Are the Kids All Right? Intergenerational Mobility and Child Well-being in Canada

by

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Abstract

A framework for thinking about intergenerational mobility as it relates to the relationship between parent and child incomes as well as evidence on the degree and sources of intergenerational mobility in Canada is reviewed. The major conclusion is that Canadian society is characterized by a good deal of intergenerational mobility, and the available evidence suggests that being raised in low-income does not pre-ordain children to low-income in adulthood. Canada compares well in this regard to many other countries, being characterized on average by more mobility than the U.S. or U.K. and on a par with some of the most mobile nations. The sources for this pattern have to do with access to high quality education, and high quality non-monetary investments in children. However, there is no clear evidence linking the level of family income to the nature of these investments.

Keywords: Intergenerational Mobility, Income Distribution, Children

JEL classification: D31, I132, J62


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I. Introduction

During the 1990s Canadians—through their governments—set at least three goals for themselves with respect to the conduct of economic and social policies. As the decade came to an end it became apparent that two of these, those associated with macro-economic policy, were achieved and in some sense the results exceeded expectations. These had to do with a zero inflation target as a guide to the conduct for monetary policy, and the elimination of budget deficits as a guide for fiscal policy. Fortin (2001) and Jenkins and O'Reilly (2001) each outline the reasons for targeting monetary policy to zero inflation, an objective that was attained—it is fair to say—at a speed that surprised many observers. This goal was maintained throughout the 1990s and it appears from the discussion in Jenkins and O'Reilly will continue to guide the future of monetary policy. Likewise Drummond (2001) and Stanford (2001) discuss the elimination of budget deficits as a goal of fiscal policies. On this front progress was more difficult but was pursued with deliberation by both federal and provincial governments to the point that Canadians are now faced with challenges of deciding how to use substantial surpluses. A good deal of attention has certainly been paid to these two dimensions of macro-economic policy and the success in achieving the stated goals, but as the 1990s came to a close increasing attention has also been focused on the third explicitly stated societal goal: the elimination of "child poverty."

The Canadian parliament pledged in late 1989 to "seek to achieve the goal of eliminating poverty among children by the year 2000." Developments since that time have led many commentators to suggest that there has been only scant success in attaining this goal. Indeed, UNICEF (2000a) documents the fact that in an international context Canada ranks among the worst third of advanced nations in this regard. In response, others have raised concerns about how "poverty" should be measured and questioned the use of a relative measure as the appropriate yardstick, offering alternative absolute measures that lower the rate of poverty considerably. And indeed even Statistics Canada has felt compelled to clarify its position on the matter in response to this discussion (Fellegi 2000).

All this is to say that regardless of one's position on the issue, "child poverty" clearly has a strong resonance in public discourse. Why? Why should we care about children in low-income in a way different from any other group in low-income? There are two possible responses to this question. Unlike the targets set for monetary and fiscal policy, the goal of eliminating "poverty" among children has more than an instrumental value. Policy makers have argued for zero inflation or balanced budgets not as objectives for their own sake but rather as a means toward a better functioning economy. Attaining these goals, it is argued, in some sense permits other things to happen, things that will ultimately increase the welfare of Canadians: higher productivity growth, higher standards of living, more social spending, more disposable income. The elimination of child poverty, however, is both ends and means: a goal in and of itself, and a means to a better future. Children, as Osberg (2001) discusses, have certain rights as citizens, rights wrapped up with the importance of the family. And as such they have, like other citizens, a right to adequate standards of living. Canadians care about child poverty because they care about the state of children as citizens, particularly because they are a vulnerable group dependent upon others for their sustenance and welfare. That being said "child poverty" also has a particular resonance for instrumental reasons. It has been suggested that we should think of its elimination as an investment in the future much in the same way that we think of eliminating inflation or budget deficits as a means to an end: in the long-run the productivity of the economy and the well-being

of all citizens will be improved. UNICEF (2000b) for example clearly articulates this view. The argument is that if children are raised in a state of low-income there will be long term consequences that will lead them to become less than they could have been, indeed that may imply that they will grow up to be poor adults who in turn raise poor children. This is all the more important because human and social capital are increasingly being seen as the basis for increasing productivity and growth in what many are calling the "knowledge based" economies of the future.

It is this second argument that is the focus of this document: just what do we know about the long term consequences of childhood experiences? In particular just what is the relationship between family background, particularly family income, and the longer-term outcomes of children? And how has this relationship changed over the course of the last couple of decades? These are issues that have to do with intergenerational mobility. If we live in a society characterized by a high degree of mobility then low income during childhood may not be an experience that necessarily leaves a scar, pre-ordaining individuals to low-income as adults or to less engagement in society. In a society with a low degree of intergenerational mobility this is not the case: where one is going is closely linked to where one has been. Many people may be less able to participate as full members of such a society simply because they were raised in a low-income household. In the former case we may be more confident of letting the market be the main institution determining income outcomes because these outcomes are the result of one's own abilities and energies; in the latter case circumstances of birth determine our position in life and we might be less inclined, as Roemer (1998) suggests, to accept the result as fair and call on state intervention to level the playing field and buffer individuals from the market.

It is important to understand the extent of intergenerational mobility and the mechanisms that bring it about because it is related to a host of policy issues. Education policy, early childhood investment, access to health care, and immigration policy are all motivated by this issue. The discussion in this document relates most directly to the financing of post-secondary education, which is often concerned with the possibility that capable students may be denied access to colleges and universities because of financial considerations. It also relates to the impact of early childhood experiences on an individual's cognitive and social development, and how these traits then influence subsequent education and labour market outcomes.

First, we will review a simple framework for thinking about intergenerational mobility as it relates to the relationship between parent and child incomes as well as discuss how this framework permits one to think about changes in the degree of mobility. In addition, we will summarize the state of our knowledge in this area and how Canada stands relative to other advanced nations. Then, we will address what the sources of a given degree of equality of opportunity are, and summarize our knowledge on one particularly important source: early childhood experiences. All this in the hope of answering the question of how much we really know about the longer-term consequences of experiencing straitened circumstances as a child.

