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Labour Markets, Social Institutions, and the Future of Canada's Children

Edited by
Miles Corak

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Preface and Acknowledgements

The contributors to this book examine two broad themes related to the well-being of Canadian youth. First, they document the nature of the labour market facing young adults and how it has changed since the early 1970s. Second, the authors examine how families, communities, and the public sector influence some of the ways in which children become successful and self-reliant adults. The motivation for bringing these essays together has to do with the increasing importance of child well-being in public discourse and the development of public policy.

It is a truism to say that good analysis requires good data, and certainly Statistics Canada's role is to offer high-quality data in support of analysis and decision making. But the opposite is equally true, if not as obvious: good data requires good analysis. That is to say, new analytical developments often highlight the need to organize existing data in different ways, as well as the need for the development of new data. This is certainly one of several reasons that Statistics Canada has sought to develop a strong analytical capacity, and to maintain strong ties with the research community.

This book contributes to this process in a number of ways. The approaches to analysis vary tremendously: some chapters are purely descriptive pieces, others adopt a variety of methods and analytical perspectives including economics, demography, sociology, and behavioural psychology. In all cases the authors push the available data to their limits, organize existing data in innovative ways, and even create and use entirely new data sources. But the book is also meant to contribute to the public policy process in what is an area of increasing importance. The intention is to offer policy makers, and Canadians at large, access to some of the most recent findings on the long term determinants of child well-being, highlighting the role of the family, community, and the state.

A companion volume also published in 1998 by Statistics Canada called *Government Finances and Generational Equity* examines the operation of government taxes and transfers from a generational perspective, focusing on the conduct of fiscal policy and the relative status of individuals in successive generations. Both books are based upon papers presented at a conference held at Statistics Canada in February 1997. Funding for the conference was obtained from the Analytical Studies Branch of Statistics Canada, and the Applied Research Branch of Human Resources Canada. I would like to thank Stewart Wells of Statistics Canada and Allen Zeesman of Human Resources Development Canada for acting as co-sponsors. The conference represented an important first step in the process of reviewing and revising the papers for publication, and I would also like to thank the group of people who acted either as chairpersons, commentators, or referees: Bob Baldwin, Roderic Beaujot, Geoff Dougherty, Chris Ferrall, Jane Gentleman, David Gray, Ronald Hirshhorn, Guy Lacroix, Jim Lahey, Paul Lanoie, Dean Lillard, Huw Lloyd-Ellis, Mike McCracken, Susan McDaniel, Alice Nakamura, Lars Osberg, James Pesando, Suzanne Peters, Robin Rowley, William Scarth, Andrew Sharpe, Jean-Pierre Voyer, Ted Wannell, Brian Ward, Ging Wong, Allen Zeesman, and David Zimmerman. In addition, I would also like to thank Charles Beach, John Helliwell, and Shelley Phipps for participating in a session at the 1998 meetings of the Canadian Economics Association at which some of the chapters were presented and discussed, and to acknowledge comments and suggestions made by Philip Cross, Susan McDaniel, and John Myles on a first draft of Chapter 1. At the same time it should be noted that the views expressed in this publication are those of the authors, and should not be interpreted as representing the official positions of either Statistics Canada or Human Resources Development Canada.

The organization of the conference and the publication of this book owes much to Valerie Thibault. I would like to thank her and Francine Simoneau, who were together responsible for the layout and design of the publication. Thanks also goes to Suzanne David, who did the French editing with great efficiency. Other members of the team contributing to this publication include staff from the Dissemination Division, and Agnes Thompson of Communications Division who helped organize the conference.

Miles Corak

Statistics Canada

Foreward

ARTHUR KROEGER

What particularly stands out upon reading the chapters of this book and its companion volume is the extent of the changes that have taken place in Canada in recent decades, and that are still in train. Some of these changes are good news, but many are not. What is particularly sobering is the evidence that, some thirty years after Mr. Pearson's government finished putting in place the main elements of our social programs, many social problems persist. Very large expenditures by governments have had mixed results, and in some areas we are losing rather than gaining ground.

It is clear that in the past decade or so the pre-retirement cohort have sustained a number of reductions in the transfers that benefit them such as unemployment insurance, in addition to which governments have imposed a series of increases in taxation. The post-retirement cohort, on the other hand, have so far been left largely unscathed, and some of their benefits have increased as a result of indexation. However, the primary cause of the shift in the balance between the two groups is not excessively generous treatment of the elderly or any other action on the part of governments. Rather, it is the result of a number of trends in labour markets and the global economy which have worked to the detriment of the pre-retirement cohort.

This is not to say that actions, and in some cases inaction, by governments have been unimportant. We are all aware of the enormous public debts that have been built up through some two decades of deficit financing. Also well known are various major unfunded liabilities in programs such as Ontario Workers' Compensation, and the looming problems of financing the Canada/ Quebec Pension Plan in the next century. All of these represent significant burdens that will have to be borne in one degree or another by future generations.

