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

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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 goals, those associated with macroeconomic policy, were achieved and that in a sense the results exceeded expectations. These goals had to do with a zero inflation target as a guide for the conduct of monetary policy, and the elimination of budget deficits as a guide for fiscal policy.: Fortin as well as Jenkins and O'Reilly, in this volume, 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 that it will continue to guide monetary policy. Likewise, Drummond and Stanford discuss the elimination of budget deficits as a goal of fiscal policies. On this front progress was more difficult, but the goal was pursued with deliberation by both the federal and provincial governments to the point that Canadians are now faced with the challenge of deciding how to use substantial surpluses. A good deal of attention has certainly been paid to these two dimensions of macroeconomic policy and success in achieving the stated goals, but as the 1990s came to a close increasing attention was also 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 success has been scant. Indeed UNICEF (2000*a*) documents the fact that in this regard Canada ranks in the bottom third of advanced nations. In response, others have raised concerns about how "poverty" is measured, questioning the use of a relative measure as the appropriate yardstick and offering alternative absolute measures that would 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).

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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 more than 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 child poverty has more than an instrumental value. Policy-makers have argued for zero inflation or balanced budgets not as objectives for their own sake but as means to a better-functioning economy. Attaining these goals, it is argued, in a 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: an end in and of itself and a means to a better future. Children, as Osberg discusses in this volume, have certain rights as citizens, rights wrapped up with the importance of the family. As such, they have, like other citizens, a right to an adequate standard of living. Canadians care about child poverty because they care about children as citizens, particularly as 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, in much the way 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 (2000*b*), for example, clearly articulates this view. The argument is that if chil-

dren are raised in a state of low income there will be long-term consequences: they will become less than they otherwise could be, indeed may grow up to be poor adults who in turn raise poor children. This is all the more important in that human and social capital are increasingly being seen as the basis for rising 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 article: Just what do we know about the long-term consequences of childhood experiences? In particular just what is the relationship between family background, especially family income, and the long-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. In a society characterized by a high degree of mobility, the experience of low income during childhood may not necessarily leave 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 unable 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 in 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 might call on the state to level the playing field and buffer individuals from the market.

It is important for us 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 article relates most directly to the financing of post-secondary education, which is often concerned with the possibility that capable students will 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 influence education and labour-market outcomes.

I will first review a simple framework for intergenerational mobility as it pertains to the relationship between parent and child incomes, then discuss how this framework permits one to think about changes in degree of mobility. In addition I will summarize the state of our knowledge in this area and Canada's position relative to other advanced nations, address the sources of a given degree of equality of opportunity, 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 long-term consequences of experiencing straitened circumstances as a child.

In summary, the major conclusions of this article are: (1) Canadian society is characterized by a good deal of intergenerational mobility; in fact the available evidence suggests that being raised by low-income parents does not pre-ordain children to a low-income adulthood; (2) there is no strong evidence suggesting that able Canadian youths are limited in their access to post-secondary education by the financial situation of their parents, though this situation may be changing; (3) early childhood experiences are increasingly being seen as important precursors to long-term outcomes, but researchers have had difficulty in making 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 simply making income transfers to the least well off. If this is the case, it should be realized that although large-scale early intervention programs seem to offer a host of short-term benefits to children, their influence on long-term labour-market outcomes remains to be demonstrated. 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.

MEASURING INTERGENERATIONAL MOBILITY

Imagine two societies with the same distribution of income: the fraction of low-income families and 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] Imagine that in the first society individuals inherit their *relative* economic posi-

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tion entirely from their parents: children born to parents at the very bottom of the income distribution will grow up to be adults at the very bottom of the income distribution; those born to parents at the top will go on to have incomes placing them at the top. In this society there is no intergenerational income mobility. 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. Imagine that in the second society there is 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 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 the two 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 extremes of complete persistence in incomes across generations and complete mobility. This is the first step in any informed discussion about what "equality of opportunity" means and what can and should be done to achieve it.

Economists have used a simple model to measure intergenerational income mobility, usually in percentage (or equivalently) in logarithmic terms — that is, as a measure of the fraction of 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 percent and the incomes of their children differ, on average, by 30 percent, the intergenerational persistence of incomes is 0.6, since 60 percent of the difference in parental incomes is transmitted to the children. Equivalently, if we let Y represent permanent income and let t index generations, this way of thinking can be captured by the following simple expression:

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

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 ($e_{i,t}$).