In summary, the major conclusions of this document are: (1) Canadian society is characterized by a good deal of intergenerational mobility, and in fact the available evidence suggests that being raised by low-income parents does not pre-ordain children to low-income in adulthood; (2) there is no strong evidence suggesting that able Canadian youth are limited in their access to post-secondary education by the financial background of their parents, though this may be changing in the 1990s; (3) early childhood experiences are increasingly being seen as important precursors to

longer-term outcomes but researchers have had difficulties in drawing a strong link between these non-monetary investments and family income levels. On the basis of the available evidence policy advocates may be hard pressed to suggest that the elimination of low-income among children is a means to a more productive economy. It may be that governments will increasingly be drawn into discussions of how to provide in-kind transfers to large groups of families across the income distribution rather than just making income transfers to the least well off. If that is the case then it should be realized that large scale early intervention programs seem to offer a host of short-term benefits to children, but that their influence on long-term labour market outcomes remains to be demonstrated. As a result it may well be that the best argument for the elimination of low-income among children or for the provision of early intervention programs is that they are the right thing to do for their own sake.

II. Measuring Intergenerational Mobility

Imagine two societies with the same distribution of income: the fraction of low-income families as well as the fraction of high income families—however these terms are defined—are exactly the same, as are any other measures of inequality that one could devise.[1] At the same time also imagine that in the first society individuals inherit their *relative* economic position entirely from their parents: children born to parents at the very bottom of the income distribution will grow up to be adults with incomes at the very bottom of the income distribution in the next generation; those born to parents at the top will also go on to have incomes placing them at the top. In this society there is no intergenerational income mobility at all. Knowing the parents' place in the income distribution allows one to exactly predict the position the children will occupy in the next generation's income distribution. In the second society, however, imagine there being no relationship between family background and the adult outcomes of children. Those born to parents at the bottom of the income distribution are as likely to end up at the bottom as those born to parents at the top, or for that matter they are as likely to end up at the top. In this society there is complete intergenerational income mobility. Knowing the parents' position in the income distribution offers no information about where the children will end up. At any point in time both societies are equally unequal, but they differ very much in the nature or character of their inequality. These are clearly polar cases, and we would not expect any advanced economy to be at either extreme: but it is certainly important to try to understand where actual societies are situated between the extreme of complete persistence in incomes across generations, and complete mobility. Having such a sense is the first step in any informed discussions about what "equality of opportunity" means and what can and should be done about it.

Economists have used a simple model to measure the degree of intergenerational income mobility. This is usually done in percentage (or equivalently) in logarithmic terms: that is, as a measure of the fraction of income differences between parents that on average is observed among their adult children. For example, if the incomes of two sets of parents differed by 50% and if on average the incomes of their children (in their adulthood) differed by 30%, then the intergenerational persistence of incomes is said to be 0.6 since 60% of the difference in parental incomes is transmitted to the children. Equivalently, if we let Y represent permanent income and let t index generations then this way of thinking can be captured by the following simple expression:

[1] The following paragraph is drawn from Solon (1999, p. 1762).

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

In this equation the adult income (in natural logarithms) of family *i*'s child ($lnY_{i,t}$) is expressed as the average adult income of the children of generation *t*, as given by α, plus two factors determining the deviation from this average: a fraction of parental permanent income ($\beta lnY_{i,t-1}$) and other influences not associated with parental income ($\varepsilon_{i,t}$).

The average income of the generations will evolve through time, and it may be that many or all members of a generation will have incomes that are greater than their parents' at a similar age. This is captured in equation (1) by the value of α. However, and more importantly, the equation captures the idea that an individual's ranking in the income distribution is related to the ranking of his or her parents' a generation earlier. This is captured by the value of β, which represents the fraction of income transmitted across generations. It is a measure of the degree of intergenerational income mobility and is sometimes referred to as the intergenerational elasticity of income. β could conceivably be any real number. A positive value would indicate intergenerational persistence of incomes in which higher relative parental income is associated with higher relative child incomes; a negative value would indicate intergenerational reversal of incomes in which relatively higher parental income is associated with relatively lower child incomes. Empirical studies, however, have always found β to lie between the values of zero and one. A value of one would indicate complete intergenerational persistence of incomes; a value of zero complete intergenerational mobility. If, as above, 60% of the difference in parental incomes were passed on to the children β would have the value of 0.6. When β is less than one there is some intergenerational mobility of incomes so that parents with incomes above (or below) the average income will have children who grow up to have above (or below) average incomes, but the deviation from the average will not be as great in the children's generation as it was in the parents'. This should not be too surprising in developed economies, but the larger β (even if it is less than one) the more likely an individual as an adult will inhabit the same relative position in the income distribution as his or her parents, that is the greater the persistence in intergenerational incomes.

To understand the degree and evolution of intergenerational income advantage it is necessary to understand two things: how income inequality is evolving in successive generations of parents (that is, just how much of a relative income advantage are parents in a position to pass on to their children); and how the degree of intergenerational income mobility (as measured by β) has evolved. Depending upon the amount of inequality even small values of β can confer substantial advantages to children of the well off. There are well-established statistics on the degree of inequality in Canada. Overall patterns are discussed in Heisz, Jackson, and Picot (2001), but Figure 1 charts developments in one of these: the ratio of incomes (both total market income and disposable income after taxes and transfers) for families with children at the lower boundary of the top quintile to those at the upper boundary of the bottom quintile. For example, in Canada during the late 1970s the market income of families at the top fifth of the income distribution was about 2.75 times as great as the average market income of those at the bottom fifth.[2] Using this ratio in

[2] This figure is for economic families with at least one child aged 0 to 17. Market income refers to total income less government transfers and includes earnings from employment and self-employment, investment income, and other private income. The information is derived from the Survey of Consumer Finances produced by Statistics Canada.

combination with equation (1), the income of someone born to a family in the top relative to someone born in the bottom for different values of β is[3]:

