

The Prince and the Pauper: Movement of Children Up and Down the Canadian Income
Distribution, 1994-2004

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Abstract

This paper uses longitudinal microdata from the Statistics Canada National Longitudinal Survey of Children and Youth (NLSCY) spanning the years 1994 through 2004 to study patterns of family income experienced by a cohort of 7163 Canadian children for most of their childhood. Five principal questions are addressed: 1) What trends in the level of real family income are apparent?; 2) What happens to inequality of income among this group of children as they grow up?; 3) Are the same children always the ones to be ‘stuck at the bottom’ or, alternatively, ‘secure at the top’ of the relative income distribution?; 4) What are the characteristics of the children who are most likely to ever or always be in the bottom (or top) of the distribution?; 5) What changes in characteristics are associated with movements up or down the income distribution?

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Inequality of family income experienced by children, while they are children, is of concern from the perspective of equity today. Inequality of family income during the growing up years, particularly inequality of long-term income, is also troubling as a potential precursor to inequality tomorrow, after children reach adulthood. Evidence suggests, for example, that differential access to economic resources during childhood can have implications for both health status (e.g., Korenman and Miller, 1997 or Strohschein, 2005) and cognitive outcomes (e.g., Dooley and Stewart, 2004), both of which are important predictors of adult income. Moreover, it is not only the case that children with low income fare worse than others, but researchers also find that children with high incomes fare better than those with middle incomes, etc (i.e., full ‘socioeconomic gradients’ exist for many child outcomes – see for example Case et al., 2002).

Given the importance of family income patterns experienced during childhood and given recent increases in over-all income inequality in Canada,¹ this paper uses nationally representative longitudinal microdata from the Statistics Canada National Longitudinal Survey of Children (NLSCY) to provide a descriptive analysis of family income patterns over a 10-year period for a cohort of children who were aged 0 through 7 in 1994 and thus 10 through 17 in 2004. The NLSCY provides a relatively large sample of children (over 7000 observations) as well as the longest longitudinal panel yet available in Canada.

We ask five main questions about family income trajectories. First, what happens to average levels of real income experienced by Canadian children as they grow from pre-schoolers to teenagers over this ten-year span? Is family real income growth the same for relatively affluent and relatively poor children? The first substantive section of the paper calculates levels of real family income in each year for our cohort of children from ages 0 to 7 in 1994 until ages 10 to 17 in 2004. Means are computed over-all and at different points of the income distribution (i.e., for

¹ For example, the Canadian Gini coefficient increased from 0.284 to 0.318 between 1994 to 2004, the period of our study. The ratio of income at the 90th to 10th percentile increased from 3.871 to 4.379 (LIS Key Figures, 2009).

each income decile). While straightforward, these results are novel in a Canadian context, since longitudinal data spanning ten years has not previously been available.

Second, what happens to inequality of family income as this cohort of children grows up? To date, there have been relatively few studies of income inequality for children (the focus has rather been on child poverty), and those studies that have been carried out (e.g., Oxley et al., 2001; Phipps and Lethbridge, 2006; Smeeding and Rainwater, 2002) have used series of cross-sections rather than longitudinal data. Results from these earlier papers suggest that inequality of income among children in Canada is ‘middle of the road’ by international standards (e.g., less than in the United States but more than in Norway, for example) and that, while market income inequality increased between 1973 and 1997, post-tax and transfer income inequality experienced by Canadian children remained fairly constant (in contrast with increasing income inequality experienced by children in the United States and United Kingdom, for example). Although these earlier studies provide useful context for our work, they refer to an earlier time period than we study here. Notice also that when we use longitudinal data rather than a series of annual cross-sections to study changes in family income inequality over time, we are asking how inequality changes for *the same set* of children as they get older. Cross-sectional analyses ask how inequality changes across time for a different set of children in each cross section but who are always representative of children in the same age range. Using the NLSCY, we compute standard measures of inequality for each year (e.g., gini coefficient, Theil index, Atkinson index, 90:10 and 90:50 ratios) in order to see whether income inequality increases or decreases for a representative sample of Canadian children over their childhood years. We ask, as well, about the degree of inequality in ‘permanent’ (i.e., multi-year average) income as compared to annual income.

Third, and more innovatively, we take advantage of the longitudinal nature of the NLSCY to ask how much movement up or down the income distribution takes place? We calculate, for example, the fraction of children who start at the bottom and stay at the bottom of

the distribution, the number who move up the distribution as well as how far they go, and the fraction of children who begin in a position of relative advantage and remain so throughout their childhood years. We also estimate ‘exposure’ to low income (or affluence) over the childhood years. That is, what percent of children are ‘ever’ at the bottom of the relative income distribution? These analyses are also conducted separately for children of immigrant parents. On the one hand, children with immigrant parents might be more likely to move up the relative income distribution as their families settle down in Canada. On the other hand, a growing policy concern in Canada has been that recent cohorts of immigrants are not catching up economically with their Canadian-born counterparts (e.g., Picot, 2004).

The fourth question we ask is: “which starting point (1994) characteristics are associated with a higher risk that the child will ever or always be at the bottom the income distribution during the 1994 through 2004 period?” Analogously, which characteristics are associated with a higher probability of being ‘secure at the top’ of the distribution? To address these questions, we estimate probit models in which the dependent variable makes use of the child’s 1994 through 2004 income history, while explanatory variables refer to beginning of period (i.e., 1994) characteristics.

Finally, we ask which changes in family characteristics have the largest associations with movements up or down the relative cohort income distribution. We estimate conditional logit models of changes correlated with movements into or out of the bottom (top) of the distribution as well as fixed effects models of changes in characteristics associated with changes in percentile rank in the children’s income distribution.

The final sections of the paper provide discussion and conclusions, respectively.

I. Data

The data set employed is the National Longitudinal Survey of Children and Youth (NLSCY), a long-term study of Canadian children carried out by Statistics Canada and Human Resources and Social Development Canada (HRSDC). The NLSCY follows the development

and well-being of Canadian children from birth to early adulthood; the survey thus has a longitudinal design (and longitudinal survey weights). The target population is the non-institutionalized civilian population, aged 0 to 11 at the time of selection, living in the ten Canadian provinces. All respondents were selected from the Labour Force Survey sampling frame.² There are several components to the NLSCY; for this project we use only information obtained from both the ‘person most knowledgeable’ about the child (the mother in over 90 percent of cases). This component of the survey is carried out by a trained Statistics Canada employee, in the respondent’s home, using computer-assisted interviewing.

We select children who were present in all years of the panel, with currently available data stretching from 1994 through 2004 (with interviews every two years). We further restrict our sample to children who were 0 through 7 in 1994 and thus 10 through 17 in 2004. This allows us to track a cohort of children from early childhood until they are on the brink of adulthood – that is, across their ‘growing up’ years.

We exclude children with missing responses to any variables key to our analysis. In particular, we require income and family size for each year – 7,163 children have complete data for these items. The NLSCY measure of family income includes transfer income, but unfortunately does not exclude taxes (direct or indirect); these income data are not top-coded in the master files. Pmk’s 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?”

² The Labour Force Survey (LFS) sampling frame is used by Statistics Canada to select respondents for many population-based Canadian surveys. It is a cross-sectional survey carried out each month and used to calculate unemployment rates; participation is mandatory for Canadians. The LFS is representative of the non-institutionalized Canadian population aged 15+ living in the ten Canadian provinces. Excluded from coverage are individuals living on reserves, individuals living in institutions or members of the Armed Forces. This excludes only 2 percent of the Canadian population. Households with children aged 0 to 11 were identified from the Labour Force Survey.

All analyses employ longitudinal sampling weights.³ Further, since the NLSCY uses a complex survey design, where possible, reported standard errors are calculated using bootstrap weights provided by Statistics Canada (we use 1000 replicates).⁴

II. Trends in Levels of Family Income

The first question addressed is how levels of family income change as a cohort of Canadian children grow from pre-schoolers (0 to 7 in 1994) to teenagers (10 to 17 in 2004). What would we expect to find? Real income profiles for children will depend on family structure (e.g., marital status of parents, number of siblings) as well as labour force participation and age-earnings profiles for (potentially) two parents. Life-cycle models predict that family incomes should on average increase for children if parents finish school, find a good job match, settle into the labour market, and progress along career paths, obtaining higher wages and lower risks of lay-off. As well, as children reach school age, mothers who had stayed home during the pre-school years may return to paid work or increase from part-time to full-time hours.