The average income of the generations will evolve over time, and it may be that many or all members of a generation will have incomes greater than their parents had 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 nonetheless 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 intergenera-

tional reversal of incomes in which relatively higher parental income is associated with relatively lower child incomes. Empirical studies, however, have always found ß 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 percent of the difference in parental incomes were passed on to the children, ß would have the value of 0.6. When ß is less than one there is some intergenerational mobility of incomes, so that parents with incomes above (or below) the average will have children who grow up to have incomes above (or below) the average, but the deviation from the average will not be as great in the children's generation. This should not be too surprising in developed economies, but the larger the ß (even if it is less than one) the greater the likelihood that a child 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, one must first understand two things: how income inequality is evolving in successive generations of parents (that is, just how much of a relative income advantage parents are passing on to their children), and how the degree of intergenerational income mobility (as measured by ß) has evolved. Depending on the degree of inequality, even small values of ß can confer substantial advantages to the children of the well off. There are established statistics on the degree of inequality in Canada. Overall patterns are discussed by Heisz, Jackson and Picot in this volume, but Chart 1 charts developments in one of these: the ratio of incomes (both total market

CHART 1

Ratio of Incomes for Families at the Top Quintile to Those at the Bottom Quintile: Total Market Income and Disposable Income, 1974-97
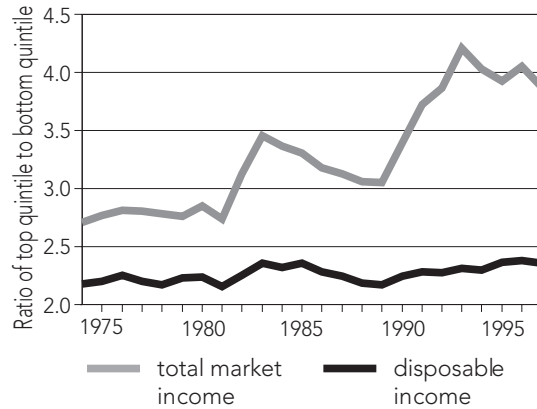
Note: Market income is defined as total income less government transfers and includes earnings from employment and self-employment, investment income and other private income. Disposable income refers to total income after taxes and transfers. All incomes are for economic families with at least one child aged 0 to 17 years.

Source: Statistics Canada, Survey of Consumer Finances.

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 in the top fifth of the income distribution was about 2.75 times as great as the average market income of those in the bottom fifth.[2] If this ratio is used in combination with equation (1), the income of someone born to a family at the top relative to someone born to a family at the bottom for different values of ß 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

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With a ß as high as 0.6, children born to higher-income parents will earn, when no other influences are at work (that is, when $e_{i,t}$ = 0), about 1.8 times as much as children born to lower-income parents; however, with a ß as low as 0.1, the income advantage passed on to the children is about 10 percent. An income advantage of 10 percent is no small matter, but it pales in comparison with the fact that the higher-income families started off earning 2.75 times the incomes of the lower-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 would stand at just over 3.0, and by the mid-to late 1990s it would hover around 4.0. A ratio of 4.0 would imply, to redo the earlier calculations, the following income advantages for various values of ß:

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 ß of 0.1, the income advantage would not have changed much between the late 1970s and the late 1990s (from 11 to 15 percent), 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 ß were 0.6. The basic message from this discussion is that there was more inequality in family incomes during the 1990s than two decades earlier, which implies that the income advantage to being born to 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 followed the same pattern. This is an established fact in the Canadian literature, and the bottom line in Chart 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 its source. Some have challenged this assumption. There is, for example, a longstanding debate in the United States over the impact of welfare receipt by parents on the achievements of their children and ultimately on the way in which these children subsequently rely on market versus non-market sources of income.[5] In the Canadian context, Lefebvre and Merrigan (1998), Corak and Heisz (1998), and Corak, Gustafsson and Österberg (2001) 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 complete assessment of a strategy relying solely on income transfers would need information of this sort, in order to fully appreciate the intergenerational consequences.

However, the extent to which the income advantage of coming from a well-to-do family has changed also depends on the degree of intergenerational mobility in incomes, and our understanding of this mobility is just beginning to be developed. An extensive literature has been written on

TABLE 1

Intergenerational Income Elasticities for
Canadian Children

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

Note: 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 from about 230,000 to over 400,000 with standard errors of about 0.003 to 0.004.