β	0.1	0.2	0.3	0.4	0.5	0.6
income advantage	1.11	1.22	1.35	1.50	1.66	1.83

With a β as high as 0.6, children born to higher income parents will earn, when no other influences are at work (that is when $\varepsilon_{i,t} = 0$), about 1.8 times as much as children from lower income families; however with a β as low as 0.1 the income advantage passed on to the children is about 10%. An income advantage of 10% is no small matter but it pales in comparison with the fact that the high income families started off earning 2.75 times the incomes of the low-income families, and implies that there will be virtually no association between the incomes of grandparents and their grandchildren.[4]

A decade later this measure of inequality stood at just over 3.0, and by the mid to late 1990s hovered around 4.0. A ratio of 4.0 would imply, to redo the earlier calculations, the following income advantages for various values of β:

β	0.1	0.2	0.3	0.4	0.5	0.6
income advantage	1.15	1.32	1.52	1.74	2.00	2.30

With a β of 0.1 the income advantage would not change much between the late 1970s and late 1990s (from 11% to 15%), but higher values would imply significant differences. In the 1990s children from higher income families could expect to earn 2.3 times (rather than 1.8 times) as much as children from lower income families if β were 0.6. The basic message from this discussion is that there is more inequality in family incomes during the 1990s than two decades earlier, and this would imply that the income advantage to being born in a well-off family is increasing.

The counterpoint to this is that the tax and transfer system has worked to blunt the evolution in market incomes with the result that the disposable incomes of families have not witnessed the same pattern. This is a well-established fact in the Canadian literature, and the bottom line in Figure 1 presents another illustration by charting the ratio of disposable incomes of families at the top quintile to those at the bottom. This ratio, at least up to 1997, has never fallen below 2.0 nor risen above 2.5. In and of itself this fact would suggest that government tax/transfer policies work to attenuate the intergenerational transmission of economic status. However, this assumes that income is perfectly fungible and that there are no intergenerational consequences associated with

[3] These results are derived by taking the antilog of equation (1) so that $Y_{i,t} = exp(\alpha)\ exp(\beta lnY_{i,t-1}) = exp(\alpha)Y^{\beta}_{i,t-1}$ if ε is ignored. This implies that the ratio of incomes for children from high (*H*) and low (*L*) income backgrounds is just $Y_{H,t} / Y_{L,t} = (Y_{H,t-1} / Y_{L,t-1})^{\beta}$, that is just the ratio of their parents' incomes raised to the β power.

[4] In fact, the evolution of the cross-sectional inequality of income over the very long-term is related to the value of β. If β is greater than or equal to one inequality will grow in each successive generation; if it is less than one inequality may fall or it may be stable depending upon the evolution of other factors. See Mulligan (1997, pp. 164-171). This discussion assumes that β itself does not change in value.

its source. Some have examined this assumption. There is for example a long standing debate in the United States over the impact of welfare receipt by parents on the achievements of children and ultimately on the way in which they rely on market versus non-market sources of income as adults.[5] In the Canadian context, Lefebvre and Merrigan (1998), Corak and Heisz (1998) and Corak, Gustafsson and Österberg (2000) all suggest that the way in which parents obtain their income can have consequences for the long-term labour market prospects of their children. A full assessment of a strategy relying solely on income transfers would need information of this sort to fully appreciate the intergenerational consequences.

However, just how much the intergenerational income advantage of coming from a well-to-do family has changed also depends upon the degree of intergenerational mobility in incomes, and our understanding of intergenerational income mobility is just beginning to be developed. An extensive literature has been written on this topic in a number of countries, and in Canada there are now three studies explicitly addressing the issue: Corak and Heisz (1995, 1999) and Fortin and Lefebvre (1998). These studies use very different data sets and methods but essentially reach the same conclusion: a good approximation of β would be about 0.2, a little higher or a little lower depending upon how samples are chosen and technical issues associated with the estimation resolved. Corak and Heisz (1999, Table 3) examine the relationship between father and son outcomes, and find that the intergenerational elasticities for earnings as well as market incomes are both about 0.23. Fortin and Lefebvre (1998) report a number of different estimates, including father-daughter estimates, but they are also in the range of 0.2.[6] In addition they offer some evidence suggesting that the intergenerational elasticity has fallen over the course of the post-war period, being highest for a cohort born between 1935 and 1945 at about 0.32 (father-son) and 0.27 (father-daughter), and falling to 0.16 and 0.19 for those born between 1955 and 1969 (Fortin and Lefebvre 1998, table 4.4). However, their results also suggest that there have not been discernable changes in β between the mid 1980s and mid 1990s (Fortin and Lefebvre 1998, Table 4.3).

Table 1 updates and extends some of the estimates offered by these studies. The market incomes and the earnings of both sons and daughters (in their adulthood) are compared with the market incomes and earnings of their fathers, but also of both of their parents.[7] Using information from both parents might be considered a more accurate representation of the total resources available to a family, and hence an improvement on the earlier findings. This also has the advantage of including lone-mothers and their children in the analysis. The parental incomes are measured during the late 1970s and early 1980s when the children were teenagers, for the most part during their high school years but before graduation. These variations do not change the main conclusions very much: intergenerational elasticities tend to be a bit lower when both paternal and maternal incomes are taken into account than they are when only the father's income is used; they

[5] For one recent contribution see Levine and Zimmerman (2000).

[6] Father-daughter elasticities are found to be slightly higher than father-son, and in general the estimates tend to increase as the children age, being highest (approaching 0.3) when the children reach their forties and fifties.

[7] In deriving these results it is important to compare parents and children when they are at similar points in the lifecycle. The regression analysis underlying the results in Table 1 control for the possibility that this may not be the case by including measures of the age and age squared of the father and child, or of the oldest parent and the child. In addition parental incomes are averaged over a five year period in order to approximate permanent income and reduce the bias associated with annual fluctuations in income.

tend to be a bit lower for daughters than for sons; but most importantly they are all in the neighbourhood of 0.2.