On the other hand, if new children are born, the same family income will have to be stretched further, reducing standard of living for the original child. If parents divorce or separate, standard of living for the child will almost certainly fall. Some parents will not obtain ‘good jobs’ but rather may experience on-going periods of unemployment and/or stagnant real wages. Such factors may limit the extent to which average standards of living for a cohort of Canadian children increase as the children grow up.

We thus begin, in Table 1, with some data on changes in family characteristics for our cohort of children to provide some contextual background for the subsequent discussion of trends in family income levels. Notice, first, that average family size is relatively constant over time, ranging from a low of 4.2 to a high of 4.4 members. On the other hand, the probability that the child lives in a lone-parent family increases steadily from a low of 14.3 percent in 1994 when

³ We use the NLSCY ‘funnel weights’ which are appropriate when analysis requires the child to be present in every survey year, as we do.

⁴ To preserve confidentiality, Statistics Canada does not provide cluster i.d.s.

children are 0 to 7 years of age, to a high of 20.4 percent when they are 10 to 17. More parents participate in paid work as children grow older. For example, only 41.1 percent of lone parents are observed with positive paid hours in 1994 compared with 84.8 percent by 2004; 55.7 percent of two-parent families have two earners in 1994 when the child is 0 to 7 years compared to 83.8 percent by 2004 when the child is 10 to 17. Intensity of parental labour market participation in paid work also increases steadily over the growing up years of the children in our sample. On average, paid work supplied by lone parents increases from 14.1 hours per week in 1994 to 32.8 hours per week in 2004; total hours of paid work supplied by mother and father together in two-parent families increases from 59.1 hours per week in 1994 (mother's hours plus father's hours) to 73.1 hours per week in 2004.

Table 2 reports mean and median levels of family income across the 'growing up years' for our cohort of Canadian children. We first present means for total family income, unadjusted for differences in need for families of different size (all dollar values are expressed in 2004 Canadian dollars). However, since the same dollar income will not purchase an equal standard of living for a larger family as for a smaller family, we next present trends in average 'equivalent income.' Equivalent income adjusts for differences in needs of families of different size by dividing dollar income by an appropriate household equivalence scale. We use the Luxembourg Income Study, or LIS, equivalence scale which is equal to the square root of family size. Thus, for example, a family of four with dollar income of \$50,000 has 'equivalent' income equal to \$25,000. Note that, although we have ourselves argued in other work that income may not always be shared equally within families – children may be neglected in some families while parents sacrifice themselves for their children others (see, for example, Burton et al., 2007), data limitations mean that in this paper we simply assume that all family members benefit equally from 'family equivalent income.'

Regardless of measure, Table 2 indicates growth in real family income in almost every year⁵ as children become older and parents become more settled in the labour market (with some mothers returning to paid work after an initial period of absence and/or increasing paid hours from part-time to full-time). Total family income increases from a mean of \$60,528 in 1994 when children are aged 0 through 7 to a mean of \$77,945 when children are aged 10 through 17 (i.e., 28.8 percent real growth from 1994 to 2004). Equivalent income increases from a mean of \$29,918 in 1994 to \$38,276 in 2004 (real growth of only 21.8 percent). Table 2 reports median as well as mean income for each year of the survey. Median equivalent income increases from \$26,223 to \$33,980 (or, 29.5 percent real growth).

Figure 1 illustrates patterns of growth in real income for children at different places⁶ in the income distribution for families with children (see also the data for this figure in Table 2). Recent Canadian research documents increases in income inequality in Canada, driven by growth in incomes at the very top of the income distribution (see, for example, Saez and Veall, 2003 or Osberg, 2007 for a discussion). Are the richest children in our cohort also ‘pulling away’ from their peers over the 1994 to 2004 period? That is, do we also see relatively higher growth in family income for children located at the top of the family income distribution?⁷ Figure 1 does not, in fact, suggest that this is the case. Although there is a large gap between equivalent incomes experienced by children at the top and bottom of the distribution, growth is not particularly higher over the 1994 to 2004 period for families with children in the top decile of the

⁵ One exception is that total real income falls between 2002 and 2004.

⁶ We use the NLSCY to identify ‘cut points’ of the relative income distribution in each year for our cohort of children. Thus, when we refer to children in the bottom decile, etc., we are talking about the poorest ten percent of children from that cohort in that year. We have also conducted all analyses comparing our cohort of children to the full Canadian population. Results are qualitatively similar, though, of course, since our cohort of children is 10 years older at the end of the study period, while a cross-section for the Canadian population is not, they have, as a group, moved ‘up the Canadian income distribution.’

⁷ Although research for the population as a whole emphasizes that inequality growth has been driven by increases in real income for the top 1 percent of the Canadian income distribution, we do not have sufficient sample to analyse what has happened to family income of the richest 1 percent of Canadian children.

distribution; nor is, for example, the ratio of top decile income to bottom decile income increasing over this period.

III. Trends in Inequality of Family Income

In this section of the paper we ask whether family income inequality increases or decreases for a cohort of children during their growing up years. On the one hand, we might expect increasing aggregate inequality if some parents ‘make it’ in the labour market, obtaining good jobs with high wage growth and stability of employment while others are left behind in ‘dead-end’ jobs with low wages and precarious job security. On the other hand, differences in family income may lessen over time as some parents finish their educations and obtain paid jobs, and/or some mothers who stayed at home during pre-school years re-join the paid labour market. Parental divorce/re-marriage patterns will also, of course, be critical. Family income for children whose parents remain continuously married, for example, may increase relative to family income for children whose parents divorce/separate, increasing inequality of income among children (especially if financial stress experienced by lower-income families increases the probability of divorce).

Table 3 presents a set of standard measures of income inequality computed for each year of our panel using real equivalent family income.⁸ We focus for the remainder of the paper on real equivalent income as a better measure of the standard of living experienced by the child than total dollar income. Again, to be clear, these inequality measures describe changes in inequality *among* the children in our cohort as they grow up.

The measures of inequality presented are standard ones: the Gini coefficient, coefficient of variation (C.V.), Theil index and Atkinson index (epsilon=2). In addition to providing comparability with other research, we choose these particular measures from the wide array available because they are sensitive to changes in income inequality occurring at different places

⁸ We have also computed all measures using total dollar income. Patterns are basically similar.

in the income distribution. The Gini coefficient is particularly sensitive to the middle of the income distribution, the C.V. is sensitive to the top end of the distribution, the Atkinson index (with $\epsilon = 2$) to the bottom end. The Theil index has the useful property that it allows the decomposition of over-all inequality into inequality attributable to ‘within-group’ inequality plus inequality attributable to ‘between-group’ inequality. We also report the ratio of family equivalent income at the 90th percentile to family equivalent income at the 10th percentile (the 90:10 ratio) as well as the ratio of family equivalent income at the 90th percentile to family income at the 50th percentile (the 90:50 ratio).

Past research has suggested that there is less inequality of income among children than exists in the full population (see, for example, Phipps and Lethbridge, 2006). However, since the measure of income available in the NLSCY is a pre-tax measure and the Canadian income tax system is progressive, we find slightly higher values for all measures of inequality than are reported, for example, in the Luxembourg Income Study Key figures for equivalent years. For example, in 2000, the Gini coefficient reported for the full Canadian population using after-tax and transfer equivalent income computed using the same LIS equivalence scale we have chosen here is 0.315 whereas our measure for children using after-transfer but not after-tax income in the same year is 0.339.⁹

However, our key question in this section of the paper is: “what happens to inequality of family income among a cohort of children over their growing up years?” The basic story we take from Table 3 is that there is no clear trend toward either increased or reduced inequality among our cohort of children during their growing up years. The middle-of-the-distribution sensitive Gini index is perhaps most stable across cycles. The bottom-of-the-distribution sensitive Atkinson index suggests a ‘u-shaped’ pattern, with inequality lowest in the middle years of the

⁹ On the other hand, Phipps and Lethbridge, 2006 report that using after-tax and transfer equivalent income in both cases, the 1997 Gini for all children was 0.276 – less than the Gini for the population of 0.291.

period studied. The high-end sensitive C.V. suggests, on the other hand, an ‘inverted u’ pattern, with inequality highest in the middle years.