There are, however, several reassuring features about our current intergenerational problems. First, they are not in themselves particularly complex. Given sufficient political will, the solutions to them are relatively easy to discern. The same is not true of some other contemporary problems such as unemployment.

Secondly, it has been demonstrated in the recent past that intergenerational problems are not so politically potent that no one dares deal with them. Witness, for example, the fact that seven provinces have balanced their budgets in recent years and some have now begun paying down their accumulated debt. They have also been joined by the federal government. In addition, the 1996 federal budget unveiled a set of measures to re-shape the Old Age Security program and to target resources on the elderly who are most in need. Most recently, we have seen the agreement by Ottawa and eight of the provinces to accelerate the schedule of Canada Pension Plan premium increases, so that those who are now in their forties and fifties will be required to make a greater contribution to the costs of the pensions they will draw in their seventies. Each of these measures has generated a certain amount of controversy, but what we have seen to date is far short of being a political firestorm.

In assessing intergenerational equity, it is important to take account of private as well as governmental transfers. It is basic to most societies that parents support their children, and many in Canada continue to do so until quite late in life. Raising a family is not commonly thought of as a zero sum game, in which children upon reaching maturity spend amounts on their parents equal to what had been spent on them. In most cases, the private transfers that parents make to their children over a lifetime exceed what they receive in return. Moreover, these transfers are

in many cases not offset by the sum of the transfers the elderly receive from governments over a lifetime.

The virtual abolition of extreme poverty among elderly through government transfers should be regarded as a major success of Canadian social policy, and not as a contemporary problem. This is not to say that some adjustments to current programs such as those referred to above were not called for. However, the difficulties currently being experienced by the pre-retirement cohort are not primarily due to the benefits extended to the elderly, and would be only marginally alleviated even if these benefits were taken back to, say, 1950s levels. Today's adverse social trends need to be addressed in their own right, to the extent that governments can find effective means of dealing with them.

The principal constraints on most governments today are fiscal, and they are particularly acute because of efforts across the country to bring expenditures into line with revenues. In most jurisdictions, a successful end to this painful process is now in sight, but in the near term governments are going to have only limited resources at their disposal. Views are divided on the subject of deficit reduction programs, and will no doubt continue to be so. However, one of the more compelling reasons for reducing government borrowing is to arrest the growth of debt charges in relation to government revenues, and thereby leave more resources to meet program needs in the medium term.

When I was a Treasury Board official in the mid-1970s, debt service payments claimed approximately 12% of revenues. If federal governments had kept this ratio constant, that is if they had not allowed their borrowing to grow faster than their revenues over the ensuing decades, public debt charges would be some $30 billion lower than they are today. There is much room for speculation on what a government could do with an extra $30 billion per year, whether to reduce taxes, to meet program needs, or to effect some combination of the two. However, one can at least take comfort from the prospect that this figure is now unlikely to grow to $40, $50 or $60 billion in future years.

A number of important trends are documented in the chapters of this book. Incomes are becoming more polarized, there is a pervasive sense of insecurity in the labour force, social mobility is still well short of what would be desirable, and a growing underclass is increasingly dependent on government programs. Substantial questions are now before us about the future prospects of the millions in our population who are ill educated and lacking in skills. This group has been particularly hard hit by forces such as rapid technological change and extensive re-structuring of industry. In addition, there is growing public concern about growing inequality, as the incomes of a small group at the top of the scale increase rapidly while those of the bulk of the population continue to stagnate.

There is also some good news to be found in the following chapters. Literacy has increased sharply, and a far higher proportion of young people are now studying full time than was the case 15 or 20 years ago. Some 61% of young people are achieving levels of education higher than their fathers, and in the case of young women, the figure is 65%. The latter is especially good news. The fact that women are now a substantial majority in the post-secondary education system foreshadows an end to one of the longest standing inequities, which is the status that women have historically held in society.

Overall, however, the picture of contemporary trends is far from reassuring. Some of the social issues documented in these chapters lend themselves to financial remedies. Examples include transfer programs to benefit low-income families, and support to the educational system on a scale sufficient to ensure that it will be accessible to students of limited means. As governments progressively bring their fiscal systems into balance, fields such as these will be important claimants on the additional resources that will become available through economic growth in future years. There are, however, some very important issues that cannot be dealt with simply by the application of money. Examples include inadequate use of preventive measures in the health field by low-income groups, the impact on children of family break-ups, and the growth of single parent families.

Of all the issues currently facing policy makers none has more stubbornly resisted resolution than unemployment and the polarization of incomes in the labour force. The traditional approach of governments to employment has been to treat it as a by-product of sound economic management, and then to apply supplementary measures of one kind and another to directly encourage job creation. Today,

there is pervasive evidence that these measures are not producing the results hoped for.

Among the most widely remarked phenomena are persistent high unemployment, a stagnation in real incomes since the 1970s, a sharp decline in the incomes of young people, and growing dependence on transfer programs by those in lower paid, unskilled jobs. The growth in two-income earner families, and a general increase in levels of education, have mitigated but have been unable to fully offset trends of this kind.