If this result is accurate it would indicate that there is a good deal of intergenerational mobility in Canada, with about a fifth, to possibly in some cases, a quarter of the relative income difference between parents at different points in the income distribution being passed on to their children. This would seem to place Canada in a relatively favourable position internationally. There has been a good deal of work done on this topic during the 1990s as surveyed by Björklund and Jäntti (2000), Solon (1999), and Mulligan (1997, Chapter 7). The general finding from this literature is that the most mobile advanced economies seem to have a β of 0.2. This would, for example, put Canada in the same group as Sweden and Finland (Solon 1999, p.1787). The least mobile countries are the United States and the United Kingdom. In both of these countries a consensus seems to be emerging that β is in the neighbourhood of 0.4 and may be as high as 0.6 (Solon 1999, pp. 1784-85). In fact, recent work using improved data suggests that 0.6 or even higher is the more accurate estimate for the U.S. (Mazumder, 2000).

International comparisons are difficult to make because of differences in concepts, data quality, and statistical technique. Generally low levels of inequality go hand in hand with low rates of low-income among children and with high degrees of intergenerational mobility, while countries with high rates of inequality and high rates of low-income among children also appear to have less intergenerational income mobility. This is the case for Sweden and Finland where the intergenerational elasticity has been estimated at 0.2 and where the low-income rate among children is among the lowest; for Germany where the intergenerational elasticity is between 0.3 and 0.4 and the low-income rate among children places it in the middle of international ranking; and for the U.S. and U.K. both with the lowest degrees of intergenerational mobility and the highest rates of low-income among children UNICEF (2000a, Figure 10). Canada seems to rank along with the U.S. and the U.K. in having relatively high rates of low-income among children, but at the same time with the Scandinavian countries in having a high degree of intergenerational mobility. This anomaly may be due to the use of a relative measure of low-income in making international rankings. In fact, according to UNICEF (2000a, Figure 2 and page 9) Canada fares much better in international rankings when an absolute measure of poverty is used, while the change in concept makes little difference for other industrialized countries. For example, using the U.S. official poverty line as a measuring rod places Canada just behind Sweden and Finland and in the top half of countries with the lowest rates of child poverty UNICEF (2000a, Figure 2).

One important limitation of this entire stream of research concerns the simplicity of equation (1). The results from this equation represent an "average" outcome, one value of β characterizing the entire income distribution. The policy focus on families in low-income, however, reveals a concern over the possibility that the pattern of intergenerational mobility may change across the income distribution: those with lower incomes may not have the same opportunities to invest in their children as the middle and upper income groups and therefore are more likely to see them end up in the bottom of the income distribution. If a more flexible estimation technique is used, one that permits the value of β to change across the income distribution, then a very different picture emerges. Figure 2 illustrates that the degree of intergenerational income mobility in Canada is in fact characterized by a complex non-linear pattern. The two lines in this figure are the estimates for β using the total market incomes of fathers and sons (the bold line labeled MM) and the earnings of fathers and sons (labeled EE). The two vertical lines represent the bottom one

percent and the top one percent of the fathers' total market income distribution. In this particular data set there may be problems with the quality of the data at the very bottom of the income distribution implying that the results to the left of the first vertical line might be best ignored. At the broadest level the degree of persistence in intergenerational incomes increases with higher incomes, starting at almost complete mobility (β about equal to zero) at the lower end of the distribution and reaching, in the case of market incomes, almost complete immobility (β being almost 0.8). Also notable is an inverted V pattern, with β rising over the lower half of the income distribution, reaching almost 0.4 at the middle, and then falling over the upper half. This pattern might not conform to the expectations of many in that it suggests children born in the lower part of the income distribution are among the most mobile intergenerationally.[8] It also suggests that characterizing the underlying process with a single number, like 0.2, may not be accurate. For a significant fraction of individuals the intergenerational elasticity is decidedly above 0.2.

III. Sources of Intergenerational Mobility

How can we explain the patterns of intergenerational mobility observed in Canada? Equation (1) offers a simple summary of the outcome of what is likely a complicated social process involving the workings of the market, government policies, and social institutions. But the starting point of most any discussion involves the family.

Families can influence the adult incomes of children in two broad ways: directly through bequests of wealth; and indirectly through investments that improve their earnings capacity. Inheritances and *inter vivos* transfers are certainly sources of the transmission of economic status that come readily to mind, but just how important are they? There is little direct evidence on this, but some information can be gleaned from Figure 2. If direct transfers are the main factor determining intergenerational income mobility then it should be the case that market incomes would be a lot more persistent intergenerationally than earnings. Total market income includes income from earnings, but also income from assets (either dividends, income from rental properties, capital gains, or interest income). If parents transfer assets directly to their children then there will be a strong intergenerational correlation in the components of income derived from them, and this will raise the overall correlation of total market income between the generations above that for just earnings. The results in Table 1 suggest that this is the case on average. Figure 2 also reveals that market incomes tend in fact to be more persistent across generations than earnings, but particularly so among the very well off. The value of β for total market income tends to lie above that for just earnings, and diverges sharply from it for those in the very top—essentially the top percentile—of the income distribution.[9] If the differences between these two lines can be taken as an indication of the role of asset income then the message that emerges is that financial transfers are an important part of the explanation for the very high degree of intergenerational persistence of incomes for a distinct minority of the population, those who are very well off. (In fact, at the

[8] One important caveat has to do with the focus on just fathers and sons. The results are based upon data that exclude children raised by single mothers, and should in some sense be thought of representing a best case scenario. Step-families, however, are included in the analysis, so that "father" refers not just to biological fathers.

[9] In these data the top percentile of the father's market income is just over $184,000 while the maximum is over $11.3 million. These amounts are expressed in 1999 dollars and are based on the data in Corak and Heisz (1999, Table 1), which are in 1986 dollars.

very extreme the results imply that the children of the well to do are virtually certain to end up at the top of the income distribution in the next generation.) The pattern in the degree of intergenerational income mobility for the majority of individuals seems to be driven by the degree of intergenerational mobility of earnings.[10] Something more than inheritances is involved.

The other way families influence the adult economic status of children is through investments (both monetary and non-monetary) in their ability to succeed in the labour market. In many economic models, education, or human capital investment, is seen as the major vehicle by which this is done. The models discussed by Becker (1991), Becker and Tomes (1986), and Mulligan (1997) among others view parents as rational individuals who care both about the welfare of the family in the present but also about the future welfare of the children. The investments they make in the human capital of their children are determined by the expected rate of return on such investments and the resources they have to make them.