Table 3 also presents each of the inequality measures computed using long-run average real equivalent income. That is, equivalent income is averaged across the six cycles for each child, then inequality measures are computed using the ‘long-run average,’ proxying family ‘permanent’ income over much of the child’s life. Not surprisingly, when year-to-year fluctuations are averaged out, measured inequality appears much lower regardless of inequality index employed.

The Theil index further allows us to break total inequality down into that attributable to ‘within group’ inequality and ‘across group inequality.’ In our application, ‘within-group’ means ‘for the same child across 6 cycles’ while ‘across group inequality’ means ‘across different children.’ Using the de-composability property of the Theil index, we compute that 75 percent of total observed inequality among this cohort of children was due to differences in ‘permanent’ income.

IV. Moving Up and Down the Income Distribution

In the previous two sections of the paper, we have compared changes in levels of income for children in lower deciles of the distribution with levels of income for those in higher deciles and have measured changes in income inequality among a cohort of Canadian children as they grow up. But, inequality measures computed on a year-by-year basis are anonymous as to which children are rich and which are poor; they measure only the degree of inequality in a particular year and not whether it is the same group of children who are always rich or always poor. Thus, an important point is that while the children being studied are the same in each year, it has not so far been the case that the children in each decile have remained the same across time. That is, for example, ‘bottom decile’ children in 2004 could be an entirely different set of children than ‘bottom decile’ in 1994; the same is true for ‘top decile’ children. Yet, from the child’s (or

society's) perspective, it may not be the same thing to have every child experience being at the bottom of the income distribution just once as it would be to have a small set of children who are the ones always stuck in the bottom position. Similarly, it is presumably not the same outcome to have some children always the ones who have the highest standards of living as it would be if every child had some experience of richness.

In this section of the paper, we ask to what extent children who are at the bottom (or top) of the distribution in 2004 are *the same* children as those who were in that position in 1994. That is, for example, are some children 'stuck' at the bottom of the distribution, while others never experience low income? Or, is being at the bottom an experience occasionally shared by many children? At the other end of the income spectrum, are some children always secure in their position at the top of the income distribution or is high income occasionally experienced by a much larger number than cross-sectional data might suggest? In sum, this section of the paper attempts to assess how much movement up and down the income distribution occurs for our cohort of Canadian children.

IVa. Transition Matrices¹⁰

Table 4 presents a first simple way to look at this issue. In this table, we illustrate beginning (1994) to end of period (2004) movement of children across income quintiles. Quintiles for each year are constructed using the NLSCY. Thus, there are, by definition, always 20 percent of children in each quintile. If all children remained in the same quintile of the income distribution (i.e., if all the children who were in the bottom quintile of the family income distribution in 1994 remained in the bottom decile in 2004, while all children in the 2nd quintile remained in the second decile, etc), then all diagonal entries in Table 4 would be '1' while all off-

¹⁰ The literature on intergenerational transmission of economic status (e.g., Corak and Heisz, 1998) uses similar techniques. Also popular in that literature is the 'regression to mean' equation, in which, for example, son's income is regressed on father's income. In our application, we regressed the log of real 2004 equivalent income on 1994 real equivalent income. Our estimate of the beta parameter is 0.58 (compared to a preferred father to son beta of 0.19 for Canada, see Corak, 2006).

diagonal entries would be '0.' If, on the other hand, where a child ends up in 2004 is completely unconnected to where he/she starts out in 1994, then all entries in Table 4 would be 0.20.

Considerable 'stickiness of position' is apparent in Table 4. Of children who were in the bottom quintile of the income distribution in 1994, 51 percent were also observed in the bottom quintile in 2004; 25 percent had moved up to the 2nd quintile; only 4 percent had moved to the top quintile. On the other hand, of children whose family equivalent income placed them in the top quintile in 1994, 58 percent were again observed in the top quintile in 2004; 24 percent had dropped to the 4th quintile; only 3 percent were observed in the bottom quintile.

For children of immigrant parents, an even higher level of 'stickiness' in relative income position is apparent, particularly at the bottom end of the distribution (see Table 4a). For children who started with family income in the bottom 20 percent for their cohort in 1994, 67 percent are still observed in the bottom quintile in 2004 (versus 51 percent for all Canadian children).¹¹

IVb. Lenses

Focussing only on income position at the beginning and end of the study period obviously misses what happens during intervening years. Figure 2 provides a more complete description of the extent to which children 'ever' or 'always' over their growing up years have a family income that place them in any particular part of the relative income distribution for Canadian children. To be clear, we use the terms 'ever' and 'always' as a short-hand way of describing data collected every two years so that we have six observations spanning a 10-year period. (The data used to construct the lenses are reported in Table 5.) The upper portion of the income 'lens' illustrates the percentage of children who have 'ever' (in any year) had a family equivalent income less than the 10th percentile for all children in that year, less than the 20th

¹¹ This does not mean that children of immigrants will necessarily end up in the bottom of the income distribution once they are adults. Indeed, Aydemir, Chen and Corak (2005) demonstrate that intergenerational mobility for immigrant families is similar to that observed for Canadian-born families (albeit this work refers to 'children of immigrants' who are by now adults and so were actually children (i.e., less than 18) in a much earlier period).

percentile, less than the 30th percentile, etc.¹² In a sense, the top half of the lens illustrates children's 'exposure' to different income positions. For example, we can see that 26 percent of children 'ever' during the six cycles for which we observe them, had a family equivalent income that would place them in the bottom decile of the distribution; 42 percent were 'ever' in the bottom 20 percent; 54 percent were ever in the bottom 30 percent. Thus, many more children experience low income occasionally than would be suggested by income position in any one year.

The bottom half of the lens, on the other hand, illustrates the percentage of children who have 'always' (in every period) had a family income less than the 10th percentile, less than the 20th percentile, etc. This curve thus illustrates the extent to which some children are 'permanently stuck' in any part of the income distribution. We find that 1 percent of children were always in the bottom decile, 5 percent were always in the bottom quintile, 10 percent always had family equivalent incomes less than the 30th percentile. In other words, for example, relative to the maximum possible fraction of children who *could* always have been in the bottom 20 percent of the income distribution (i.e., 20 percent), one quarter actually were always in the bottom quintile. Although fewer children are 'stuck' at the bottom of the income distribution than the number who are ever in the bottom an important minority of Canadian children have faced *chronic* economic disadvantage during their growing up years. A better understanding of who these children are and how they might best be helped is thus extremely important for policy formulation.

Figure 2 can also be used to understand the other end of the income distribution -- that is, percentages of children who have 'ever' had family equivalent income higher than the 80th or 90th percentile or percentages of children who have 'always' had family income in these ranges. While we might not be particularly concerned that some children occasionally experience high income, anyone interested in income inequality might be more worried that some children are privileged 'always' to be advantaged relative to their peers. We can see from Figure 2 (or it is

¹² We have repeated this analysis using cut-points from the population income distribution. The resulting 'lens' looks very similar. See Appendix 2.

perhaps easier to read this from column 4 of Table 5) that 3 percent of children have always had family income in the top decile of the distribution; 7 percent have always been in the top quintile.

Figure 3 and Table 5a present the same information for children with immigrant parents compared to children whose parents were born in Canada (in this case, we use quintiles rather than deciles given small sample concerns for the immigrant group). It is evident in Table 5a that more children of immigrant parents have ‘ever’ been in the bottom quintile (54.5 percent compared to 40.0 percent); and, more children of immigrant parents have been ‘stuck’ at the bottom (9.2 percent compared to 4.7 percent). These points are again evident in the ‘lens’ for children with immigrant and non-immigrant parents depicted in Figure 3. The ‘exposure’ to low-income line for children of immigrants lies entirely above the analogous line for children of Canadian-born parents; the line for ‘always in low income’ for children of immigrants also lies entirely above the equivalent line for children of Canadian-born parents. Thus, children with immigrant parents are both more likely to have experienced at least one year at the bottom of the income distribution, and, what is more troubling, they are more likely to have been ‘stuck at the bottom’ of the income distribution throughout all their childhood years.