Source: Derivations by the author using Statistics Canada administrative data. Parental incomes are averaged over 1978 to 1982. Child incomes are measured during 1998 between the ages of 32 and 35.

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 ß would be 0.2, depending on how samples are chosen and how technical issues associated with the estimation are 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 market incomes are about 0.23. Fortin and Lefebvre report a number of different estimates, including father-daughter estimates, but these are also approximately 0.2.[6] In addition they offer some evidence that the intergenerational elasticity has decreased 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 were no discernible changes in ß between the mid-1980s and the 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 are compared with the market incomes and earnings of fathers and of both parents.[7] Using information from both parents might more accurately represent the total resources available to a family, and hence result in an improvement on the earlier findings. It also has the advantage of including lone mothers and their children in the analysis. Parental incomes are measured for 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 lower when both paternal and maternal incomes are taken into account than when only the father's income is used; they tend to be a bit lower for daughters than for sons; but most importantly they are all in the neighbourhood of 0.2.

This result would indicate that there is a high degree of intergenerational mobility in Canada, with about a fifth to a quarter of the relative income difference between parents at various points in the income distribution being passed on to their children. This would place Canada in a relatively favourable position internationally. A good deal of work was done on this topic in 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

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CHART 2

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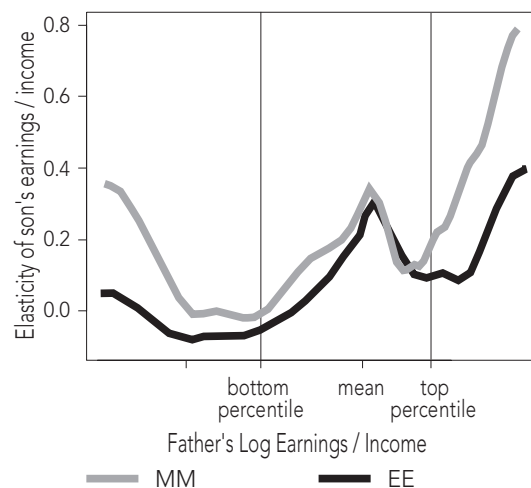
Note: The line labelled MM refers to the elasticity between the total market incomes of sons and fathers. The line EE refers to the elasticity between father and son earnings. Father's earnings and income are measured in natural logarithms and adjusted for age, the vertical lines representing the 1st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

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

economies have a ß 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 ß is in the neighbourhood of 0.4 and may be as high as 0.6 (Solon 1999, p. 1784-1785). In fact, recent work using improved data suggests that 0.6 or even higher is a more accurate estimate for the United States (Mazumder 2000).

International comparisons are hindered by differences in concepts, data quality and statistical technique. Generally, low rates of inequality go hand-in-hand with low rates of low income among children and a high degree of intergenerational mobility, while countries with high rates of both inequality and low income among children also appear to have less intergenerational income mobility. For example, in Sweden and Finland the intergenerational elasticity has been estimated at 0.2 and the low-income rate among children is one of the lowest; in Germany the intergenerational elasticity is between 0.3 and 0.4 and its low-income rate among children ranks it in the middle internationally; and the United States and the United Kingdom have the least intergenerational mobility and the highest rates of low income among children (UNICEF 2000a, Figure 10). Canada seems to rank with the United States and the United Kingdom in having relatively high rates of low income among children, but 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 p. 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 US 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 ß characterizing the entire income distribution. The policy focus on families in low income, however, reveals a concern 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 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 ß to change across the income distribution, a very different picture emerges.

Chart 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 ß using the total market incomes of fathers and sons (the line labelled MM) and the earnings of fathers and sons (EE). The two vertical lines represent the bottom 1 percent and the top 1 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 (ß about equal to zero) at the lower end of the distribution and reaching, in the case of market incomes, almost complete immobility (ß being almost 0.8). Also notable is an inverted V pattern, with ß 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 suggesting that 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.

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 almost any discussion involves the family.