In these models, if the expected rate of return on human capital investments is greater than that of financial assets, then parents who want to increase the adult incomes of their children will do better by investing in their education, and only once the possibilities of doing so have been exhausted (or until the rate of return to human capital falls to the level of that for financial assets) will they leave bequests or directly pass on assets. The expected rate of return may vary with the ability/predisposition of the child, but whether a child receives the optimal amount of human capital investment will also depend upon the resources available to the parents. Parents may not have sufficient income to make as much investment in the schooling of their children as they would like. This may particularly be the case for low-income parents of high-ability children. These parents are unlikely to be able to borrow the needed funds from financial institutions. As such, the degree of intergenerational mobility for these children will not be as great as for those with equal ability but born to parents of sufficient means. The possibility that access to higher education may be limited by the financial resources of the family motivates a host of government policies to support able children. Loans, bursaries, low tuition fees have all been used in the past by governments to alleviate the possibility that capable children will not be able to attend post-secondary institutions because of income adequacy.

This model of the family might be used to explain the pattern observed in Figure 2 if it is assumed that the child's "ability" varies with parental income: the higher the income of the parent, the higher (to a certain point) the ability of the average child.[11] Over the lower half of the income distribution β is rising because parental income is rather low but also because child ability (and hence the optimal amount of human capital investment) is increasing. As a result a larger and larger fraction of families are not able to make sufficient investments in the schooling of their children. Over the upper half of the income distribution the elasticity is falling because parental income gradually becomes high enough to finance post-secondary education. Regardless of the child's ability there are sufficient resources to fund the desired level of schooling. As income increases even further, parents have made all the needed investments in their children's education and begin to make financial transfers directly to them. This is reflected in the sharp rise of the

[10] This suggestion seems also to be in accord with the literature surveyed by Stokey (1996) for the U.S. that deals with direct evidence on the prevalence of inheritances.

[11] See Grawe (2001) for a clear exposition.

intergenerational income elasticity and its divergence from the intergenerational earnings elasticity.

How plausible is this story? The model does make two important points. The first, and most obvious, is that government policies influencing access to education may have implications for intergenerational mobility. Policies of this sort may have had something to do with the rise in the average degree of intergenerational mobility over the post-war period documented by Fortin and Lefebvre (1998). As mentioned the generation (of men) born between 1935 and 1945 is characterized by a β of 0.32. This generation was of college/university age during the 1950s and early 1960s before the significant expansion of post-secondary education in Canada. Those born two decades later (between 1955 and 1969), who were the prime beneficiaries of this expansion and the loan/bursary programs that went along with it, are characterized by a β of half this value.[12] The second half of the 1990s has witnessed significant changes in the way post-secondary education is financed, some of which imply a higher tuition fee environment. The potential impact on intergenerational mobility, especially if the trend toward more mobility of the previous decades is halted or even reversed, is an important concern. At this point in time, however, it is too early to tell what, if any, impact these changes will have.

Surprising as it may seem there is little direct evidence on whether capable Canadian youth are limited in their access to post-secondary education by a lack of financial resources. Some studies, however, have related educational attainment with other parental characteristics: socio-economic status and education level. For example, Bouchard and Zhao (2000) find that the gap between university participation rates of children with high socio-economic backgrounds and those from low and middle backgrounds has grown between 1986 and 1994. They relate this to the substantial increases in tuition fees that began around 1989. Table 2 offers related information, the distribution of university graduates by the educational attainment of their parents (the most highly educated parent), for the selected years between 1982 and 1995. For example, about 30% of the 1982 male graduating class came from homes in which the parents had less than a secondary school education, while about the same fraction came from households with parents holding university degrees. By 1995, these proportions are respectively about 15% and 40%. Many fewer university graduates come from parents with the lowest levels of education; many more from parents with the highest. The proportions for women are not much different. Part of the explanation for this certainly has to do with the fact that in general the population is becoming more educated so that there are more and more people with a post-secondary degree to begin with. Canadian data that permit a direct comparison between post-secondary participation and the incomes—as opposed to the education or socio-economic status—of parents are rare. So it is difficult to directly access whether financial difficulties limit educational attainment. Heckman (2000), however, summarizes U.S. research that he interprets as implying that financial constraints are not the major reason children from low-income families attend post-secondary institutions at rates much lower than those from high-income families. He claims that given "the current college financial support arrangements that are available to low income and minority children in the U.S., the phenomenon of bright students being denied access to college because of credit constraints is an empirically unimportant phenomenon." (Heckman 2000, p.17). This is not to deny that children

[12] Fortin and Lefebvre (1998, p. 58) hypothesize that access to post-secondary education may be at work, but also caution that the differences may be due to limitations of their data that required them to compare the adult outcomes of these two generations at different ages.

from low income families attend post-secondary institutions at a rate much lower than those from high income families, only that the difference in attendance rates is not due to the difficulty in financing a post-secondary education. It is hard to know the extent to which this research applies to the "average" student as opposed to just the "bright" students. It is also hard to know the extent to which it can be applied to Canada. The impression of many observers is that tuition fees are at least as low among Canadian institutions as among U.S. institutions and financial support is at least as generous.

An alternative explanation relates to the second, perhaps more subtle point made by the human capital interpretation of Figure 2 namely that "other" things also determine the education levels and ultimate earnings capacity of children. Up to now, this has been referred to as "ability" under the assumption that it is somehow an inherent quality of children that families themselves do not influence, though at the same time somehow—perhaps paradoxically—varying with family income. Certainly something more than just monetary investments matter in determining the ultimate well-being of children. Whether children go on to pursue post-secondary studies depends upon their level of preparedness during their high school years, which in turn relates to their level of preparedness in elementary school. The correlation between parent and child education levels may have less to do with accessibility to post-secondary education than with the fact that parents have different expectations about their children's schooling and labour market success and are able to make different non-monetary investments to achieve them. Heckman (2000, p.15), among others, suggests that more educated parents may certainly have more financial resources to invest in their children, but that they may also have access to other resources that put their children onto a path of better school performance early on, increasing the likelihood of attending university and ultimately of taking advantage of a changing labour market that places a premium on skills.