V. Who is ‘Stuck at the Bottom’ and Who is ‘Secure at the Top’?

In this section of the paper we ask which starting out characteristics are correlated with a higher risk that a child is at the bottom (top) of the income distribution during his/her growing up years. Identifying not just how many children are at risk, but also *which* children are at risk and which are relatively privileged is potentially useful for policy formation. To this end, we estimate probit models of the probability that a child has a family equivalent income that is ‘ever’ in the bottom quintile relative to his/her peers, is ‘always’ in the bottom quintile, ‘ever’ has income over the 80th percentile or ‘always’ has income over the 80th percentile, respectively. We choose to focus on the top and bottom 20 percent to ensure sufficient sample for the ‘always above’ and ‘always below’ regressions. Although we use information about the child’s full income history

(i.e., in order to know if he or she was ‘ever’ or ‘always’ in a particular income position), we do not, in this section, use longitudinal estimation techniques (since estimating, for example, fixed effects models, would eliminate characteristics of interest such as visible minority or immigrant status).

We choose to estimate models of ‘risks’ associated with particular starting point (i.e., 1994) characteristics. Since children depend upon their parents for income, the most important predictors of income path are likely to be family structure (e.g., one versus two parents) and employment status of parents. Since family structure and employment status are intertwined (a lone-parent family cannot have two parents working, for example), we choose to model these variables using a set of dummies. Choosing ‘two parents, both doing paid work’ as the base case (42.7 percent of children in 1994), we include four additional family structure/employment status categories: lone parent, no paid work (8.8 percent); lone parent with paid work (6.0 percent); two parents, pmk¹³ no paid work (32.8 percent) and two parents, spouse no paid work (9.6 percent).¹⁴ Other explanatory variables include: region¹⁵ of residence, pmk’s education level,¹⁶ pmk’s age (mean = 32.7), whether pmk is an immigrant (15.1 percent), is non-white (8.8 percent), was a student (8.8 percent), or had a work-limiting activity limitation (8.0 percent). We also include child’s age (mean = 3.5) and number of siblings present (mean = 1.2). Means for all explanatory variables are reported in Table 6.¹⁷

Table 7 reports regression results for these probit models. However, since the magnitude of estimated associations is not directly evident from the probit coefficients, Table 7a presents calculated probabilities of ever being in the bottom quintile, always being in the bottom quintile, ever being in the top quintile and always being in the top quintile. We have chosen as a base for

¹³ While pmk is in most cases the biological mother, this can change across time if family structure changes or even, occasionally, if the father rather than the mother chooses to answer the survey in a given year.

¹⁴ This includes the case where neither parent has paid work, a situation too rare to be included separately.

¹⁵ The omitted category is Ontario.

¹⁶ The omitted category is ‘high-school.’

¹⁷ Notice that sample size falls slightly – to 7066 given non-response for some explanatory variables.

comparison a child with the most common characteristics for our sample (continuous variables set at sample means and all categorical variables are set equal to zero). In particular, this means that he/she lives in Ontario, has two parents, both of whom are engaged in paid work; the pmk has a high-school diploma, is white, is not an immigrant and does not have any work-limiting activity limitations. Table 7a then reports calculated probabilities as we vary, one at a time, selected statistically significant 1994 predictors of future income patterns.

Family structure and employment status of parents in 1994 are, by far, the most important predictors of the child's income path over the next ten years. The base case child (in a two-parent, two-earner family) will almost certainly *not* always have low family income – the calculated probability is just 0.2 percent. The probability of ever being in the bottom quintile is 20.3 percent while the probability of ever being in the top quintile is 48.3 percent for the base case child. Children from otherwise identical families, but with either parent not engaged in paid work in 1994 are much more likely to ever be at the bottom; much less likely to ever be at the top of the distribution. This is particularly true if it is the father who is not in paid work in 1994 (47.0 percent chance of ever being at the bottom; 25 percent chance of ever being at the top). Children in lone-parent families where the pmk does not have paid work in 1994 have the highest chance of always being in the bottom quintile (20.4 percent) and the lowest chance of ever being in the top quintile (10.4 percent).

Strong associations between expected income path and province of residence in 1994 are also apparent.¹⁸ For example, holding all other characteristics at their 'base case' values, but setting 1994 region of residence as Atlantic, the probability of ever being in the bottom quintile is 11.2 percentage points higher (31.1 percent compared to 20.3 percent); the chances of ever being in the top quintile are even more dramatically lower for children living in the Atlantic (25.6 percent compared to 48.3 percent in Ontario, a 22.7 percentage point difference).

¹⁸ Note, however, that we make no adjustments here for regional price differences.

Children with immigrant pmk's are considerably more likely than otherwise similar children with Canadian-born parents to experience being in the bottom quintile of the distribution (34.8 percent compared to 20.3 percent); however, there is little difference in the probability they will ever be in the top quintile. On the other hand, having a pmk who is non-white is associated with only a small (6 percentage point) increase in the probability of ever being at the bottom, but is associated with much lower chances of ever being at the top (23.6 percent compared to 48.3 percent). Children's whose pmk had a university degree in 1994 have the lowest chance of ever being in the bottom quintile (12.2 percent) and the highest chance of always being in the top quintile (26.2 percent).

VI. Moving Up or Down the Relative Income Distribution

Conditional Logit Models

As well as knowing which beginning of period (1994) characteristics are associated with different probable income patterns, we examine the *changes* in explanatory variables that are associated with movements into or out of the bottom quintile¹⁹ (and, analogously into or out of the top quintile). To this end, we estimate conditional logit models. This necessarily involves dropping any children who have never moved into or out of the bottom quintile (or, into or out of the top quintile, respectively). Over the six cycles, we have 13,674 movements into or out of the bottom quintile; we have 11,862 movements into or out of the top quintile. Explanatory variables are now also all change variables, so we lose any variables such as visible minority or immigrant status that do not change and there is some loss of precision for variables with limited change (for example, family moves into or out of regions with smaller populations).

¹⁹ Estimating correlates of moving into or out of the bottom quintile is quite closely related to studies of the probability that children move into or out of poverty (e.g., Picot, Zyblock and Pyper, 1999).

Odds ratios for estimated conditional logit models are reported in Table 8.²⁰ Parental divorce/separation is, by far, the change that has the largest correlation with the probability of moving into the bottom quintile (or out of the top quintile), a finding that is consistent with Canadian research on movements into or out of child poverty (e.g., Picot et al., 1999). Having a pmk who has *become* a lone parent with paid work is associated with 21.5 times higher odds of moving into the bottom quintile of the children's relative income distribution in that year; having a pmk who has become a lone parent with no paid work is associated with 102 times higher odds of moving into the bottom quintile!

But, changes in employment status, even without changes in family structure also have large associations with the odds of moving into (or out of) the bottom quintile. For children in two-parent families, having a pmk (generally the mother) leave/lose paid work is associated with 2.6 times higher odds of moving into the bottom quintile; having the pmk's spouse (generally the father) leave/lose paid work has even larger associations with the odds of moving into the bottom quintile (6.7 times higher odds).

Change of region is also an important correlate of change in relative income position. Moving into the Atlantic, Manitoba/Saskatchewan, Quebec or BC is associated with higher odds of moving into the bottom quintile; or, perhaps what is more relevant is that moving out of these provinces, presumably to find a job or a higher-paying job, is associated with higher odds of moving out of the bottom quintile. For example, a child who has moved out of the Atlantic region is 4 times less likely to have moved into the bottom quintile.

If the pmk returns to school or if number of siblings increase, the odds of falling into the bottom quintile of the distribution also increase. Results are essentially symmetric for moving

²⁰ Standard errors for the log odds reported in Table 8 have not been bootstrapped since Stata will not produce log odds with bootstrapped standard errors (though we continue to use longitudinal weights). However, the pattern of significance reported is qualitatively the same as that obtained for logit coefficients with bootstrapped standard errors.

out of the top quintile, with the additional result that finishing a university degree is associated with 1.8 times higher odds of moving into the top quintile.

