Therefore, the focus in this paper will be on the 'explained' part of the decomposition. Furthermore, the contribution of each observed characteristic to the 'explained' part will also be examined. As shown in the equation below, the total 'explained' difference is a simple summation of the contributions of each individual variable, where K is the number of explanatory variables not including the constant term.

$$[E(X_j^T)-E(X_j^B)]' \gamma^* = [E(X_{1j}^T)-E(X_{1j}^B)]' \gamma_1^* + \ldots + [E(X_{Kj}^T)-E(X_{Kj}^B)]' \gamma_K^*$$

Tables 10-13 present the decomposition results. For instance, Table 10 decomposes the within-country differences in the level of log equivalent income and in the probability of being in the bottom quintile for those children who were 0-7 years old and whose family income was in the top versus bottom quintile a decade ago. Due to small sample problems, we could not control for mother's visible minority status in the Canadian models. Thus, for the U.S. we show both the version with and without a dummy indicating that the mother is non-white. There are three numbers in each cell corresponding to each individual risk factor or control variable. The first number shows the contribution of that variable to the 'explained' part in absolute terms. The middle number in round brackets provides the standard error. To get a sense of the relative importance of each variable, the last number in square brackets gives the share of the contribution in the total mean top-bottom difference in the outcome.

As discussed earlier, the raw top-bottom difference in current log equivalent income is bigger within U.S. than within Canada as is the top-bottom difference in the probability of being

in bottom quintile at age 10-17 and within each country, mother's education is the most important early-life risk factor identified. For example, mother's education explains around 11% of the total rich-child/poor child log income difference within Canada and around 19% of the log income difference within the U.S.

Lone-parent status is also an important predictor of top-bottom income differences within U.S., though lone-parent status is not important within Canada. Note that including mother's visible minority status reduces the contribution of lone-parent status, for example, from 11% to 8% in the case of log equivalent income. This is probably due to the higher incidence of lone-parenthood among the non-white Americans.

Another factor that 'explains' a considerable share of the rich-child/poor child adolescent family income gap in Canada is rich/poor differences in mother's weekly paid work hours in the early years. More paid hours might indicate stronger attachment to the labour market, which is likely to be connected with higher income ten years later. Mother's weekly paid hours do not matter as much in the U.S. probably because the number of hours is relatively close for those in top versus in bottom quintile (see Table 5). Mother's unemployment experience in the past year, on the other hand, is not significant for U.S. top-bottom income differences, and it even enlarges the Canadian top-bottom log equivalent income difference by 3%. This is because conditional on other factors, the correlation between unemployment experience ten years earlier and current income is positive, perhaps because mothers who were in the labour force, even if experiencing unemployment ten years ago, are more likely to be in the labour force now.

In total, mean differences in observed early-life characteristics account for around one-fifth of the raw difference in log equivalent income in Canada and a little over one-third in the U.S. Similar patterns are evident in a decomposition of the probability of being in the bottom

quintile, though the total contribution of mean differences in observed characteristics to the probability of being in bottom quintile is slightly smaller.

In Tables 11-13, the rich-child/poor child outcome gaps of interest are educational aspirations at age 12-15, math test performance at age 12-14 and educational attainment at age 19-21, respectively. Mother's education is again the most important explanation for the top-bottom outcome differences in all three tables. Mean difference in percentage first-borns (the percentage first-borns is higher among families in top quintile) is a strong predictor for top-bottom differences in educational aspirations. For the U.S., this also helps to explain the mean difference in post-secondary enrolment by age 19-21, but to a much lesser degree. Mother's age at child's birth (mothers in bottom quintile were younger at the time of child's birth) matters for educational attainment by age 19-21 in both countries and it matters for the probability of obtaining above-average math scores in the U.S. Lone-parenthood is an important factor for education attainment differentials in Canada and it also contributes to some difference in the probability of obtaining below-average math score in the U.S. Mother's weekly paid work hours do not seem to explain educational aspiration or attainment differences in either country, but significantly widen the top-bottom gap in the probability of achieving a below-average math score in Canada as seen in Table 13. This is consistent with the notion that a family may be viewed as a production unit in which child outcomes are produced and time and money are both inputs to this production process (Leibowitz (1974); Becker and Tomes (1986); Burton and Phipps (2007)). There is some evidence that the number of siblings also matters, though the direction of its contribution is not uniform across different outcomes. It appears to widen the gap in post-secondary enrolment in Canada (see Table 11) but reduce the gap in low math score achievement in the U.S. The total contribution of all observed characteristics for these

educational outcomes is generally high compared to for income. In most cases for these educational outcomes, the total 'explained' part is around half or even more. One notable exception is for math performance in Canada where the 'widening' effect of mother's weekly paid work hours largely negates the 'shrinking' effect of mother's education.

The analysis in this section suggests the following main findings. First, within each country observed differences in individual and family characteristics ten years ago can explain away part of the differences in outcomes for those children who started life in the top versus bottom income quintile for children of the same age. Particularly for educational outcomes, the 'explained' part is quite sizable. Second, detailed decomposition shows that mother's education consistently appears to be among the most important risk factors for all outcomes considered in both countries.

What do these findings suggest about policy that might be helpful in reducing the intergenerational transmission of economics status above, of course, reducing inequality in the starting out income distribution? Since, for example, mother's education is a risk factor that is particularly important in explaining rich-child/poor child gaps in subsequent economically relevant outcomes, we might consider high-quality pre-school/child care interventions and/or enrichment activities in public schools. Notice that our finding of the important role for education in the intergenerational transmission process validates our own emphasis on children's acquisition of education!!

6. CONCLUSIONS

The goal of this paper is to study early stages in the process of intergenerational transmission of economic status. In an ideal world, we argue that children from economically disadvantaged families would have equal chances of economic success as adults, for example because public institutions such as schools, libraries and medical clinics would mediate the link between family income and children's outcomes that would otherwise exist. (Given our 'early life' focus, we say nothing about laws governing inheritance or eventual returns to education in the labour market, for example.)

Although our paper is very much a work in progress, we can nevertheless draw some conclusions from our results at this stage. Unconditionally, there are very large and statistically significant differences in outcomes that will matter for future economic well-being between children who, ten years earlier, were poor compared to children who were rich. In both Canada and the U.S., emerging rich-child/poor-child gaps are apparent for all outcomes studied. To be specific, children who were poor as pre-schoolers have lower educational aspirations and lower math scores than those who were affluent; children who were poor in middle-school years are more likely to drop out of high school and less likely to go on to post-secondary education. These points are true in both Canada and the U.S.

While general patterns are very similar, there are some differences between the countries that might suggest directions for future research to help us better understand the processes at work. For example, there are bigger gaps in math scores between rich and poor children in the U.S. than in Canada and there is a bigger rich-child/poor-child gap in the probability of completing high school in the U.S.

Figure 1. Percent of Children in Bottom Income Quintile at Age 10/17. By Income Quintile at age 0/7.

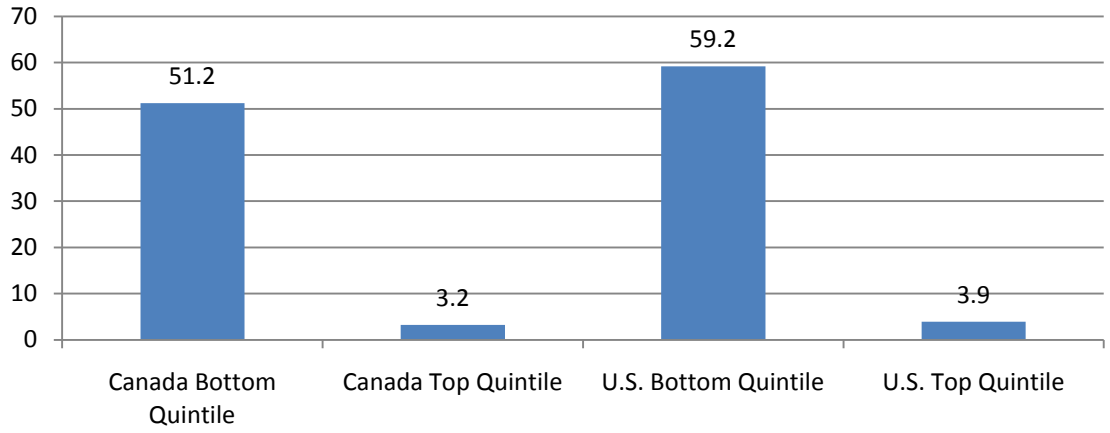

Figure 2. Percentage Point Difference in Probability of Being in Bottom Income Quintile at Age 10/17. Bottom Quintile Children minus Top Quintile Children.