> Children's tastes for education and their expectations about their life chances are shaped by those of their parents. Educated parents are better able to develop scholastic aptitude in their children by assisting and directing their studies. The influence of family factors that are present from birth through adolescence accumulate over many years to produce ability and college readiness. (Heckman, 2000, p.15)

The point being that "ability" is something that can be influenced and that it is important to do so early on because "ability" begets "ability". Indeed, many observers are increasingly making the case that early, indeed very early childhood influences are central to long-term labour market success.

IV. Family Influences in Early Childhood and Public Policy

The most forceful argument along these lines in a Canadian context is that put forward by Keating and Hertzman (1999), which has been used as the underpinning for a number of policy proposals, including most importantly McCain and Mustard (1999). This book contains at least five major messages: (1) negative relationships (termed "gradients") exist between socio-economic status and a host of child outcomes, termed "developmental health" such that children with backgrounds that might be deemed inferior are prone to have poorer physical and mental health, more behavioural problems, and lower levels of literacy and mathematics achievement; (2) these relationships are causal, resulting from a process whereby the capacities of an individual are sculpted during the early years of life by the surrounding environment in ways that are very long-lasting if not

permanent; (3) social organization and policy can influence this process; and (4) effective policy interventions, as well as ways of developing the political coalitions to support them, do exist and should be implemented to overcome the disadvantages that many children will otherwise grow up facing. The fifth message—one that is overlain by the editors in the introduction, conclusion, and a series of commentaries—is that a lot is at stake. In particular, the future productivity of our economy is very much dependent upon the right investments being made in our children. Only in this way will we be able to be flexible enough to meet the challenges and capture the opportunities of technical change. Clearly, this is a far-reaching set of claims, extending from some contentious issues in positive science directly to policy making. The cornerstone of the story is the argument that the ultimate well-being of children is caused by the socio-economic status of their parents during the early years.

This refers to the idea that the stimulation infants and young children receive from their environment influences neural development, and as a result will ultimately define the outer limits of their capabilities. Children raised in families of higher socio-economic status are more likely to be exposed to particularly stimulating environments and are set upon an advantageous path in life with respect to their health, cognitive development, and social skills. Neural sculpting occurs at different times for different brain functions, but timing is important. If the brain doesn't receive the requisite stimulation from the environment at certain critical periods, then the window of opportunity closes and development fails to occur. Interventions at a later period may not reverse the consequences. This establishes, if you will, the "initial conditions" of a life, and sets the individual down a particular pathway, a pathway in which a series of cumulative experiences may further set constraints or offer opportunities. The series of steps that lead through important transition periods in life, according to Keating and Hertzman (1999), look something like this: socio-economic circumstances early in life (and even during the pre-natal period) → birthweight and cognitive/social/emotional development → readiness to learn → language development → behavioural problems in school and educational achievement → mental well-being in adulthood → labour market success and job characteristics → stress, disability, absenteeism → mortality. Socio-economic gradients appear at each of these steps because they have their roots in early childhood, and the individual's cumulative experience up to that point.

This is a hard theory to prove for the simple reason that the information requirements are very demanding. An analyst would need to observe, in a rather detailed way, not only the circumstances under which a representative sample of individuals was raised as very young children, but also to observe these same people throughout their lives and decades later as adults. A host of outcomes related to their adult well-being would have to be measured. These would include measures of health, but also measures of how well people are functioning socially and economically since the thesis has ultimately to do with the links between investments in children and economic productivity. There is no one single comprehensive data set of this sort available in Canada. Indeed, the closest one could come relates to the information used in developing Figure 2 and Table 1. As Figure 2, suggests there is not a simple negative relationship between parental income (if that is to be taken as a measure of "socio-economic" status) and the adult incomes of children. Indeed it would appear that children born to low-income parents are very mobile intergenerationally and are not likely to also end up with very low-incomes as adults. While this finding may have a bearing on discussions dealing with the impact of post-secondary education, it may not be totally appropriate as a test of "biological embedding" since the familial circumstances of the children are not observed in the early years but only once they have reached their teens.

More appropriate data do exist in some countries, most notably the National Child Development Study (an ongoing British survey of all persons born during the first week of March 1958) and the Panel Survey of Income Dynamics (a longitudinal survey in the U.S. that started in the late 1960s and early 1970s). Both of these, and some other more specialized and smaller surveys, are used or at least referred to in a number of chapters of Keating and Hertzman (1999). However, the evidence—either cited from other studies or offered directly—that relates the socio-economic status of children in the first years of life directly with their adult labour market outcomes is very sparse. This is one of the points emphasized by Brooks-Gunn, Duncan and Britto (1999) in their study of U.S. data.[13]

This may be a difficult relationship to establish even in the short term because causality may not be unidirectional. The quality of parenting may influence child behaviours and outcomes, but it may also be reacting to it. In fact, Hou (2001) uses Canadian data to offer an analysis of the quality of parenting and its impact on the emotional and conduct problems of young children taking this sort of simultaneity into account. He points out that it is easy to overstate the role of income in this process, and is led to conclude that ineffective parenting is independent of family socio-economic status when other mediating factors are taken into account: parental depression, family dysfunction, and the age of the parents. Low-income parents, single parents, and parents with low levels of education are not any more likely to develop ineffective parenting styles.

While the appropriate design of policy to support family functioning is still subject to a good deal of debate, some advocates are suggesting that interventions should not simply address income adequacy, nor should they necessarily be targeted solely on parents with socio-economic disadvantages. Keating and Hertzman (1999) put forward an argument for universal programs of in-kind transfers to young children, with the caveat that attention needs to be paid to the timing of these interventions. This is echoed in McCain and Mustard (1999).

It is not hard to imagine that the scientific hypothesis being addressed could be consistent with such a wide range of policy options as to be of little guidance in the actual design and implementation of policy. If the basic message from the science is that we should be providing children (especially the youngest) a loving, secure, yet stimulating environment, then this could be used to support policies encouraging mothers to stay at home just as easily as it could be used to support the need for high quality daycare if they chose to work full-time. It is not clear why the options discussed are exclusively related to the underlying theory or why they would have an impact on economic productivity decades into the future.