*Fixed Effects Estimates*²¹

Finally, rather than focus exclusively on movements into or out of the bottom of the income distribution, we also estimate fixed effects models of changes in percentile position in the children's relative income distribution. This helps in understanding how far up or down the income distribution children move when basic changes in their family circumstances occur. Results (reported in Table 9) are consistent with those discussed earlier. Changes in pmk marital status is associated with the largest movements up or down the income distribution (31 percentiles down the distribution if the pmk becomes a lone parent without paid work; 24 percentiles down the distribution if she becomes a lone parent with paid work). Again, changes in employment status, even with no change in family structure also move children up or down the relative income distribution, particularly if it is the father who leaves/loses paid work (in which case, relative income is predicted to fall 13 percentiles). Moving into or out of the Atlantic region or the provinces of Manitoba or Saskatchewan are associated with moving roughly 10 percentiles down or up the income distribution, respectively. Other changes are associated with smaller movements.

VII. Discussion

We motivated our interest in understanding inequalities of family income trajectories during children's growing up years as mattering both now and for the future. Our results emphasize how some children spend most of their early years disadvantaged relative to their peers while others spend most of their early years in relative affluence. This is troubling from the

²¹ The fixed effects estimates employ longitudinal sample weights, however standard errors are again not bootstrapped to account for complex survey design since Stata will not allow the two procedures together.

perspective of equity among children now. Indeed, evidence suggests that both having low family income and having low family income relative to others living in your neighbourhood is associated with lower levels of self-assessed happiness for young teens (Burton and Phipps, 2008).

Long-run inequality of income is also troubling insofar as it has the potential for perpetuating inequalities into the adult years. Experiencing low income year after year has been described as an important aspect of ‘social exclusion’ (see, for example, Atkinson, 1998 or Micklewright, 2002). Moreover, longer-term measures of family income have been found to have stronger relationships with non-monetary aspects of child well-being such as health and happiness (see Burton and Phipps, 2008; or Phipps, 2003 for a survey). Thus, inequality in access to economic resources during childhood may contribute to inequality of income among adults.

In order to provide at least a cursory illustration of this possibility, we briefly explore the association between children’s schooling aspirations and family income history.²² In the NLSCY, children from ages 12 to 15 complete their own surveys.²³ One question asked is: “How far do you hope to go in school?” Possible response categories include: middle school/junior high; high school; college or CEGEP; a university degree; more than one university degree. We use these data to estimate ordered probit models of children’s schooling aspirations in which ‘always bottom’ and ‘always top’ are the key explanatory variables. We also control for parental education, family structure, immigrant status, region and urban/rural status as well as child age, gender, ethnicity and health status (estimated coefficients are reported in Table 10). Figure 4 uses estimated ordered probit coefficients to illustrate that, conditional on these covariates, 55 percent of children who have always had low income plan to stop school without a university degree (compared to 33 percent of children who have been neither exclusively poor nor exclusively rich). And, not only is it true that persistently low-income children have lower educational

²² A more complete analysis is beyond the scope of the present paper.

²³ Parents must agree to respect the privacy of the child. Given this permission, children are provided with a paper questionnaire by the interviewer which they complete and return in a sealed envelope.

aspirations, but it is also true that consistently privileged children have, other things equal, much higher educational aspirations than the average child (e.g., 38 percent aspire to more than one university degree compared to about 22 percent from average income families and only about 8 percent from disadvantaged families). Although additional research is clearly warranted,²⁴ these findings are at least suggestive of the importance of relative income position during childhood to who a child becomes.

VIII. Conclusions

This paper uses longitudinal microdata from the Statistics Canada National Longitudinal Survey of Children and Youth (NLSCY) to study patterns of family income experienced by a cohort of children who were aged 0 to 7 in 1994 until they are 10 to 17 in 2004. We find, first, that average real levels of annual income have increased for this cohort of children as they have grown from pre-schoolers to teen-agers. While there is considerable inequality of annual income apparent, the level of income inequality has neither increased nor decreased *for this group of children* over the ten year period studied. If indices of income inequality are computed using a long-run average measure of family income, measured inequality is, not surprisingly, considerably lower. Using the de-composability property of the Theil index, we compute that approximately 75 percent of over-all inequality observed among this cohort of children can be attributed to ‘permanent’ inequality (as compared to year-to-year variation experienced by a given child).

Using the longitudinal data to track children’s movements up and down the income distribution, an important point for policy is that we find considerable ‘stickiness’ of position. For example, about half of the children who were in the bottom quintile of the group’s income distribution in 1994 were again observed in the bottom quintile in 2004; only 4 percent of these

²⁴ For example, we have done nothing about potential problems of ‘unobserved heterogeneity.’ Although we control for parental education, we cannot observe ‘drive,’ for example. We also make no attempt here to unravel the pathways from long-term low or high income to child outcomes.

children had moved up to the top quintile. At the same time, if we ask how many children have ever been exposed to a position of low income, it is also policy relevant that we find much higher rates than cross-sectional data might suggest. For example, 26 percent of children in our cohort 'ever' (in one of six cycles of data) had a family income that would place them in the lowest ten percent for their cohort.

From the perspective of policy, it also seems important to know which children are particularly likely to be 'stuck' throughout childhood at the bottom of the income distribution. Multivariate analyses suggest that the key correlates of the probability of *always* being in the bottom quintile of the relative income distribution include, in order of size of association, living in a lone-parent family, having a parent without paid work, living in one of the Atlantic provinces, or having a parent who is non-white. The best guarantee of *always* being at the top is having two parents with paid work, at least one with a university education, and to live in Ontario or Alberta. The most important *changes* associated with movements up or down the income distribution include, again in order of size of association, divorce/re-marriage of parents, changes in employment status of parent and regional moves.

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Table 1. Changing Family Characteristics for a Cohort of Canadian Children. 1994-2004.

	1994	1996	1998	2000	2002	2004
Child Age Range	0-7	2-9	4-11	6-13	8-15	10-17
Percent Lone Parent	14.3	15.5	14.9	16.8	19.0	20.4
Mean Household Size	4.2	4.3	4.4	4.4	4.3	4.2
Percent Two-earner, for Two-Parent Families	55.7	71.4	76.2	79.8	79.6	83.8
Mean Weekly Paid Hours in Two-Parent Families (Mother + Father hours)	59.1	65.4	68.5	70.1	70.9	73.1
Percent Lone Parents with Paid Work	41.1	66.5	75.4	81.7	84.2	84.8
Mean Paid Hours in Lone Parent Families	14.1	23.3	26.3	30.7	32.1	32.8

Table 2: Levels of Real Family Income for a Cohort of Canadian Children, 1994-2004.¹

	1994	1996	1998	2000	2002	2004
Child Age Range	0-7	2-9	4-11	6-13	8-15	10-17
Mean Dollar Income	60,528	62,725	71,085	77,549	78,165	77,945
Median Dollar Income	54,971	52,946	62,119	66,163	68,949	68,560
Mean Equivalent Income	29,918	30,706	34,373	37,403	38,082	38,276
Median Equivalent Income	26,223	26,309	29,603	31,713	33,490	33,980
Equivalent Income by Decile						
1	7,774	7,892	9,378	10,740	10,012	9,961
2	11,929	12,317	15,120	16,580	16,801	16,977
3	16,445	17,083	19,401	20,818	21,722	22,392
4	20,586	20,500	23,795	25,028	26,411	27,144
5	24,326	24,444	27,710	29,485	31,119	31,598
6	28,808	28,331	31,925	33,699	35,954	36,001
7	33,261	33,274	36,679	38,387	41,045	40,993
8	38,732	38,790	42,628	44,497	47,796	47,256
9	47,049	47,720	50,952	54,872	57,293	57,746
10	73,258	78,745	86,611	100,362	93,113	93,491
Number of Observations = 7163						

¹Incomes are expressed in real 2004 dollars.

Table 3: Inequality of Equivalent Family Income for a Cohort of Canadian Children, 1994-2004.