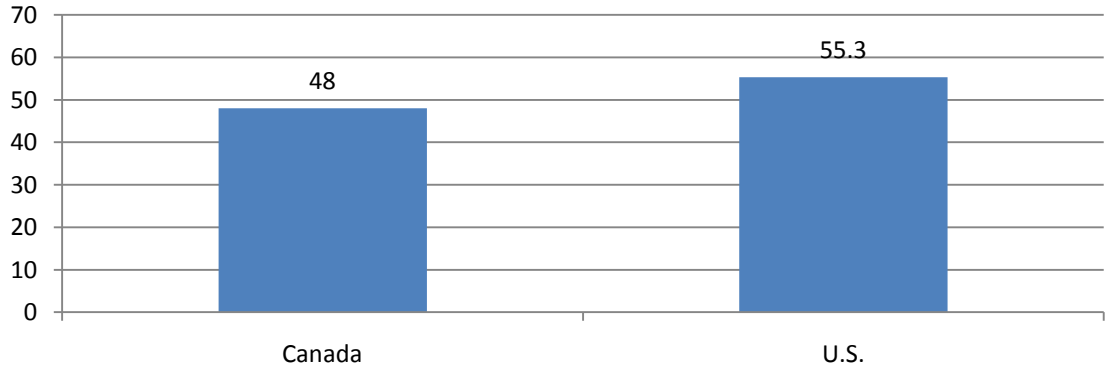

Figure 3. Percent of Children in Top Income Quintile at Age 10/17. By Income Quintile at age 0/7.

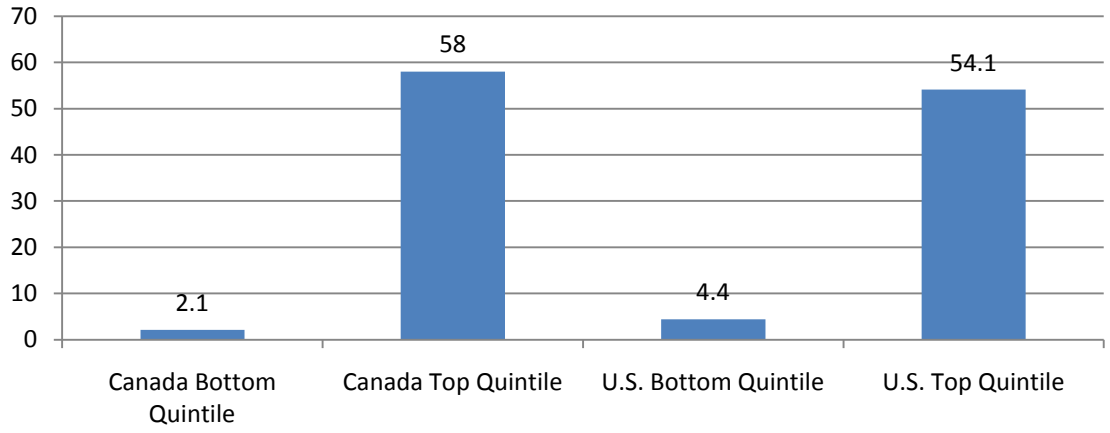

Figure 4. Percentage Point Difference in Probability of Being in Top Income Quintile at Age 10/17. Top Quintile Children minus Bottom Quintile Children.

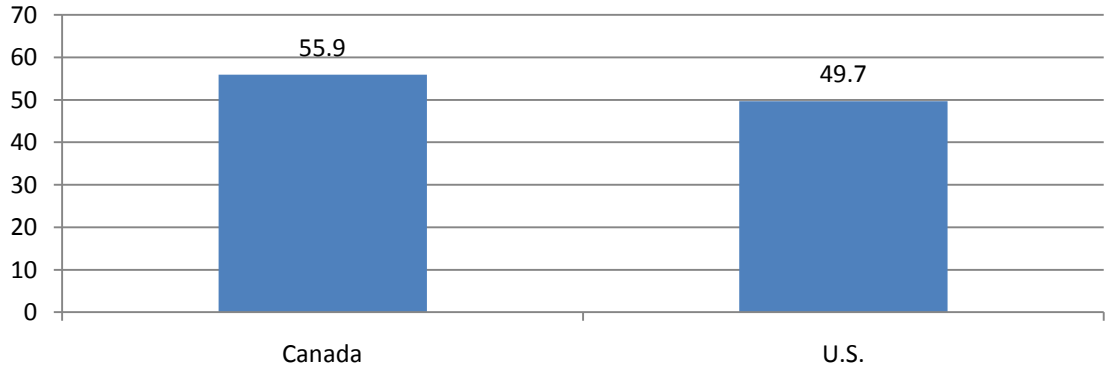

Figure 5. Real Family Equivalent Income at Age 10/17 by Family Income Quintile at Age 0/7 (000's of 2003 USD)

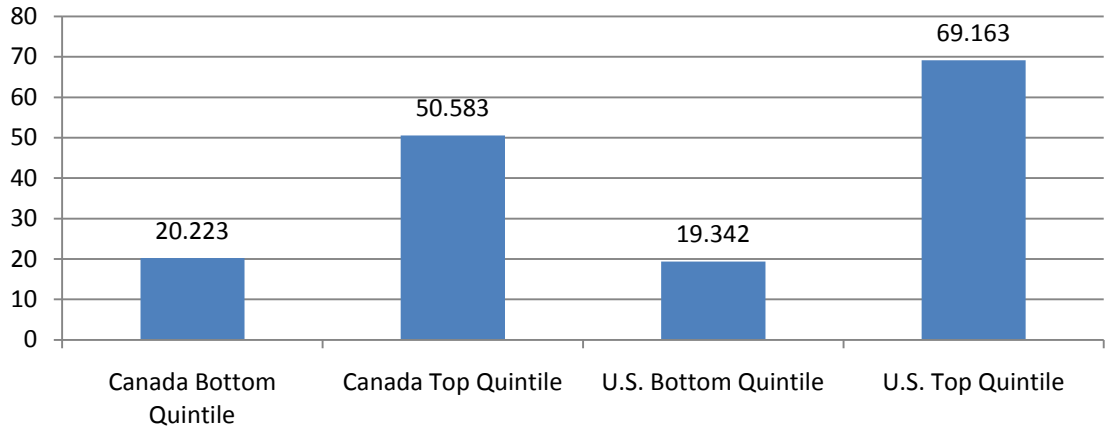

Figure 6. Difference in Real Equivalent Family Income at Age 10/17 (000's 2003 USD). Top Quintile Children minus Bottom Quintile Children.

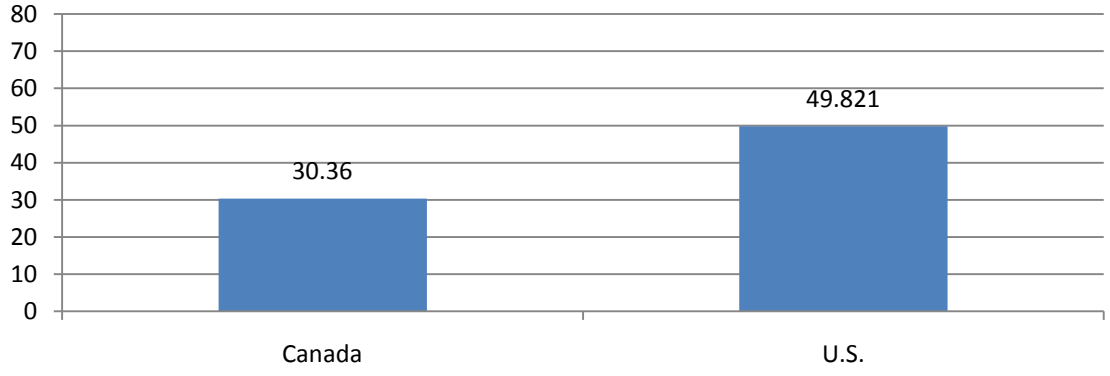

Figure 7. Educational Aspiration High School or Less. Children Aged 12/15 by Family Income Quintile at Age 2/5.

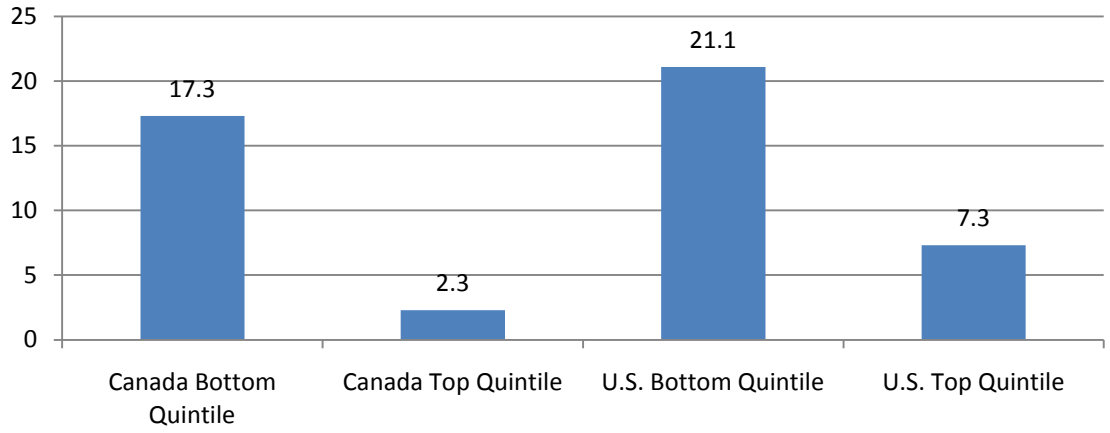

Figure 8. Percentage Point Difference in Probability of Aspiring to High School Education or Less. Bottom Quintile Children minus Top Quintile Children.