Families can influence the eventual incomes of children in two broad ways: directly through bequests of wealth, and indirectly through investments to improve their earning capacity. Inheritances and *inter vivos* transfers are means of transmitting economic status that come readily to mind, but just how important are they? Although there is little direct evidence, some information can be gleaned from Chart 2. If direct transfers are the main determinant of intergenerational income mobility, market incomes will be a lot more persistent intergenerationally than earnings. Total market income includes income from not only earnings but also assets (dividends, income from rental properties, capital gains or interest income). If parents transfer assets directly to their children 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

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for just earnings. Table 1 suggests that this is the case on average. Chart 2 reveals that market incomes tend in fact to be more persistent than earnings across generations, particularly among the very well off. The value of ß 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, 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 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.) For the majority of people, the pattern of intergenerational income mobility seems to be driven by the degree of intergenerational mobility of earnings.[10] Something more than inheritances is involved.

The other way in which families influence the adult economic status of their 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 the major vehicle. The models discussed by Becker (1991), Becker and Tomes (1986), and Mulligan (1997), among others, view parents as rational individuals who care not only about the welfare of the family at present but also about the future welfare of their children. The investments they make in the human capital of their children is determined by the expect-ed 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 for financial assets, then parents wishing to increase the adult incomes of their children are better to invest 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) to 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 on the resources available to the parents. Parents may not have the income to invest as much in the schooling of their child as they would like, particularly in the case of low-income parents of high-ability children. Such parents are unlikely to be able to borrow the needed funds from financial institutions. These children will be less intergenerationally mobile than those with equal ability but born to parents of sufficient means. The possibility that access to higher education will be limited by the financial resources of the family motivates a host of government policies. Loans, bursaries and low tuition fees have all been used by governments to lessen the possibility that capable children will be unable to attend post-secondary institutions because of income adequacy.

This model of the family might be used to explain the pattern observed in Chart 2 if it is assumed, as Grawe (2000) does, that the child's "ability" varies with parental income: the higher the income of the parent, the greater (to a certain point) the ability of the average child.[11] Over the lower half of the

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
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
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: Table entries are row percentages.

Source: Calculations by author from Statistics Canada, National Graduates Survey, various years.

income distribution, ß is rising not only 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 unable 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 intergenerational income elasticity and its divergence from 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. Such policies may have played a part in the rise of 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 ß 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 ß of half this value.[12] The second half of the 1990s witnessed significant changes in the financing of post-secondary education, some of which implied a higher tuition fee environment. The potential impact on intergenerational mobility, especially if the trend towards more mobility is halted or even reversed, is an important concern. At this point, 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 youths are being denied access to post-secondary education due to a lack of financial resources. Some studies, however, have related educational attainment with the parental characteristics of socio-economic status and education level. For example, Bouchard and Zhao (2000) find that the gap in university participation rates between children from high socio-economic levels and those from low and middle levels widened between 1986 and 1994. They relate this to substantial increases in tuition fees beginning

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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 selected years between 1982 and 1995.

For example, about 30 percent of the 1982 male graduating class had parents with less than secondary school education, while approximately the same fraction had parents with university degrees. By 1995 these proportions were, respectively, about 15 and 40 percent; far fewer university graduates had parents with the lowest levels of education, and many more had parents with the highest levels. The proportions for women are not much different. This can be partly explained by the fact that the population is becoming more educated in general, so that more and more people have a post-secondary degree to begin with. Canadian data that permit a direct comparison of post-secondary participation and parental income — as opposed to education or socio-economic status — are rare. Thus it is hard to directly determine whether financial difficulties limit educational attainment. Heckman (2000), however, interprets US research as implying that financial constraints are not the major reason why children from low-income families attend post-secondary institutions at much lower rates than children 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 US, the phenomenon of bright students being denied access to college because of credit constraints is an empirically unimportant phenomenon" (p. 17). This is not to deny that children from low-income families attend post-secondary institutions at a much lower rate, only to deny that the difference in atten-

dance rates is due to the difficulty in financing a post-secondary education. It is difficult to know the extent to which this research applies to "average" students as opposed to just "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 certainly no higher in Canada than in the United States, and financial support no less generous.

An alternative explanation relates to the second, perhaps more subtle, point made by the human capital interpretation of Chart 2, namely that "other" things also determine children's education levels and ultimate earnings capacity. Up to now, this has been referred to as "ability," under the assumption that it is somehow an inherent quality uninfluenced by family, though somehow — perhaps paradoxically — varying with family income. Certainly something more than just monetary investments matter in determining a child's ultimate well-being. 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 concerning their children's schooling and labour-market success and are able to make different non-monetary investments to achieve them. Heckman (2000), among others, suggests that parents who are more educated may have access to not only more financial resources to, but also other resources that will put their children on a path to better school performance early on. This increases their likelihood of attend-

ing 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, page 15)*

The point is that "ability" is something that can be instilled, and should be instilled early on because ability begets ability. Indeed, observers are increasingly making the case that early — indeed very early — childhood influences are central to long-term labour-market success.