	1994	1996	1998	2000	2002	2004	Long-run Average Income
Coefficient of variation	0.679	0.788	0.753	0.801	0.716	0.701	0.622
Gini coefficient	0.334	0.345	0.328	0.339	0.325	0.321	0.293
Atkinson (eps =2)	0.335	0.340	0.317	0.314	0.326	0.328	0.247
Generalized Entropy (alpha=0)	0.195	0.207	0.188	0.196	0.188	0.186	0.144
Theil	0.188	0.214	0.196	0.214	0.189	0.186	0.150
90:10 Ratio	5.357	5.486	4.506	4.496	4.689	4.656	3.807
90:50 Ratio	2.017	2.040	1.938	2.011	1.902	1.913	1.899
Number of Observations	7,163						

Table 4: Beginning to End of Period Quintile Movements.

	Bottom Quintile 2004	2nd Quintile 2004	3 rd Quintile 2004	4 th Quintile 2004	Top Quintile 2004
Bottom Quintile 1994	0.51	0.25	0.14	0.06	0.04
2 nd Quintile 1994	0.26	0.28	0.25	0.14	0.07
3 rd Quintile 1994	0.12	0.25	0.30	0.23	0.10
4 th Quintile 1994	0.07	0.14	0.22	0.34	0.24
Top Quintile 1994	0.03	0.08	0.08	0.24	0.58

Table 4a: Beginning to End of Period Quintile Movements. Children with Immigrant Parents.

	Bottom Quintile 2004	2nd Quintile 2004	3 rd Quintile 2004	4 th Quintile 2004	Top Quintile 2004
Bottom Quintile 1994	0.67	0.15	0.07	0.07	0.05
2 nd Quintile 1994	0.18	0.31	0.34	0.07	0.10
3 rd Quintile 1994	0.12	0.39	0.22	0.16	0.10
4 th Quintile 1994	0.14	0.08	0.23	0.35	0.19
Top Quintile 1994	0.02	0.06	0.11	0.23	0.58

Table 5: Children ‘Ever Exposed to’ and ‘Chronically Stuck in’ Different Relative Income Positions. 1994-2004.

	% Ever Below ‘Exposed’	% Always Below ‘Chronically Stuck’	% Ever Above ¹ ‘Exposed’	% Always Above ² ‘Securely Privileged’
Income Decile				
1	26.1	1.3	98.7	73.9
2	42.2	4.7	95.4	57.8
3	54.3	9.9	90.1	45.7
4	65.1	16.6	83.4	34.9
5	73.9	24.2	75.8	26.1
6	81.9	34.8	65.2	18.1
7	87.8	46.5	53.5	12.2
8	92.9	60.9	39.1	7.1
9	97.0	78.2	21.8	3.0
10	100	100.	0	0

¹ The ‘% ever above’ equals 100 – ‘% always below.’ Thus, columns 2 and 3 sum to 100.

² The ‘% always above’ equals 100 – ‘% ever below.’ Thus, columns 1 and 4 sum to 100.

Table 5a: Children of Immigrants and Children of Non-Immigrants ‘Ever Exposed to’ and ‘Chronically Stuck in’ Different Relative Income Positions. 1994-2004.

Income Quintile	Children of Immigrants		Children of Canadian-Born Parents	
	% Ever Below ‘Exposed’	% Always Below ‘Chronically Stuck’	% Ever Below ‘Exposed’	% Always Below ‘Chronically Stuck’
1	54.5	9.15	40.0	3.9
2	73.6	22.7	63.6	15.5
3	86.9	42.3	80.9	33.5
4	95.1	64.3	92.5	60.3
5	100	100	100	100

Table 6: Means for Explanatory Variables.

Family Structure/Parental Employment Status in 1994	
Lone parent, no paid work %	8.8
Lone parent, paid work %	6.0
Two parents, both with paid hours %	42.7
Two parents, pmk no paid hours %	32.8
Two parents, spouse ¹ no paid hours %	9.6
Region in 1994	
Atlantic%	7.8
Quebec %	24.2
Ontario%	39.0
Manitoba/Saskatchewan %	7.2
Alberta %	9.8
British Columbia %	12.1
Pmk Education in 1994	
Less than High School %	15.6
High School	18.8
Some Post-Secondary %	28.8
University %	36.8
Pmk a student in 1994	8.8
Pmk Age in 1994	32.7
Pmk Non-white %	8.8
Pmk Immigrant %	15.1
Pmk has work-limiting activity limitation %	8.0
Child age in 1994	3.5
Number of siblings in 1994 %	1.2
Number of Observations	6934

¹ This includes cases where neither parent had paid work.

Table 7. Probit Estimates of the Correlates of ‘Ever’ or ‘Always’ Being at the Bottom or Top of the Child Relative Income Distribution.

	‘Ever’ Bottom Quintile	‘Always’ Bottom Quintile	‘Ever’ Top Quintile	‘Always’ Top Quintile ³
Family Structure and Parental Employment Status in 1994 ¹				
Lone parent, no paid work	2.844*** (0.212)	2.079*** (0.276)	-1.218*** (0.174)	-1.178*** (0.281)
Lone parent, paid work	1.036*** (0.129)	0.966*** (0.295)	-0.567*** (0.134)	
Two parents, pmk no paid hours	0.525*** (0.073)	0.830*** (0.250)	-0.421*** (0.073)	-0.961*** (0.133)
Two parents, spouse ² no paid hours	0.757*** (0.113)	0.576*** (0.162)	-0.629*** (0.106)	
Region in 1994				
Atlantic	0.338*** (0.085)	0.700*** (0.165)	-0.612*** (0.078)	-0.615*** (0.147)
Quebec	0.239** (0.094)	0.379** (0.191)	-0.409*** (0.091)	-0.325** (0.150)
Manitoba/Saskatchewan	0.327*** (0.095)	0.035 (0.244)	-0.286*** (0.084)	-0.461** (0.185)
Alberta	0.149 (0.118)	-0.028 (0.304)	-0.095 (0.100)	-0.052 (0.192)
BC	0.261** (0.106)	0.192 (0.232)	-0.117 (0.114)	-0.530*** (0.171)
Pmk Education in 1994				
Less than High School	0.622*** (0.120)	0.147 (0.206)	-0.117 (0.116)	xx
Some Post-Secondary	-0.193** (0.092)	-0.243 (0.196)	0.173* (0.090)	0.449** (0.195)
University	-0.328*** (0.096)	-0.423* (0.255)	0.610*** (0.089)	1.004*** (0.189)
Pmk Age in 1994	-0.024*** (0.006)	-0.004 (0.013)	0.039*** (0.006)	0.057*** (0.010)
Pmk Non-white	0.194 (0.187)	0.589* (0.303)	-0.675*** (0.183)	-0.624* (0.338)
Pmk Immigrant	0.441*** (0.130)	0.365 (0.270)	-0.051 (0.130)	-0.138 (0.245)
Pmk student in 1994	-0.211 (0.130)	-0.683*** (0.257)	-.208 (0.133)	-0.032 (0.187)
Pmk has work-limiting activity limitation	-0.061 (0.109)	0.312* (0.183)	-0.016 (0.107)	-0.449** (0.195)
Number of siblings	0.170*** (0.036)	0.181*** (0.069)	-0.266*** (0.035)	-0.185*** (0.060)
Child Age in 1994	-0.014 (0.014)	-0.055*** (0.020)	-0.001 (0.013)	0.005 (0.020)
Constant	-0.207 (0.214)	-2.78*** (0.487)	-0.989*** (0.206)	-3.314*** (0.403)

Number of Observations	6934
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¹ All explanatory variables are set to 1994 values.

² This includes cases where neither parent had paid work.

³ Small samples of lone parents who were ‘always in the top quintile’ required us to combine the no paid work and paid work categories. We also combined ‘pmk no paid hours’ and ‘spouse no paid hours.’ As well, we aggregated less than high school and high school education as the base education category.