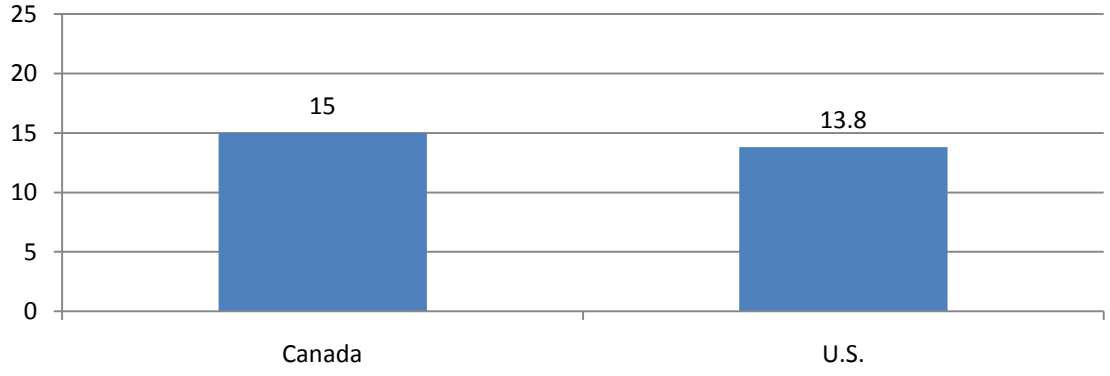

Figure 9. Educational Aspiration Professional or Post-Graduate. Children Aged 12/15 by Family Income Quintile at Age 2/5

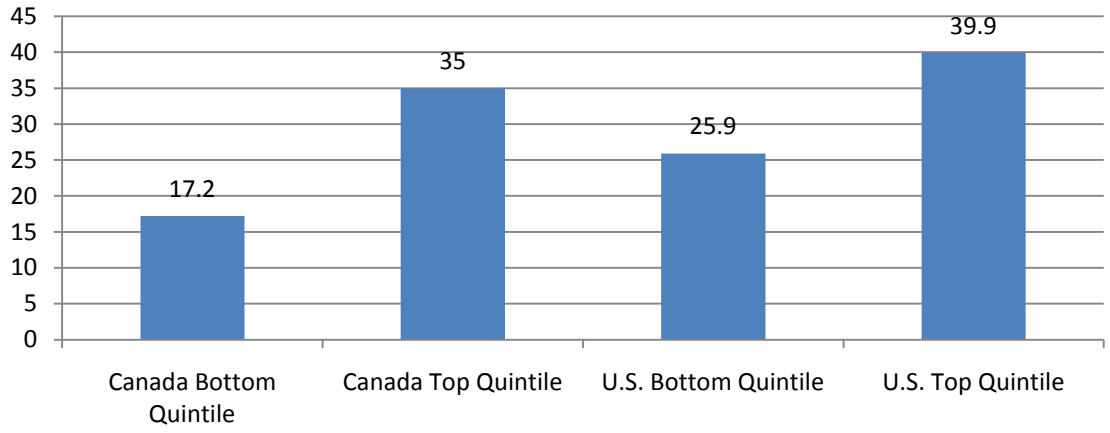

Figure 10.Percentage Point Difference in Probability of Aspiring 'Beyond University.' Top Quintile Children minus Bottom Quintile Children.

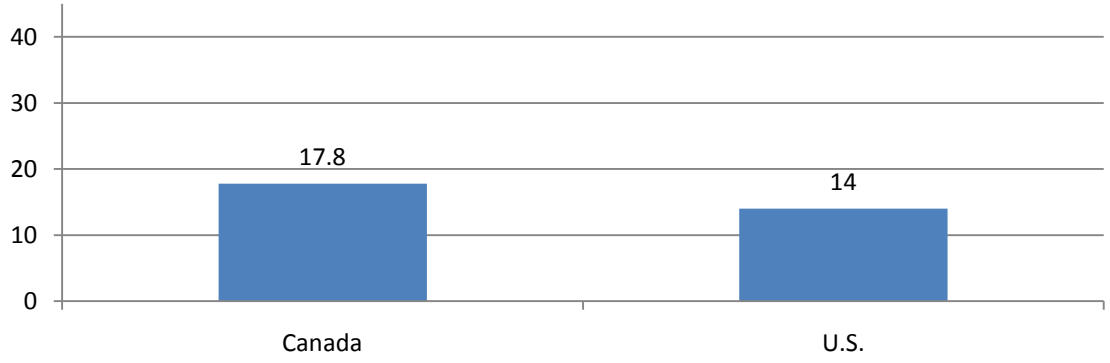

Figure 11. Math Score 'Below Average' at Age 12/14 by Family Income Quintile at Age 2/4

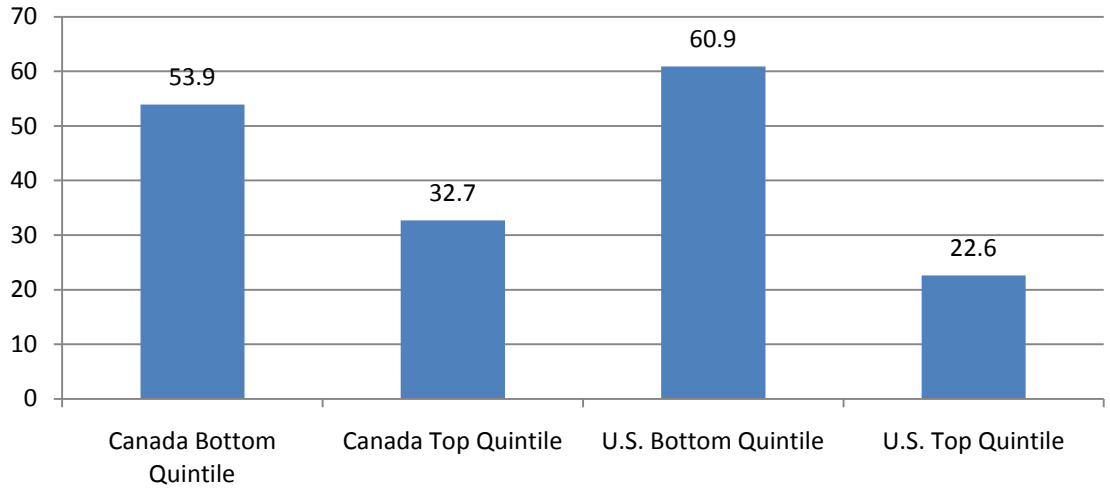

Figure 12. Percentage Point Difference in Probability of 'Below Average' Math Score. Top Quintile Children minus Bottom Quintile Children.

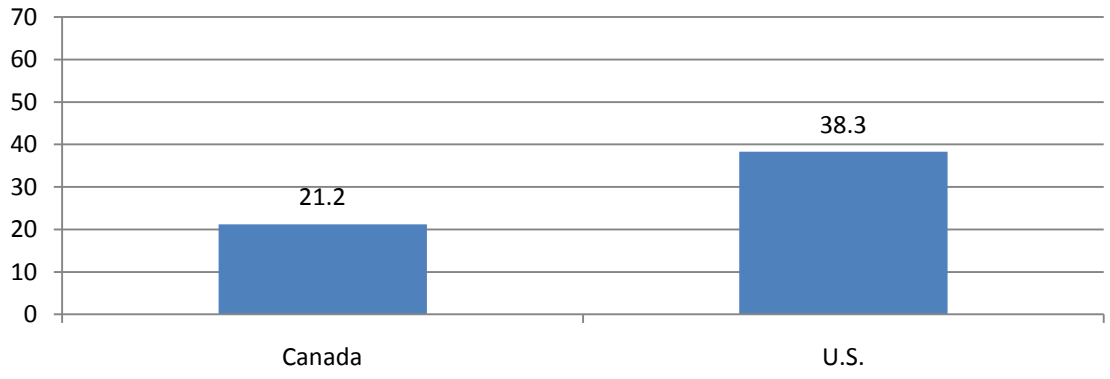

Figure 13. Math Score 'Above Average' at Age 12/14 by Family Income Quintile at Age 2/4

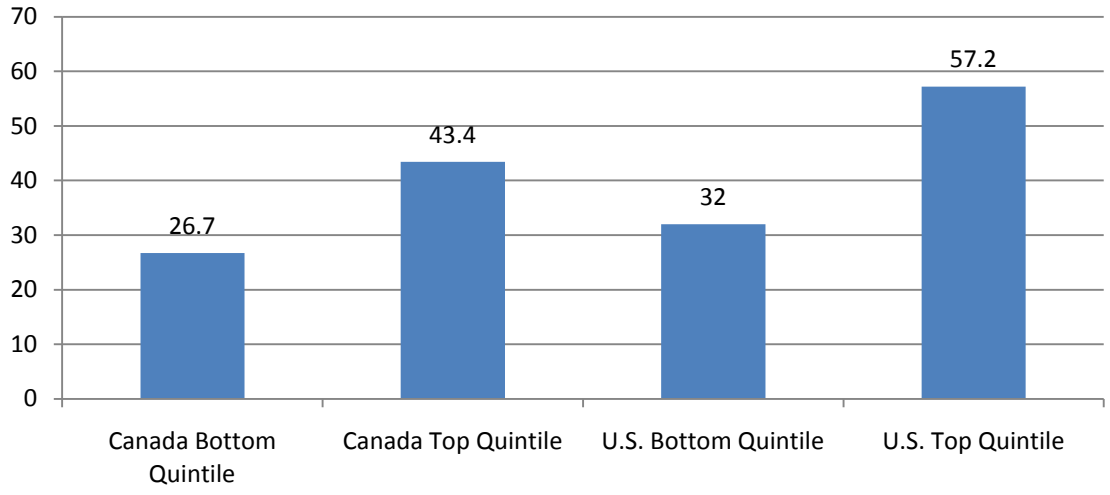

Figure 14. Percentage Point Difference in Probability of 'Above Average' Math Score. Top Quintile Children minus Bottom Quintile Children.