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) and used as the underpinning for a number of policy proposals, most notably by McCain and Mustard (1999). Keating and Hertzman (1999) contains at least five messages: (1) there exist negative relationships (termed "gradients") 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 numeracy; (2) these relationships are causal, resulting from

a process whereby one's capacities are sculpted early in life by one's environment in ways that are long-lasting if not permanent; (3) social organization and policy can influence this process; (4) effective policy interventions, as well as ways of developing the political coalitions to support them, do exist and should be implemented to help children overcome the above disadvantages. 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 productivity of our economy is very much dependent upon the right investments being made in our children. Only if the right investments are made will we be flexible enough to meet the challenges and take advantage of the opportunities offered by technical change. Clearly, this is a far-reaching set of claims, extending from some contentious issues in positive science all the way to policy-making. The cornerstone of the story is the argument that the ultimate well-being of children is determined by the socio-economic status of their parents during their early years.

The idea is that the stimulation which infants and young children receive from their environment influences their neural development and will ultimately define the outer limits of their capabilities. Children raised in families at the high end of the socio-economic scale are more likely to be exposed to a stimulating environment and set upon an advantageous path in life with respect to health, cognitive development and social skills. Neural sculpting occurs at different times for different brain functions, but timing is important. If the brain does not receive the requisite environmental stimulation at certain critical periods, the window of oppor-

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tunity closes and development fails to occur. Interventions at a later time may not reverse the consequences. This process 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 set further constraints or present further opportunities. The series of steps that lead through important transitional periods in life, according to Keating and Hertzman (1999), look something like this: socio-economic circumstances early in life (and even during the prenatal 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, the circumstances under which a representative sample of individuals not only are raised as very young children, but function throughout their later childhood and even adulthood. A host of outcomes related to their adult well-being would have to be measured. The measures would include social and economic functioning since the thesis has to do ultimately with the links between investments in children and economic productivity. There is no one single comprehensive data set of this sort available for Canada. Indeed, the closest one could come relates to the information

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used in developing Chart 2 and Table 1. As Chart 2 suggests, there is no 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 intergenerationally mobile and unlikely to end up with low incomes. While this finding may be relevant for discussions on the impact of post-secondary education, it may be inappropriate as a test of "biological embedding," since the familial circumstances of the children are observed only once they have reached their teens, not in the early years.

More appropriate data do exist for some countries. The National Child Development Study is an ongoing British survey of all persons born during the first week of March 1958, and the Panel Survey of Income Dynamics is a US longitudinal survey begun in the late 1960s and early 1970s. Both of these, and some more specialized and smaller surveys, are referred to in a number of chapters of Keating and Hertzman (1999). However, the evidence — whether direct or cited from other studies — relating 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 US data.[13]

This is 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) takes this sort of simultaneity into account in using Canadian data to analyse the quality of parenting and

its impact on the emotional and conduct problems of young children. He points out that the role of income in this process can easily be overstated, and is led to conclude that ineffective parenting is independent of family socio-economic status when other mediating factors, such as parental depression, family dysfunction and parental age, are taken into account. Low-income parents, single parents and parents with low levels of education are no more likely than other parents to develop ineffective parenting styles.

While the appropriate policy design 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 necessarily target only parents who are socio-economically disadvantaged. Keating and Hertzman (1999) put forward an argument for universal programs of in-kind transfers to young children, with the caveat that attention be paid to the timing of the interventions. This argument is echoed in McCain and Mustard (1999).

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) with a loving, secure, yet stimulating environment, it could be used just as easily to support policies encouraging mothers to stay at home as to support the need for high-quality daycare if they choose to work full-time. It is not clear why the options discussed are exclusively related to the underlying theory, or why they would affect economic productivity decades into the future.

Indeed, there is once again a disappointingly small amount of solid evidence on the long-term outcomes of children, particularly labour-market outcomes. The most convincing evidence would involve the use of an experimental design comparing a group of children put through an early childhood intervention program to a control group. The two groups would be followed throughout their school years and into adulthood, and a host of outcomes — particularly those related to labour market — would be measured. Information of this sort is hard to come by, and no large-scale studies have been done in Canada. Currie (2000) offers a survey of the American experience with early childhood intervention programs, paying particular attention to studies that used an experimental design employing randomly determined treatment and control groups.