*** indicates statistically significant at the 1 percent level; ** indicates statistically significant at the 5 percent level; * indicates statistically significant at the 10 percent level

Table 7a. Calculated Probabilities for Selected Starting Point ‘Risks’ or ‘Advantages’

	‘Ever’ Bottom Quintile	‘Always’ Bottom Quintile	‘Ever’ Top Quintile	‘Always’ Top Quintile ³
Base case child (%)	20.3	0.2	48.3	5.0
Lone parent, no paid work in 1994 (%)	97.8	20.4	10.4	0.2
Lone parent, paid work in 1994 (%)	58.1	2.6	27.1	
Two parents, pmk no paid hours in 1994 (%)	37.9	1.9	32.1	0.5
Two parents, spouse ² no paid hours in 1994 (%)	47.0	1.0	25.1	
Resident in Atlantic in 1994 (%)	31.1	1.4	25.6	1.2
Pmk university degree in 1994 (%)	12.3	0.04	71.5	26.2
Pmk non-white (%)	26.2	1.0	23.6	1.0
Pmk immigrant (%)	34.8	0.6	46.2	3.8
Pmk has work-limiting activity limitation (%)	18.6	0.5	47.6	1.8

¹ Calculated probabilities use probit coefficients from Table 7. The base case sets all continuous variables at sample means and all categorical variables at zero.

² This includes cases where neither parent had paid work.

³ Small samples of lone parents who were ‘always in the top quintile’ required us to combine the no paid work and paid work categories. We also combined ‘pmk no paid hours’ and ‘spouse no paid hours.’

Table 8. Odds Ratios from Conditional Logit Estimates of the Correlates of Moving into the Bottom or Top of the Child Relative Income Distribution.

	Bottom Quintile	Top Quintile ²
Family Structure and Parental Employment Status		
Lone parent, no paid work	102.370*** (34.229)	0.044*** (0.154)
Lone parent with paid work	21.537*** (4.115)	
Two parents, pmk no paid work	2.603*** (0.390)	0.340*** (0.074)
Two parents, spouse no paid work [†]	6.701*** (1.450)	0.152*** (0.074)
Region		
Atlantic	3.991* (3.329)	0.200 (0.358)
Quebec	1.766 (23.49)	0.051 (0424)
Manitoba/Saskatchewan	11.369*** (9.962)	0.609 (0.660)
Alberta	3.212 (2.721)	1.233 (1.428)
BC	6.495** (5.728)	0.838 (0.985)
Pmk Education		
Less than High School	1.175 (0.292)	1.184 (0.359)
Some Post-Secondary	0.930 (0.167)	1.406* (0.288)
University	0.725 (0.144)	1.898*** (0.387)
Pmk student	1.400* (0.259)	0.836 (0.143)
Number of siblings	1.361*** (0.112)	0.519*** (0.045)
Cycle 2	1.852*** (0.309)	0.961 (0.125)
Cycle 3	1.694 *** (0.311)	1.096 (0.153)
Cycle 4	1.874*** (0.320)	1.219 (0.167)
Cycle 5	1.774*** (0.288)	1.027 (0.150)
Cycle 6	1.909*** (0.309)	0.976 (0.135)
Number of obs.	13,674	11,862

*** indicates statistically significant at the 1 percent level; ** indicates statistically significant at the 5 percent level; * indicates statistically significant at the 10 percent level

¹ This includes cases where neither parent had paid work.

² Small samples required the aggregation of lone parents with and without paid work for the top quintile regressions.

Table 9. Fixed Effects Estimates of the Correlates of Percentile Position in the Children's Relative Income Distribution.

Family Structure and Parental Employment Status in 1994 ¹	
Lone parent, no paid work	-31.224*** (1.245)
Lone parent, paid work	-24.150*** (0.914)
Two parents, pmk no paid hours	-7.620*** (0.556)
Two parents, spouse ² no paid hours	-13.298*** (1.139)
Region	
Atlantic	-11.377*** (2.268)
Quebec	-5.072 (4.765)
Manitoba/Saskatchewan	-8.849*** (2.910)
Alberta	-3.799 (3.305)
BC	-4.024 (3.530)
Pmk Education	
Less than High School	-1.866* (0.959)
Some Post-Secondary	0.800 (0.676)
University	2.856*** (0.743)
Pmk student	-3.064*** (0.543)
Number of siblings	-2.755*** (0.291)
Cycle 2	-1.750*** (0.351)
Cycle 3	-1.609*** (0.399)
Cycle 4	-1.919*** (0.501)
Cycle 5	-1.919*** (0.501)
Cycle 6	-2.304*** (0.461)
Number of obs.	37,716

*** indicates statistically significant at the 1 percent level; ** indicates statistically significant at the 5 percent level; * indicates statistically significant at the 10 percent level

¹ This includes cases where neither parent had paid work.

Table 10. Ordered Probit Estimates of the Correlates of Children's Schooling Aspirations.
Children aged 12 to 15 in 2004.

Long-run Relative Income Position	
Always Bottom Quintile	-0.568*** (0.179)
Always Top Quintile	0.482*** (0.321)
Region in 2004	
Atlantic	0.321*** (0.095)
Quebec	0.063 (0.095)
Manitoba/Saskatchewan	0.136 (0.109)
Alberta	0.125 (0.118)
BC	-0.180 (0.118)
Rural residence	-0.205** (0.085)
Pmk Education in 2004	
Less than High School	-0.198 (0.129)
Some Post-Secondary	0.155 (0.121)
University	0.373*** (0.090)
Pmk a lone parent in 2004	-0.106 (0.100)
Pmk an immigrant	0.167 (0.127)
Child age in 2004	-0.107*** (0.031)
Child male	-0.260*** (0.073)
Child non-white	0.525** (0.226)
Child with chronic health problem	0.051 (0.077)
Cut-point one	-1.880*** (0.434)
Cut-point two	-0.673 (0.435)
Number of obs.	2403

Figure 1: Changes in Real Equivalent Income for a Cohort of Canadian Children. 1994-2004

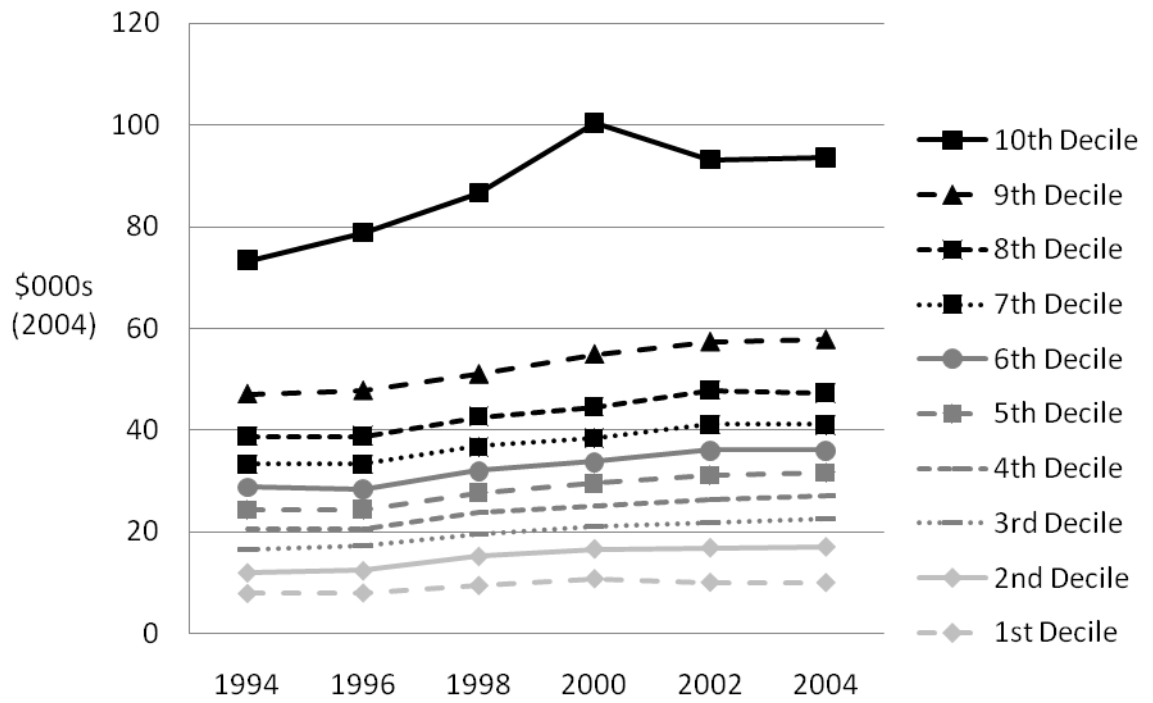


Figure 2: Relative Income "Lens"