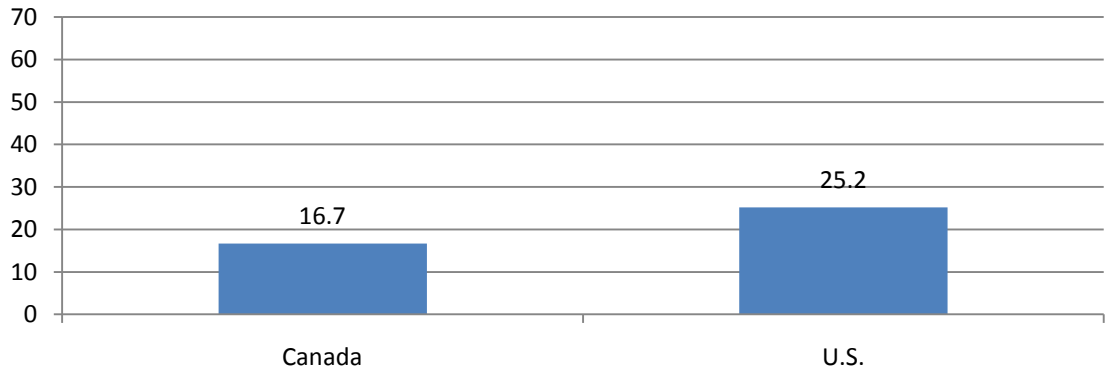

Figure 15. High-School Not Completed at Age 19/21 by Family Income Quintile at Age 9/11

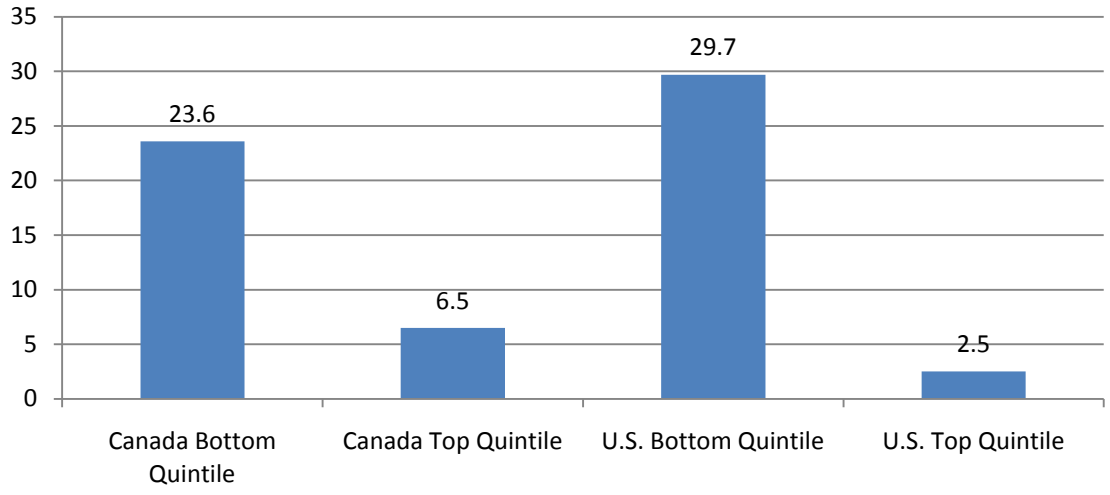

Figure 16. Percentage Point Difference in Probability of Dropping Out. Bottom Quintile Children minus Top Quintile Children.

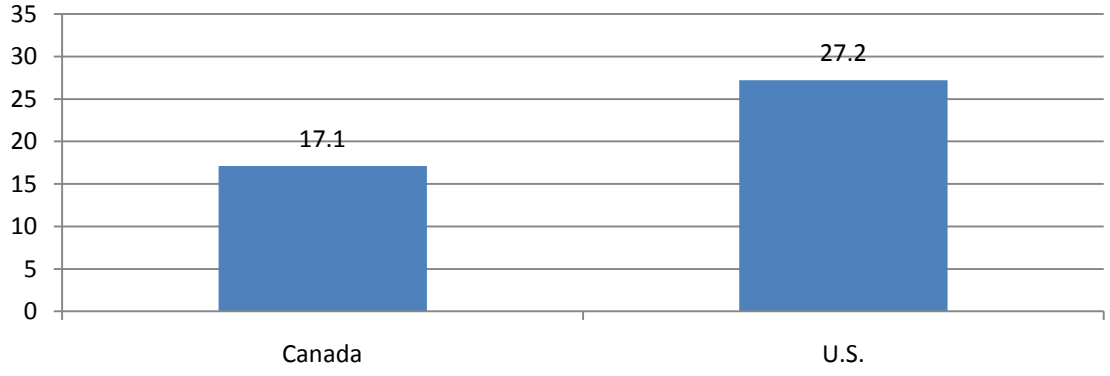

Figure 17. Enrolled in Post-Secondary Education at Age 20/21 by Family Income Quintile at Age 10/11

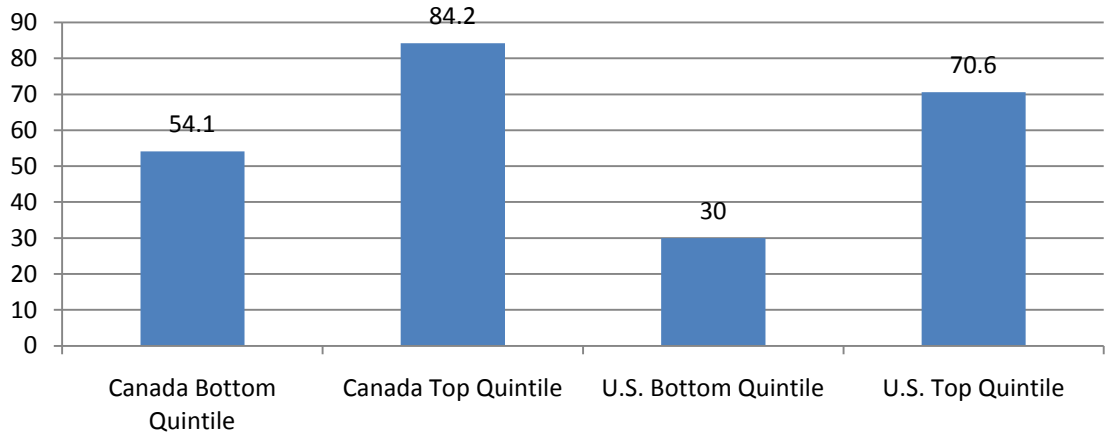

Figure 18. Percentage Point Difference in Probability of Post-Secondary Enrollment. Top Quintile Children minus Bottom Quintile Children.

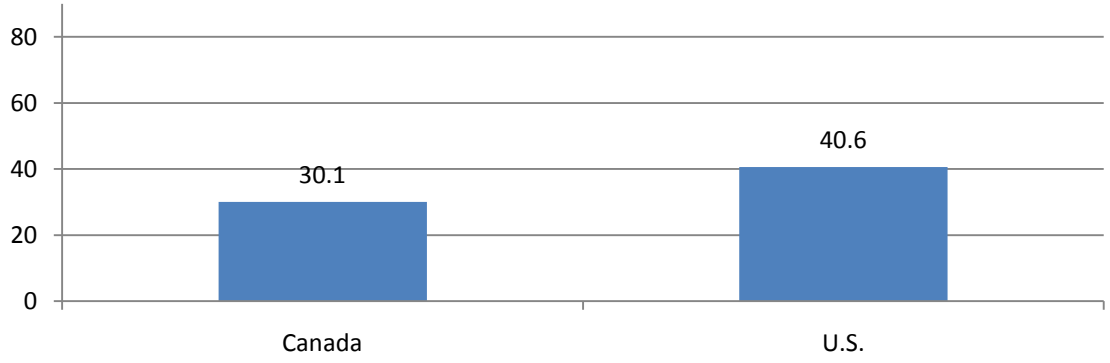

Table 1. Current Family Income by Family Income Quintile Ten Years Earlier. Top Compared to Bottom Quintile Children.