Indeed, there is once again a disappointing amount of solid evidence on the long-term, particularly the long-term labour market, outcomes of children. The most convincing evidence would involve the use of an experimental design in which a group of children put through an early childhood intervention program were compared to a similar group not given the intervention. These groups would then be followed through their school years and into adulthood and a host of outcomes—

[13] A stronger case, however, seems to be made for the relationship between socio-economic status early in life and longevity, and several of the chapters in Keating and Hertzman (1999) also illustrate gradients for a number of shorter term outcomes: cognitive and social development in the pre-school years, literacy and numeracy in the primary years, and physical aggression in the early teens. Some work using U.K. data does explicitly model the hypothesis being put forward; that initial conditions can have long-lasting influences and that the paths one takes through life matter and can be set upon very early. See Gregg and Machin (2000).

particularly labour market outcomes—measured. Information of this sort is hard to come by and there are no large scale studies on this issue in Canada. Currie (2000) offers a survey of the U.S. experience with early childhood intervention programs, paying particular attention to studies that have used an experimental design employing randomly determined treatment and control groups.

She points out that some ideal trial programs have indeed shown positive long-term results. The program most often cited in this regard is the Perry Preschool Project, which consisted of a half day pre-school every weekday and weekly 90-minute home visits for eight months a year over two years. The evaluation of this project involved a randomized trial that followed the children to the age of 27. There were a total of 120 children, about half in the control group and half in the treatment group. Those participating in the project had better health and test scores, as well as better grades, high school graduation rates, and earnings. They also experienced lower crime rates and welfare use.

While Currie (2000) stresses that there are many other studies of other programs, it is the most intensive and expensive interventions that are most likely to lead to the most significant results. Even aside from the fact that the number of children in the evaluation of the Perry Preschool Project was very small, there may be many good reasons for exercising caution in extrapolating these results to the Canadian environment. It may be that if there is a higher level of social spending and support in Canada to begin with—particularly for example in the health domain—then changes in early childhood investment will not have as large an impact. The other caution is noted by Currie: there may be a large difference between an ideal pilot project that is well funded and structured, and a large-scale publicly funded program. Her review of the Head Start program in the U.S. offers a case in point.

Head Start is a pre-school program for three to four year disadvantaged children that seeks to promote their readiness to learn. Roughly 800,000 children participate in part-day programs. In reviewing the evaluations of this intervention Currie suggests that it has indeed led to short-term improvements in verbal skills, health, and perhaps social skills but that at the same time these do not necessarily translate into longer-term improvements. Initial gains in vocabulary and reading test scores are only maintained if children go on to attend higher quality elementary schools; for children who do not these advantages tend to fade away. Subsequent school quality plays an important role in sustaining any gains made in the early years. There are no long-term evaluations of this program that follow children into adulthood. Currie concludes that the "evidence in support of favourable long-term effects of public programs is much less conclusive than the evidence showing positive effects of model programs." (p.15)

In sum, the non-monetary investments parents make in their children may have an important role to play in setting them upon a path to success in the labour market, and this role may only loosely be related to parental incomes. Even so it is still very difficult to gauge the extent to which this relationship, and for that matter government policy interventions intending to foster or supplement it, lead to adult labour market success.

V. Conclusions

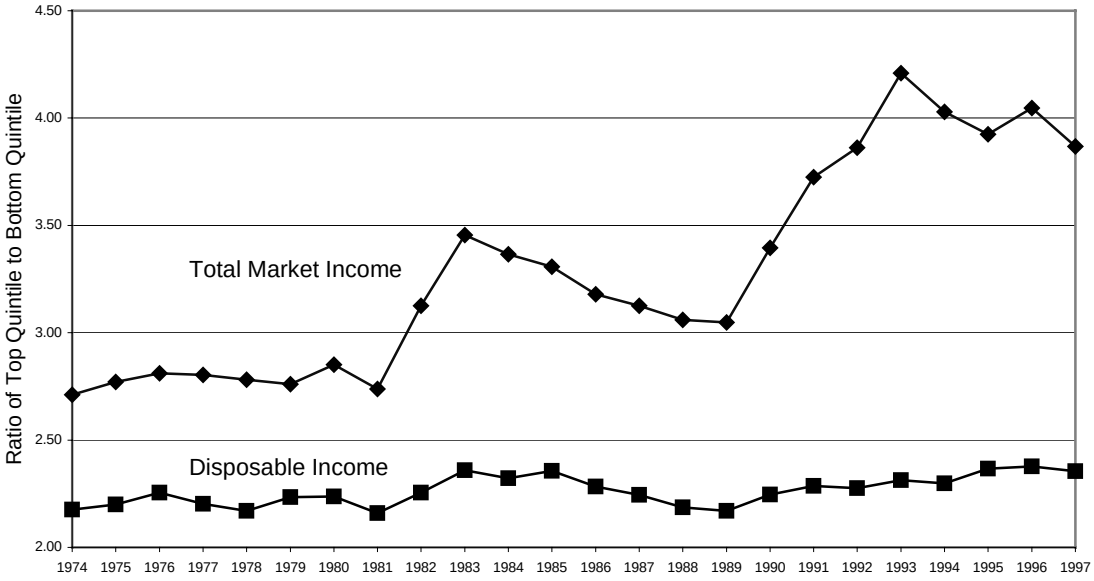
The Canadian labour market is characterized by a good deal of intergenerational income mobility. On average, adult earnings and incomes of children are only loosely tied to the incomes their parents earned. Indeed, Canada compares well in this regard to many other countries, being characterized on average by much more mobility than the U.S. or U.K. and on a par with some of the most mobile nations. However, the relationship between family income and the adult income of children is not a simple one. What existing evidence there is suggests that children from low-income families are not destined to become low-income adults: indeed, there is little relationship at all between their position in the income distribution and that of their parents. At the other end of the spectrum the very well-to-do can virtually guarantee that their children will be among the most advantaged in the next generation, and a large part of this has to do with the transfer of assets across the generations. In between these two extremes the story is more complicated, with intergenerational mobility declining over the course of the lower half of the income distribution and rising over the upper half.