Currie (2000) points out that some ideal trial programs have indeed had positive long-term results. The program most often cited in this regard is the Perry Preschool Project, which consisted of a half day of preschool every weekday and a 90-minute home visit every week for eight months a year over two years. Evaluation involved a randomized trial that followed the children to the age of 27. There was a total of 120 children, about half in the control group and half in the treatment group. The control group had better health and test scores, as well as better grades, high school graduation rates and earnings. They also had lower crime rates and lower rates for welfare use.

While Currie (2000) stresses that many programs have been studied, the interventions most likely to lead to significant results are the intensive and expensive ones. Aside from the fact that the number of children in

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the Perry Preschool evaluation was very small, there may be many other reasons for exercising caution in extrapolating its results to the Canadian environment. Given Canada's higher level of social spending and support, particularly in the health domain, changes in early childhood investment will have less impact. Currie also cautions that there may be a significant difference between an ideal pilot project (one that is well-funded and structured) and a large-scale, publicly funded program. Her review of the Head Start program in the United States is a case in point.

Head Start is a preschool program for three- and four-year-old disadvantaged children that promotes readiness to learn. Roughly 800,000 children participate in its part-day programs. In reviewing the evaluations of this intervention, Currie suggests that it has indeed led to short-term improvements in health, verbal skills and perhaps social skills but that these do not necessarily translate into long-term improvements. Initial gains in vocabulary and reading test scores are maintained only if the child goes on to attend a high-quality elementary school; for a child who does not, the 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, following the 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" (Currie 2000, p. 15).

In sum, the non-monetary investments made by parents may have an important role to play in setting their children on a path to labour-market success, and this role may be only loosely related to parental income. However, it is still difficult to gauge the extent to which this relationship, and for that matter government interventions intended to foster or supplement it, lead to labour-market success for these children in adulthood.

CONCLUSIONS

The Canadian labour market is characterized by a good deal of intergenerational income mobility. On average, parental and child incomes are only loosely tied. Indeed Canada compares well internationally in this regard, being characterized by much more mobility than the United States or the United Kingdom and on a par with some of the most mobile nations. However, the relationship between family income and child income is not a simple one. The evidence that does exist suggests that children from low-income families are not destined to become low-income adults: indeed there is little relationship between their parents' position in the income distribution and their own. 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, largely because of 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 the generation of teenagers coming of age during the 1980s and active in the labour market during the 1990s. It is difficult to say

whether there has been a change since that time, but there appears to have been a long-term trend over the post-war period towards increased intergenerational mobility. The causes of these patterns are difficult to establish, but any explanation must include the accessibility of post-secondary education and the influence of non-monetary investments in children made by families and society. The significant expansion of post-secondary institutions and the financial support that assured access to them by generations coming of age in the late 1960s and subsequently are coincident with an increase in intergenerational mobility. There seems to be no 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 higher tuition fees the 1990s, but available Canadian data do not permit determination of whether this is the case or what the consequences for intergenerational mobility might be. It does appear 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 decrease in 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 its impact on their development and long-term outcomes. There is still a good deal of uncertainty about how this process plays out, particularly with respect to long-term economic outcomes and the role of family income. Recent research seems to suggest that when other important mediators of parent-child inter-action — parental depression, family dysfunction, parental age — are taken into account, income levels have little independent influence on parenting styles or child emotional and conduct problems. Even so, the extent to which short-term disadvantage translates into inferior labour-market outcomes is an open question. Equally unresolved is 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 one that says 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.

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NOTES

1   This paragraph is drawn from Solon (1999, p. 1762).

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.

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 e is ignored. This implies that the ratio of incomes for children from high-income *(H)* and low-income *(L)* 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 ß power.

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

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 life cycle. 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.

8 One important caveat has to do with the focus on just fathers and sons. The results are based on data that exclude children raised by single mothers, and should in a sense be thought of as 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.

10 This suggestion seems also be in accord with the literature surveyed by Stokey (1996) for the United States, which deals with direct evidence on the prevalence of inheritances.

11 See Grawe (2001) for a clear exposition.

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.

13 A stronger case, however, seems to be made for the relationship between socio-economic status early in life and longevity. 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 preschool years, literacy and numeracy in the primary years, and physical aggression in the early teens. Some work using UK 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).

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