Outcome	Canada	U.S.	Pooled
Bottom Quintile in Final Year (probit)			
Bottom Quintile in First Year	1.888*** (0.150)	1.994*** (0.205)	1.888*** (0.150)
Bottom Quintile in First Year X U.S.			0.106 (0.255)
U.S.			0.098 (0.230)
Constant	-1.859*** (0.122)	-1.761*** (0.194)	-1.859*** (0.122)
Number of Observations	1371	1144	2515
Top Quintile in Final Year (probit)			
Bottom Quintile in First Year	-2.243*** (0.155)	-1.810*** (0.151)	-2.243*** (0.155)
Bottom Quintile in First Year X U.S.			0.434** (0.216)
U.S.			-0.099 (0.125)
Constant	0.201 ** (0.090)	0.102 (0.087)	0.201 ** (0.090)
Number of Observations	1371	1144	2515
(Log) Real Family Equivalent Income in Final Year (OLS)			
Bottom Quintile in First Year	-0.972*** (0.054)	-1.429*** (0.072)	-0.972*** (0.054)
U.S. X Bottom Quintile in First Year			-0.457*** (0.090)
U.S.			0.202*** (0.065)
Constant	10.713*** (0.0367)	10.914*** (0.054)	10.713*** (0.037)
R-squared	0.4464	0.4397	0.4418
Number of Observations	1371	1144	2515

******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 2. Child Educational Aspirations by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children.

Outcome	Canada	U.S.	Pooled
Educational Aspirations at Age 12/15 high school or less (probit)			
Bottom Quintile First Year	1.057*** (0.213)	0.656*** (0.124)	1.057*** (0.213)
Bottom Quintile in First Year X U.S.			-0.402 (0.247)
U.S.			0.542*** (0.196)
Constant	-2.000*** (0.165)	-1.457*** (0.105)	-2.000*** (0.165)
Number of Observations	776	995	1771
Educational Aspirations at Age 12/15 Professional or Post-Graduate (probit)			
Bottom Quintile First Year	-0.560*** (0.136)	-0.389*** (0.097)	-0.560*** (0.136)
Bottom Quintile in First Year X U.S.			0.170 (0.168)
U.S.			0.130 (0.117)
Constant	-0.386*** (0.092)	-0.257*** (0.072)	-0.386*** (0.092)
Number of Observations	776	995	1771

******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 3. Child Educational Outcomes by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children.

Outcome	Canada	U.S.	Pooled
Math Score in Bottom Two Quintiles at Age 12/14 (probit)			
Bottom Quintile First Year	0.467*** (0.144)	1.029*** (0.113)	0.467*** (0.144)
Bottom Quintile in First Year X U.S.			0.562*** (0.183)
U.S.			-0.361*** (0.183)
Constant	-0.391*** (0.100)	-0.752*** (0.087)	-0.391*** (0.100)
Number of Observations	787	885	1672
Math Score in Top Two Quintiles at Age 12/14 (probit)			
Bottom Quintile First Year	-0.400*** (0.151)	-0.152*** (0.056)	-0.400*** (0.151)
Bottom Quintile in First Year X U.S.			-0.567*** (0.189)
U.S.			0.279** (0.128)
Constant	-0.097 (0.101)	0.461*** (0.040)	-0.097 (0.101)
Number of Observations	787	885	1672

******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 4. Child Educational Outcomes by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children.

High School not Completed by Age 19/21 (probit)			
Bottom Quintile First Year	0.792*** (0.192)	1.418*** (0.200)	0.792*** (0.192)
Bottom Quintile in First Year X U.S.			0.626** (0.276)
U.S.			-0.441* (0.228)
Constant	-1.511*** (0.140)	-1.952*** (0.180)	-1.511*** (0.140)
Number of Observations	644	591	1235
Enrolled in Post-Secondary by Age 20/21 (probit)			
Bottom Quintile First Year	-0.900*** (0.162)	-0.301*** (0.053)	-0.900*** (0.162)
Bottom Quintile in First Year X U.S.			-0.166 (0.214)
U.S.			-0.462*** (0.154)
Constant	1.003*** (0.114)	0.842*** (0.028)	1.003 (0.114)
Number of Observations	592	587	1179

******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 5. Starting Year Risk Factors by Starting Year Family Income Quintile for Children aged 0 to 7 Ten years ago.

	Canada Bottom Quintile	Canada Top Quintile	U.S. Bottom Quintile	U.S. Top Quintile
Mother Age at Child's Birth	29.3	30.3	26.2	29.8
Mother Education Less than High School (%)	23.4	1.4	16.8	1.2
Mother Education University (%)	21.2	67.9	11.1	62.0
Lone Parent (%)	37.1	1.4	55.3	1.0
Mother Weekly Paid Work Hours	10.1	25.5	21.7	29.2
Mother Unemployed (%)	20.2	4.2	38.5	7.1
Number of Siblings	1.7	1.4	1.8	1.0
First Child (%)	27.2	53.3	27.4	52.7
Child Female (%)	51.3	49.0	50.6	50.6
Mother is non-white(%)	**	**	32.5	6.6

** small sample restrictions mean this variable is unavailable for Canada.

Table 6. Current Family Income by Family Income Quintile Ten Years Earlier. Top Compared to Bottom Quintile Children. Including all Risk Factor Variables.

Outcome	Canada	U.S.	Pooled
Bottom Quintile in Final Year (probit)			
Bottom Quintile in First Year	1.448*** (0.208)	1.386*** (0.247)	1.366*** (0.150)
Bottom Quintile in First Year X U.S.			0.171 (0.265)
U.S.			0.129 (0.239)
Constant	-1.079 (1.355)	-0.680 (0.952)	-0.971 (0.773)
Number of Observations	860	696	1556
(Log) Real Family Equivalent Income in Final Year (OLS)			
Bottom Quintile in First Year	-0.775*** (0.076)	-0.912*** (0.116)	-0.648*** (0.073)
U.S. X Bottom Quintile in First Year			-0.440*** (0.093)
U.S.			0.253*** (0.066)
Constant	10.133*** (0.453)	9.687*** (0.540)	9.798*** (0.361)
R-squared	0.4976	0.4976	0.4851
Number of Observations	860	696	1556

Co-variates included but not reported: mother's age at child's birth; mother's education level, marital status and weekly paid work hours ten years ago; mother any weeks of unemployment during survey year, first cycle; child 'first-born;' number of siblings ten years ago; child age and gender******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 7. Child Educational Aspirations by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children. Including All Risk Factor Variables.

Outcome	Canada	U.S.	Pooled
Educational Aspirations at Age 12/15 high school or less (probit)			
Bottom Quintile First Year	0.322 (0.266)	0.300 (0.195)	0.757*** (0.228)
Bottom Quintile in First Year X U.S.			-0.619*** (0.247)
U.S.			0.523*** (0.201)
Constant	-1.407 (1.695)	-0.639*** (0.836)	-1.519* (0.165)
Number of Observations	602	676	1278
Educational Aspirations at Age 12/15 Professional or Post-Graduate (probit)			
Bottom Quintile First Year	-0.345* (0.194)	-0.071 (0.161)	-0.336** (0.159)
Bottom Quintile in First Year X U.S.			0.297 (0.191)
U.S.			0.232 (0.123)
Constant	-2.108 (1.092)	-0.977 (0.638)	-1.491*** (0.563)
Number of Observations	602	676	1278

Co-variates included but not reported: mother's age at child's birth; mother's education level, marital status and weekly paid work hours ten years ago; mother any weeks of unemployment during survey year, first cycle; child 'first-born;' number of siblings ten years ago; child age and gender******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 8. Child Math Scores by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children. Including All Risk Factor Variables.

Outcome	Canada	U.S.	Pooled
Math Score Below Average at Age 12/14 (OLS)			
Bottom Quintile First Year	0.366* (0.199)	0.422** (0.179)	0.046 (0.170)
Bottom Quintile in First Year X U.S.			0.562*** (0.198)
U.S.			-0.485*** (0.140)
Constant	-0.869 (1.140)	-0.045 (0.786)	0.179 (0.660)
Number of Observations	619	628	1247
Math Score Above Average at Age 12/14 (OLS)			
Bottom Quintile First Year	-0.409** (0.190)	-0.425** (0.174)	-0.120 (0.165)
Bottom Quintile in First Year X U.S.			-0.493** (0.201)
U.S.			0.373*** (0.134)
Constant	1.744 (1.207)	-1.123 (0.771)	0.263* (0.674)
Number of Observations	619	628	1247

Co-variates included but not reported: mother's age at child's birth; mother's education level, marital status and weekly paid work hours ten years ago; mother any weeks of unemployment during survey year, first cycle; child 'first-born;' number of siblings ten years ago; child age and gender******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 9. Child Educational Outcomes by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children. Including All Risk Factor Variables.