These patterns have been observed for a generation of teenagers coming of age during the 1980s and active in the labour market during the 1990s. It is difficult to say if there has been a change since that time, but there appears to have been a long-term trend over the post-war period toward increased intergenerational mobility. The causes of these patterns are difficult to establish, but the elements of any explanation must include the accessibility of post-secondary education and the influence of non-monetary investments made by the family and society in children. The significant expansion of post-secondary education institutions and the financial support that assured access to them by generations coming of age in the late 1960s and after is coincident with an important increase in the degree of intergenerational mobility. There does not seem to be any direct evidence that access to post-secondary education is limited by financial resources, at least for the generation coming of age in the 1980s. This may have changed with the introduction of a higher tuition environment in the 1990s, but it is difficult with the available Canadian data to determine if that is in fact the case and what the consequences for intergenerational mobility might be. It certainly appears to be the case, however, that a significantly larger fraction of recent university graduates have parents who were also university graduates. What is less clear is the degree to which this is due to financial constraints or to a deterioration in crucial non-monetary investments among certain segments of the population.

Recent policy discussion has focused on the quality of the environment in which young children are raised and the impact it can have on their development and long-term success. There is still a good deal of uncertainty about how this process plays out, particularly with respect to longer term economic outcomes and the role of family income. Recent research seems to be suggesting that when other important characteristics mediating parent-child interactions—parental depression, family dysfunction, age of the parents—are taken into account, income levels have little independent influence on parenting styles and child emotional and conduct problems. Even so, it is an open question as to the extent to which short-term disadvantage translates into inferior labour market outcomes in adulthood. This is also the case for the effectiveness of government policy. It may be, as Currie (2000) suggests, that early childhood intervention programs can be justified entirely on the basis of their short-term benefits to children, but that would be a very different argument from the suggestion that they are crucial for the long-term productivity of the economy.

Perhaps the best argument that can be made for such programs, and indeed for reducing child poverty, is that they are of benefit to children in the here and now.

Figure 1. Ratio of Incomes for Families at the Top Quintile to Those at the Bottom Quintile: Total Market Income and Disposable Income, 1974 To 1997



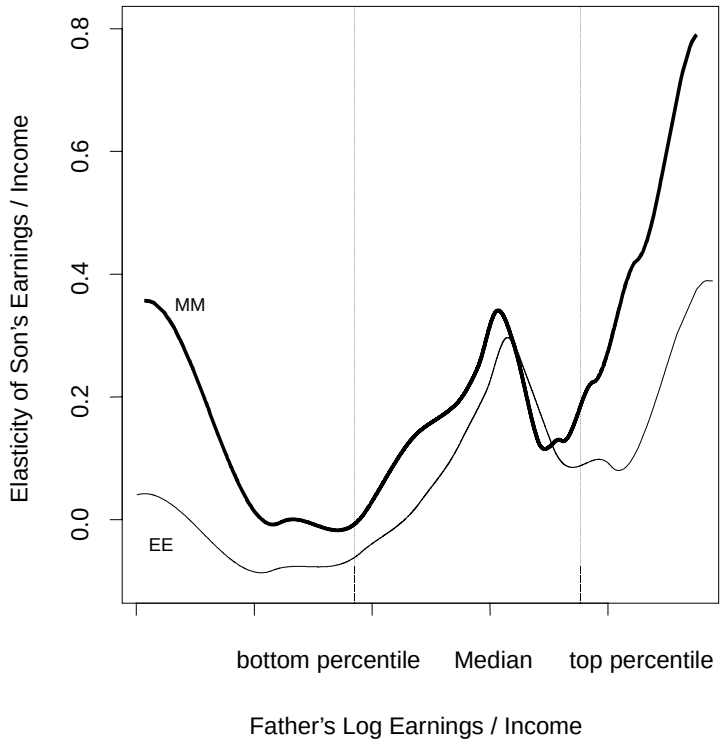
Note: Market income is defined as total income less government transfers and includes earnings from employment and self-employment, investment income, and other private income. Disposable income refers to total income after taxes and transfers. All incomes are for economic families with at least one child aged 0 to 17 years. Data are derived from Statistics Canada, Survey of Consumer Finances.

Table 1. Intergenerational Income Elasticities for Canadian Children

	Sons		Daughters	
	Father	Both Parents	Father	Both Parents
1. Market Income	0.262	0.235	0.227	0.208
2. Earnings	0.258	0.214	0.203	0.180

Note: Derivations by the author using Statistics Canada administrative data. Parental incomes are averaged over 1978 to 1982, and child incomes are measured during 1998 between the ages of 32 and 35. Table entries are coefficient estimates from the least squares estimation of equation (1). Age and Age squared of both the child and the parent (or oldest parent) are also included in the regressions. Sample sizes vary but range between about 230,000 to over 400,000 with standard errors of about 0.003 to 0.004.

Figure 2. The Elasticity of Son's Earnings and Total Market Income with Respect to Father's Earnings and Total Market Income



Note: The line labeled MM refers to the elasticity between the total market incomes of sons and fathers, and the line EE refers to the elasticity between father and son earnings. Father's Earnings and Income are measured in natural logarithms and adjusted for age, the vertical lines representing the 1st and 99th percentiles of the father's age-adjusted log total market income.

Source: Adapted from Corak and Heisz (1999, Figure 4).

Table 2. Distribution of University Graduates by Parental Educational Attainment: 1982, 1986, 1990, 1995

	Educational Credentials of Most Educated Parent			
	less than Secondary	Secondary	College	University
1. Sons				
1982	29.6	31.8	10.0	28.7
1986	24.4	32.0	10.8	32.8
1990	22.2	29.1	12.4	36.3
1995	14.8	31.2	12.9	41.1
2. Daughters				
1982	27.5	30.3	13.6	28.6
1986	25.4	32.7	12.5	29.4
1990	23.6	27.3	14.4	34.6
1995	15.9	32.8	13.7	37.6

Note: Calculations by the author from Statistics Canada, National Graduates Survey, various years. Table entries are row percentages.

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