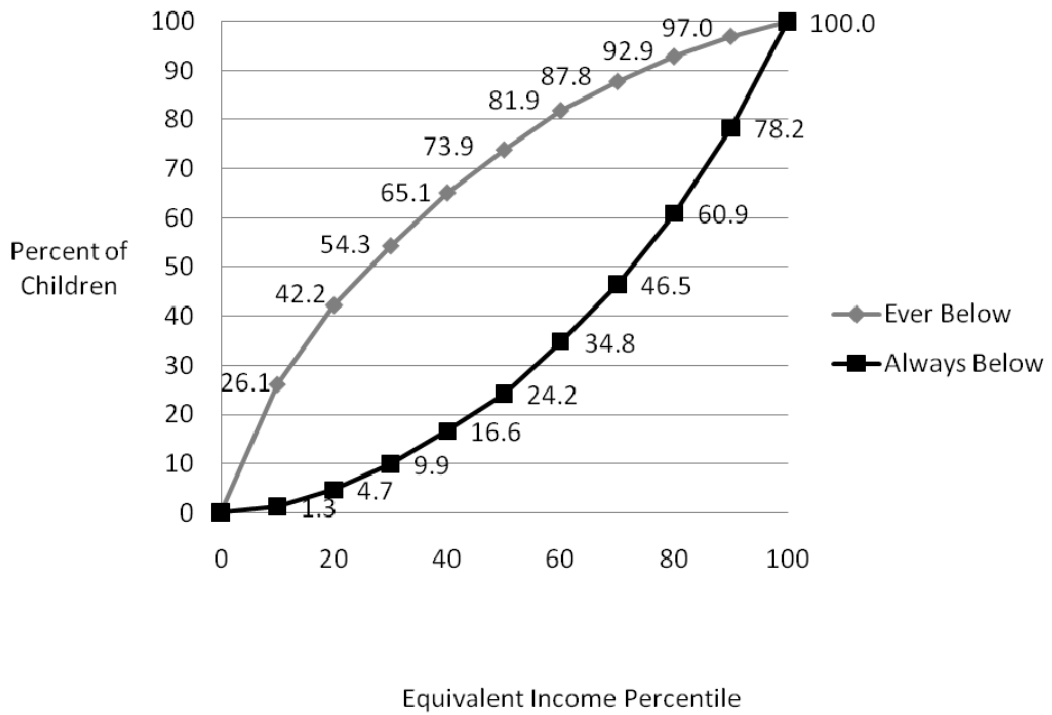


Figure 3: Relative Income Lenses, Immigrants and NonImmigrants

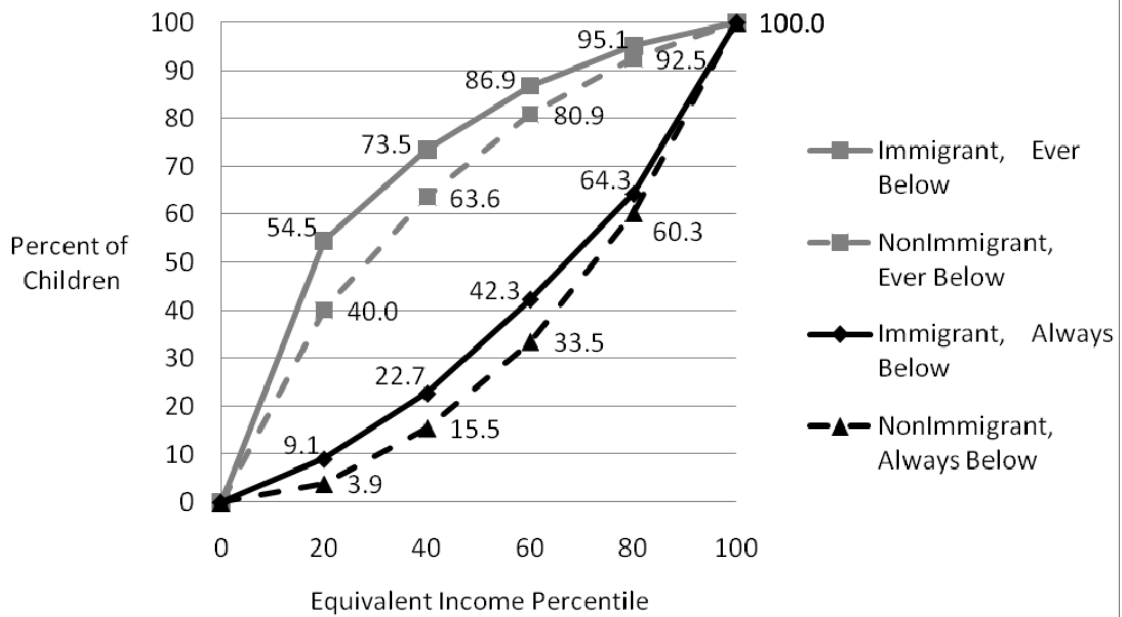
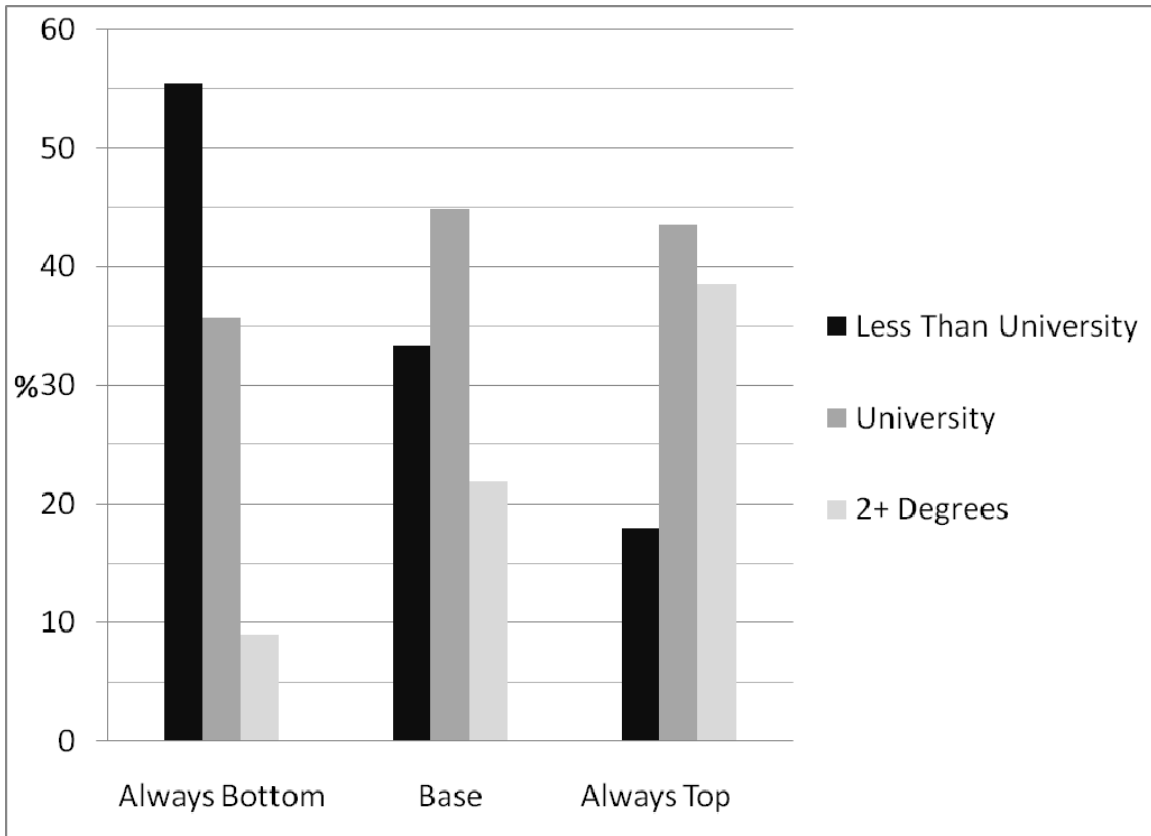


Figure 4. Calculated Educational Aspirations for Children by Long-term Relative Income Position



These calculations used ordered probit coefficients reported in Table 10. The base case child sets all categorical variables to zero and continuous variables at their sample mean values.