High School not Completed by Age 19/21 (probit)			
Bottom Quintile First Year	0.050 (0.263)	0.928*** (0.298)	0.154 (0.204)
Bottom Quintile in First Year X U.S.			0.656** (0.276)
U.S.			-0.541** (0.228)
Constant	1.092 (1.221)	-0.202 (1.044)	0.704 (0.802)
Number of Observations	535	434	970
Enrolled in Post-Secondary by Age 20/21 (probit)			
Bottom Quintile First Year	-0.312 (0.229)	-0.478** (0.233)	-0.275 (0.162)
Bottom Quintile in First Year X U.S.			-0.241 (0.220)
U.S.			-0.434*** (0.154)
Constant	-3.691*** (1.147)	-3.268*** (0.981)	-3.251 (0.745)
Number of Observations	495	435	927

Co-variates included but not reported: mother's age at child's birth; mother's education level, marital status and weekly paid work hours ten years ago; mother any weeks of unemployment during survey year, first cycle; child 'first-born;' number of siblings ten years ago; child age and gender******* indicates statistical significance at 1 percent; ** indicates statistical significance at 5 percent; * indicates statistical significance at 10 percent

Table 10. Decomposition Analyses. Contribution of Starting Year Risk Factors to Current Family Income Differentials. Children from Top Compared to Bottom Equivalent Income Quintile Ten Years Ago

	Log Equivalent Household Income (STATA Oaxaca package)			Bottom Quintile (STATA fairlie package)		
	Canada	U.S.	U.S. with Race	Canada	U.S.	U.S. with Race
Difference to be Explained	0.963	1.422	1.424	-0.474	-0.542	-0.543
Mother Age at Child's Birth	0.013 (0.014) [1.3%]	0.087 (0.056) [6.1%]	0.077 (0.055) [5.4%]	-1.705E-4 (0.003) [3.6E-2%]	-0.008 (0.013) [1.5%]	-0.006 (0.013) [1.1%]
Mother Education	0.105*** (0.031) [10.9%]	0.263*** (0.056) [18.5%]	0.263*** (0.056) [18.5%]	-0.038** (0.015) [8.0%]	-0.045*** (0.016) [8.3%]	-0.047*** (0.017) [8.7%]
Lone Parent	0.008 (0.030) [0.8%]	0.156*** (0.057) [11.0%]	0.117* (0.061) [8.2%]	-0.003 (0.008) [0.6%]	-0.038** (0.017) [7.0%]	-0.031* (0.016) [5.7%]
Mother Weekly Paid Work Hours	0.078** (0.035) [8.1%]	0.016 (0.018) [1.1%]	0.018 (0.018) [1.3%]	-0.032*** (0.011) [6.8%]	-0.011** (0.005) [2.0%]	-0.012** (0.005) [2.2%]
Mother Unemployed	-0.027** (0.012) [-2.8%]	0.035 (0.028) [2.5%]	0.036 (0.028) [2.5%]	0.004 (0.003) [-0.8%]	-0.007 (0.007) [1.3%]	-0.008 (0.007) [1.5%]
Number of Siblings	0.020 (0.024) [2.1%]	0.035 (0.031) [2.5%]	0.026 (0.032) [1.8%]	0.004 (0.006) [-0.8%]	-0.006 (0.007) [1.1%]	-0.005 (0.007) [0.9%]
First Child	-0.004 (0.012) [-0.4%]	-0.005 (0.016) [-0.4%]	-0.006 (0.015) [-0.4%]	-0.006 (0.005) [1.3%]	8.330E-5 (0.005) [1.5E-2%]	0.001 (0.005) [-0.2%]
Mother Non-white	--	--	0.060*** (0.023) [4.2%]	--	--	-0.016** (0.007) [2.9%]
Other Controls						
Child Female	1.865E-4 (0.001) [1.9E-2%]	-9.840E-6 (0.002) [-6.9E-4%]	-6.780E-5 (0.002) [-4.8E-3%]	-1.520E-5 (0.001) [3.2E-3%]	-9.620E-5 (0.001) [1.8E-2%]	-7.550E-5 (0.001) [1.4E-2%]
Child Age Dummies	-0.005 (0.012) [-0.5%]	-0.076* (0.042) [-5.3%]	-0.068 (0.042) [-4.8%]	0.003 (0.004) [-0.6%]	0.016 (0.014) [-3.0%]	0.015 (0.014) [-2.8%]
Total Explained by all Observable Characteristics	0.188 [19.5%]	0.510 [35.9%]	0.523 [36.7%]	-0.068 [14.3%]	-0.100 [18.5%]	-0.109 [20.1%]
N	1201	1027	1021	1201	1027	1021

Note: 1) * 10%; ** 5%; *** 1%

2) -- small sample restrictions mean this variable is unavailable for Canada.

3) The first number in each cell provides the contribution of a risk factor or control variable to the top versus bottom quintile difference in absolute term. The second number (in round brackets) reports the standard error. The last number (in square brackets) calculates the contribution as a percentage of the total difference.

Table 11. Decomposition Analyses for Educational Aspirations. Contribution of Differences in Starting Year Risk Factors. Children from Top Compared to Bottom Equivalent Income Quintile Ten Years Ago.

	Educational Aspirations at Age 12/15 high school or less (STATA fairlie package)			Educational Aspirations at Age 12/15 Professional or Post-Graduate (STATA fairlie package)		
	Canada	U.S.	U.S. with Race	Canada	U.S.	U.S. with Race
Difference to be Explained	-0.154	-0.138	-0.138	0.177	0.146	0.148
Mother Age at Child's Birth	-0.001 (0.006) [0.6%]	-0.011 (0.013) [8.0%]	-0.011 (0.014) [8.0%]	0.009 (0.013) [5.1%]	0.016 (0.019) [11.0%]	0.018 (0.019) [12.2%]
Mother Education	-0.041** (0.020) [26.6%]	-0.028 (0.018) [20.3%]	-0.029 (0.018) [21.0%]	0.077*** (0.026) [43.5%]	0.081*** (0.025) [55.5%]	0.080*** (0.026) [54.1%]
Lone Parent	-0.036 (0.022) [23.4%]	-0.003 (0.015) [2.2%]	-0.003 (0.016) [2.2%]	0.015 (0.025) [8.5%]	-0.010 (0.026) [-6.8%]	0.002 (0.027) [1.4%]
Mother Weekly Paid Work Hours	-0.016 (0.011) [10.4%]	0.005 (0.005) [-3.6%]	0.005 (0.004) [-3.6%]	-0.017 (0.026) [-9.6%]	-0.008 (0.008) [-5.5%]	-0.008 (0.008) [-5.4%]
Mother Unemployed	-0.004 (0.005) [2.6%]	-2.536E-4 (0.007) [0.2%]	-1.452E-4 (0.007) [0.1%]	0.001 (0.010) [0.6%]	-0.012 (0.013) [-8.2%]	-0.011 (0.012) [-7.4%]
Number of Siblings	-4.171E-4 (0.004) [0.3%]	0.001 (0.009) [-0.7%]	0.001 (0.009) [-0.7%]	-0.017 (0.016) [-9.6%]	0.014 (0.015) [9.6%]	0.018 (0.016) [12.2%]
First Child	-4.586E-4 (0.002) [0.3%]	-0.018** (0.008) [13.0%]	-0.018** (0.008) [13.0%]	0.020** (0.008) [11.3%]	0.023 (0.014) [15.8%]	0.024* (0.014) [16.2%]
Mother Non-white	--	--	4.004E-4 (0.006) [-0.3%]	--	--	-0.021* (0.011) [-14.2%]
Other Controls						
Child Female	0.001 (0.003) [-0.6%]	2.905E-4 (0.001) [-0.2%]	4.809E-4 (0.001) [-0.3%]	-0.008 (0.005) [-4.5%]	0.001 (0.002) [0.7%]	0.001 (0.001) [0.7%]
Child Age Dummies	0.004 (0.006) [-2.6%]	-0.011 (0.009) [8.0%]	-0.012 (0.010) [8.7%]	7.780E-5 (0.009) [4.4E-2%]	0.020 (0.013) [13.7%]	0.019 (0.013) [12.8%]
Total Explained by all Observable Characteristics	-0.094 [61.0%]	-0.065 [47.1%]	-0.066 [47.8%]	0.081 [45.8%]	0.124 [84.9%]	0.121 [81.8%]
N	699	900	896	699	900	896

Note: 1) * 10%; ** 5%; *** 1%

2) -- small sample restrictions mean this variable is unavailable for Canada.

3) The first number in each cell provides the contribution of a risk factor or control variable to the top versus bottom quintile difference in absolute term. The second number (in round brackets) reports the standard error. The last number (in square brackets) calculates the contribution as a percentage of the total difference.

Table 12. Decomposition Analyses for Math Scores. Contribution of Differences in Starting Year Risk Factors.

	Math Score Below Average at Age 12/14 (STATA fairlie package)			Math Score Above Average at Age 12/14 (STATA fairlie package)		
	Canada	U.S.	U.S. with Race	Canada	U.S.	U.S. with Race
Difference to be Explained	-0.175	-0.395	-0.395	0.142	0.357	0.357
Mother Age at Child's Birth	0.006 (0.010) [-3.4%]	-0.017 (0.016) [4.3%]	-0.017 (0.016) [4.3%]	-0.014 (0.010) [-9.9%]	0.033* (0.018) [9.2%]	0.033* (0.017) [9.2%]
Mother Education	-0.140*** (0.032) [80.0%]	-0.130*** (0.027) [32.9%]	-0.128*** (0.027) [32.4%]	0.145*** (0.029) [102.1%]	0.122*** (0.028) [34.2%]	0.119*** (0.028) [33.3%]
Lone Parent	-0.017 (0.028) [9.7%]	-0.050** (0.024) [12.7%]	-0.028 (0.025) [7.1%]	0.005 (0.029) [3.5%]	0.020 (0.027) [7.6%]	-0.004 (0.028) [-1.1%]
Mother Weekly Paid Work Hours	0.077*** (0.026) [-44.0%]	0.001 (0.007) [-0.3%]	-0.001 (0.007) [0.3%]	-0.114*** (0.030) [-80.3%]	-0.005 (0.008) [-1.4%]	-0.003 (0.008) [-0.8%]
Mother Unemployed	0.014* (0.008) [-8.0%]	-0.001 (0.012) [0.3%]	-0.001 (0.011) [0.3%]	-0.007 (0.011) [-4.9%]	0.022 (0.014) [6.2%]	0.021 (0.014) [5.9%]
Number of Siblings	0.022 (0.016) [-12.6%]	-0.042** (0.017) [10.6%]	-0.037** (0.017) [9.4%]	-0.019 (0.017) [-13.4%]	0.027 (0.020) [7.6%]	0.019 (0.020) [5.3%]
First Child	-0.005 (0.011) [2.9%]	2.438E-4 (0.015) [-0.1%]	0.001 (0.015) [-0.3%]	0.003 (0.010) [2.1%]	0.006 (0.017) [1.7%]	0.004 (0.017) [1.1%]
Mother Non-white	--	--	0.047*** (0.013) [-11.9%]	--	--	0.051*** (0.013) [14.3%]
Other Controls						
Child Female	1.690E-5 (0.002) [-9.7E-3%]	-0.001 (0.002) [0.3%]	-0.001 (0.002) [0.3%]	0.001 (0.002) [0.7%]	0.001 (0.002) [0.3%]	0.001 (0.002) [0.3%]
Child Age Dummies	0.001 (0.005) [-0.6%]	-0.006 (0.008) [1.5%]	-0.005 (0.008) [1.3%]	0.003 (0.005) [2.1%]	5.790E-5 (0.008) [1.6E-2%]	-0.001 (0.008) [-0.3%]
Total Explained by all Observable Characteristics	-0.043 [24.6%]	-0.246 [62.3%]	-0.261 [66.1%]	0.002 [1.4%]	0.225 [63.0%]	0.240 [67.2%]
N	712	810	807	712	810	807

Note: 1) * 10%; ** 5%; *** 1%

2) -- small sample restrictions mean this variable is unavailable for Canada.

3) The first number in each cell provides the contribution of a risk factor or control variable to the top versus bottom quintile difference in absolute term. The second number (in round brackets) reports the standard error. The last number (in square brackets) calculates the contribution as a percentage of the total diff

Table 13. Decomposition Analyses for Educational Attainments. Contribution of Differences in Starting Year Risk Factors. Children from Top Compared to Bottom Equivalent Income Quintile Ten Years Ago.

	High School not Completed by Age 19/21 (STATA fairlie package)			Enrolled in Post-Secondary by Age 19/21 (STATA fairlie package)		
	Canada	U.S.	U.S. with Race	Canada	U.S.	U.S. with Race
Difference to be Explained	-0.189	-0.268	-0.269	0.307	0.411	0.417
Mother Age at Child's Birth	-0.020* (0.012) [10.6%]	-0.006 (0.007) [2.2%]	-0.006 (0.007) [2.2%]	0.048*** (0.015) [15.6%]	0.068*** (0.022) [16.5%]	0.068*** (0.022) [16.3%]
Mother Education	-0.046 (0.029) [24.3%]	-0.031** (0.015) [11.6%]	-0.030* (0.015) [11.2%]	0.098*** (0.029) [31.9%]	0.102*** (0.026) [24.8%]	0.102*** (0.027) [24.5%]
Lone Parent	-0.095** (0.043) [50.3%]	-0.013 (0.017) [4.9%]	-0.011 (0.017) [4.1%]	0.066** (0.033) [21.5%]	0.067 (0.045) [16.3%]	0.054 (0.048) [12.9%]
Mother Weekly Paid Work Hours	-0.023 (0.023) [12.2%]	-0.002 (0.004) [0.7%]	-0.002 (0.004) [0.7%]	0.018 (0.027) [5.9%]	-2.782E-4 (0.008) [-0.1%]	-3.941E-4 (0.008) [-0.1%]
Mother Unemployed	0.008 (0.009) [-4.2%]	-0.008 (0.006) [3.0%]	-0.007 (0.006) [2.6%]	-0.014 (0.011) [-4.6%]	0.017 (0.013) [4.1%]	0.016 (0.013) [3.8%]
Number of Siblings	0.004 (0.008) [-2.1%]	0.003 (0.005) [-1.1%]	0.004 (0.005) [-1.5%]	-0.023** (0.011) [-7.5%]	-0.012 (0.010) [-2.9%]	-0.013 (0.010) [-3.1%]
First Child	-0.002 (0.007) [1.1%]	-0.007 (0.005) [2.6%]	-0.007 (0.005) [2.6%]	0.010 (0.009) [3.3%]	0.018* (0.010) [4.4%]	0.018* (0.010) [4.3%]
Mother Non-white	--	--	-0.003 (0.006) [1.1%]	--	--	0.012 (0.015) [2.9%]
Other Controls						
Child Female	0.003 (0.003) [-1.6%]	3.319E-4 (0.002) [-0.1%]	3.189E-4 (0.002) [-0.1%]	0.004 (0.004) [1.3%]	0.003 (0.003) [0.7%]	0.003 (0.003) [0.7%]
Child Age Dummies	-0.002 (0.005) [1.1%]	0.004 (0.004) [-1.5%]	0.004 (0.004) [-1.5%]	-0.004 (0.008) [-1.3%]	-0.009 (0.006) [-2.2%]	-0.009 (0.006) [-2.2%]
Total Explained by all Observable Characteristics	-0.173 [91.5%]	-0.058 [21.6%]	-0.058 [21.6^]	0.203 [66.1%]	0.255 [62.0%]	0.250 [60.0%]
N	597	531	527	547	527	523

Note: 1) * 10%; ** 5%; *** 1%

2) -- small sample restrictions mean this variable is unavailable for Canada.

3) The first number in each cell provides the contribution of a risk factor or control variable to the top versus bottom quintile difference in absolute term. The second number (in round brackets) reports the standard error. The last number (in square brackets) calculates the contribution as a percentage of the total difference.

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Appendix A. Details of Sample Construction for Outcome Variables

Equivalent household income:

Canadian sample: 10-17 years old in 2004 (0-7 years old in 1994)

U.S. sample: a pooled sample of four cohorts: i) 16-17 years old in 200 (6-7 years old in 1990); ii) 16-17 years old in 2002 (6-7 years old in 1992); iii) 10-17 years old in 2004 (0-7 years old in 1994); and, iv) 10-11 years old in 2006 (0-1 years old in 1996).

Educational Aspirations:

Canadian sample: a pooled sample of two cohorts: i) 12-15 years olds in 2004 (2-5 years old in 1994); and, ii) 12-13 years old in 2006 (2-3 years old in 1996)

U.S. sample: a pooled sample of four cohorts: i) 14-15 years old in 2000 (4-5 years old in 1990); ii) 14-15 years old in 2002 (4-5 years old in 1992); iii) 12-15 years old in 2004 (2-5 years old in 1994); and, iv) 12-13 years old in 2006 (2-3 years old in 1996).

Math score:

Canadian sample: a pooled sample of two cohorts: i) 12-14 years olds in 2004 (2-4 years old in 1994); and, ii) 12-13 years old in 2006 (2-3 years old in 1996)

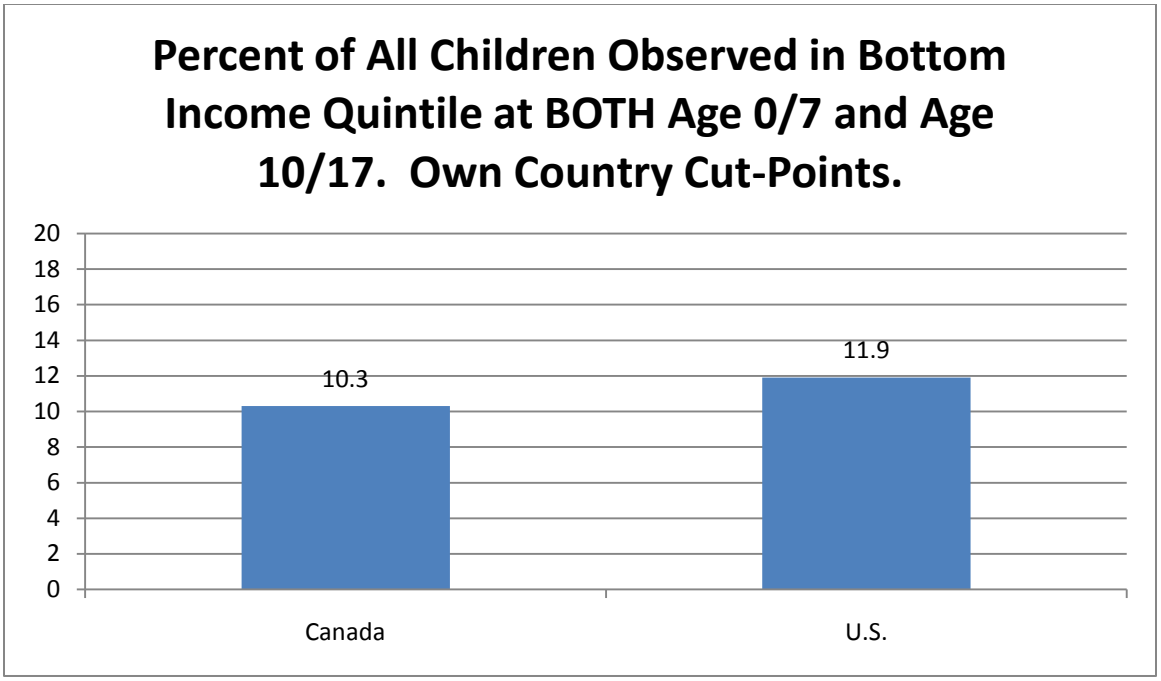
U.S. sample: a pooled sample of four cohorts: i) 13-14 years old in 2000 (3-4 years old in 1990); ii) 13-14 years old in 2002 (3-4 years old in 1992); iii) 12-14 years old in 2004 (2-4 years old in 1994); and, iv) 12-13 years old in 2006 (2-3 years old in 1996).

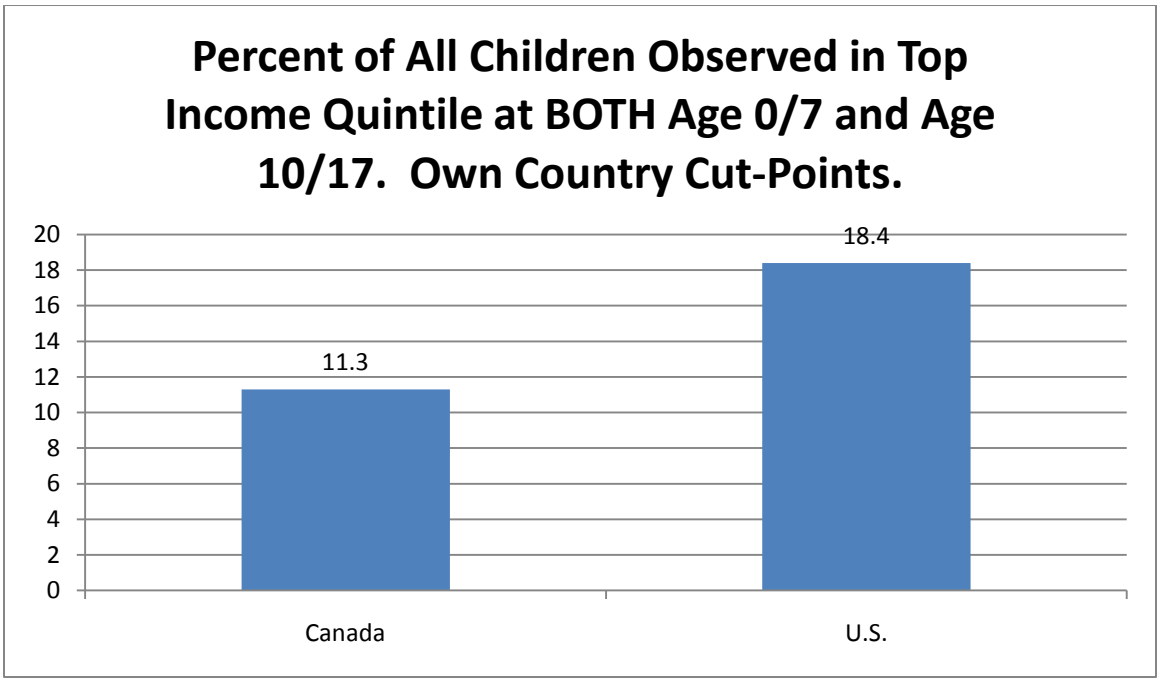
Education attainment:

Canadian sample: a pooled sample of two cohorts: i) 20-21 years old in 2004 (10-11 years old in 1994); and, ii) 19-21 years old in 2006 (9-11 years old in 1996).

U.S. sample: a pooled sample of two cohorts: i) 20-21 years old in 2004 (10-11 years old in 1994); and, ii) 19-21 years old in 2006 (9-11 years old in 1996).

Appendix B. Full Sample Results for Income Transitions.





Full sample results, including children from middle three quintiles.

Table B1. OLS Regressions on the Probability of Being 'Stuck in the Bottom' or 'Secure in the Top'

Outcome	Canada	U.S.	Pooled
Bottom Quintile in First and Final Year (OLS; No constant)			
Bottom Quintile in First Year	0.512*** (0.035)	0.592*** (0.028)	0.512*** (0.035)
Bottom Quintile in First Year X U.S.			0.081* (0.045)
R-squared	0.5116	0.5921	0.5547
Number of Observations	1371	1144	2515
Top Quintile in First and Final Year (OLS; No constant)			
Top Quintile in First Year	0.580*** (0.035)	0.541*** (0.035)	0.580*** (0.035)
Top Quintile in First Year X U.S.			-0.039 (0.049)
R-squared	0.5795	0.5406	0.5605
Number of Observations	1371	1144	2515

Full sample results, including children from middle three income quintiles.

Appendix C.

Table C1. Current Family Income by Family Income Quintile Ten Years Earlier. Top Compared to Bottom Quintile Children. Using U.S. Quintile Cut Points for Both Canada and the U.S.

Outcome	Canada	U.S.	Pooled
(Log) Real Family Equivalent Income in Final Year (OLS)			
Bottom Quintile in First Year	-1.039*** (0.058)	-1.433*** (0.072)	-1.039*** (0.058)
U.S. X Bottom Quintile in First Year			-0.394*** (0.093)
U.S.			0.125*** (0.069)
Constant	10.789*** (0.043)	10.914*** (0.054)	10.789*** (0.043)
R-squared	0.4447	0.4414	0.4428
Number of Observations	1176	1145	2321
Bottom Quintile in First and Final Year (OLS; no constant)			
Bottom Quintile in First Year	0.435*** (0.033)	0.595*** (0.028)	0.435*** (0.033)
Bottom Quintile in First Year X U.S.			0.160*** (0.043)
R-squared	0.4353	0.5950	0.5248
Number of Observations	1176	1145	2321
Top Quintile in First and Final Year (OLS: no constant)			
Top Quintile in First Year	0.509*** (0.044)	0.539*** (0.035)	0.509*** (0.044)
Top Quintile in First Year X U.S.			0.030 (0.056)
R-squared	0.5091	0.5394	0.5279
Number of Observations	1176	1145	2321

Table C2. Child Educational Aspirations by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children. Using U.S. Quintile Cut Points for Both Canada and the U.S.

Outcome	Canada	U.S.	Pooled
Educational Aspirations at Age 12/15 high school or less (probit)			
Bottom Quintile First Year	0.993*** (0.235)	0.658*** (0.124)	0.993*** (0.235)
Bottom Quintile in First Year X U.S.			-0.335 (0.266)
U.S.			0.436** (0.218)
Constant	-1.895*** (0.165)	-1.459*** (0.105)	-1.895*** (0.165)
Number of Observations	776	995	1771
Educational Aspirations at Age 12/15 Professional or Post-Graduate (probit)			
Bottom Quintile First Year	-0.670*** (0.152)	-0.385*** (0.097)	-0.670*** (0.152)
Bottom Quintile in First Year X U.S.			0.285 (0.181)
U.S.			0.061 (0.130)
Constant	-0.321*** (0.108)	-0.260*** (0.072)	-0.321*** (0.108)
Number of Observations	776	995	1771

Table C3. Child Educational Outcomes by Family Income Quintile 10 years earlier. Top Compared to Bottom Quintile Children. Using U.S. Quintile Cut Points for Both Canada and the U.S.

Outcome	Canada	U.S.	Pooled
Math Score Less Than Average at Age 12/14 (probit)			
Bottom Quintile First Year	0.543*** (0.159)	1.032*** (0.114)	0.543*** (0.159)
Bottom Quintile in First Year X U.S.			0.489** (0.196)
U.S.			-0.279* (0.148)
Constant	-0.475*** (0.120)	-0.754*** (0.087)	-0.475*** (0.120)
R-squared			
Number of Observations	690	886	1576
High School not Completed by Age 19/21 (probit)			
Bottom Quintile First Year	0.827*** (0.229)	1.418*** (0.200)	0.827*** (0.229)
Bottom Quintile in First Year X U.S.			0.592* (0.302)
U.S.			-0.448* (0.255)
Constant	-1.504*** (0.181)	-1.952*** (0.180)	-1.504*** (0.181)
Number of Observations	472	591	1063
Enrolled in Post-Secondary by Age 20/21			
Bottom Quintile First Year	-0.905*** (0.196)	-1.066*** (0.104)	-0.905*** (0.196)
Bottom Quintile in First Year X U.S.			-0.161 (0.239)
U.S.			-0.467*** (0.181)
Constant	-0.467*** (0.181)	0.541*** (0.104)	1.007 (0.114)
Number of Observations	431	587	1018