Adverse developments in the economy and in labour markets have been a major factor in generating the debate about intergenerational equity. The issue, however, is not that the elderly, viewed overall, are receiving too much, but that many of the young are having an increasingly difficult time. What has taken place is in effect a reversal of the traditional North American paradigm, in which each generation was expected to attain higher income levels than its predecessor, with a concomitant growth in overall social well-being.

Whether this situation will be permanent or is merely transitory is a matter of much debate. There is no shortage of economists who hold that all will come right in the future. The fact that some have been saying this for many years does not mean they will not be proven right this time. But in the meantime governments are faced with serious problems.

Unfortunately, policy makers are largely at a loss to know what actions to take. They are short of money. They are also constrained from many forms of intervention by international trade agreements and the high mobility of capital. Aggressive measures to redress growing inequalities in incomes, for example, carry a risk that they will drive investment out of the country.

Most fundamental of all is the problem that there is today no agreed diagnosis of what has caused the various adverse trends affecting the labour force. There are any number of competing theories, about unemployment, polarization, and slow economic growth, but there is no broadly accepted body of analysis that could provide governments with a basis for confident action. The past two decades have provided more than a little evidence that budget deficits are not the answer to unemployment. Similarly, the limitations of measures such as industrial development grants and regional development programs are now well known, while multi-billion make-work programs are now simply unaffordable. All of this leaves governments in a quandary. They are under pressure from the public to deal with unemployment, but while they recognize the need to “do something,” it is far from clear what that “something” should be. The answer to this question will not be found tomorrow.

And this brings me to my final point. There has perhaps never been a time when governments were more in need of careful assessments and creative applications of data to assist them in dealing with complex and demanding social issues. Of these issues, inter-generational equity is one, but only one. For the foreseeable future, governments with their heavy burdens of debt will have only limited resources at their disposal. If they are to make effective use of their limited resources, they are going to need the best advice they can possibly get. And the basis for such advice is the kind of analysis that is presented in this book.

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Chapter 1

Introduction

Miles Corak

The well-being of children touches many dimensions of public policy, and has in fact risen higher and higher on the agenda of all governments. Indeed, it is increasingly a matter for all Canadians for at least two reasons. The first has to do with the fact that labour markets over the course of the last two decades have changed dramatically in ways that are generally perceived to be detrimental to the young. It is often suggested that we are witnessing, for the first time in generations, the coming of age of a group that cannot expect to attain a higher standard of living than their parents. The second reason has to do with a concern for the children of this generation, since it is often assumed that experiencing low income as a child may predispose individuals to a lifetime of low income.

The research summarized in the chapters of this book sheds light on these two themes: how changes in labour markets affect the standard of living of families with children; and how social institutions that redistribute income and well-being intergenerationally operate to ultimately determine the long-term status of children. Just how have younger cohorts fared relative to other groups in what appears to be a more turbulent labour market? To what extent, and how, have their families and public institutions supported them? Have people from well to do families fared better? Those from lower income families worse? More generally, how are economic and social status transmitted between parents and their children? Is the labour market a rigidly stratified market in which higher income parents pass their economic status on to their offspring, and in which those from lower income families are trapped in a cycle of low-income? Or is there a great deal of fluidity, rewarding individual ability and motivation regardless of social and economic background? Besides income, what other aspects of a child's background are important in this process, and what role do income transfers, and the education and health care systems play?

It is surprisingly difficult to find definitive answers to these questions, yet they are central to the formation of government policy. The objective of this book is to contribute to this search, to highlight some of the important information gaps, and to foreshadow some of the directions statistical agencies and policy makers might consider exploring. The major message to emerge is that the future of Canada's children is both a good news, and a bad news story. Labour markets have changed dramatically, and on average it is now more difficult to obtain a strong foothold that will lead to increasing prosperity. Many young Canadians, however, are well prepared by their family and community backgrounds to deal with these new challenges, and as young parents are in a position to pass this heritage on to their children. However, this has not been the case for an increasingly larger minority, a group whose children in turn may face greater than average challenges in getting ahead in life.

1. Overview

The authors of Chapters 2, 3 and 10 chart the degree of turbulence in labour markets, and how Canadians, particularly the young, have responded to these changes. In Chapter 2, Picot, Myles and Pyper document developments in the economic status of four generations since the early 1970s: children, young adults, the older working age population, and the elderly. Their analysis paints a broad picture of developments across generational lines, and offers an overview of the relative standing of children. How has the labour market treated each of these groups? And how have they coped with the changes in recent decades? The authors answer these questions by examining trends in low-income, and illustrating the degree to which social transfers have

buffered each of the groups from labour market turbulence. They also examine how families have adapted to these changes, the degree to which these responses have reduced the risk of low-income, and the extent to which they can continue to reduce this risk in the future.

Morissette focuses on the declining labour market status of young men in Chapter 3, examining trends in employment, earnings, wage rates, and the resulting chances of escaping low-income. Among other things he undertakes a detailed cohort analysis that contrasts the experience of men of various ages who came on to the labour market in the mid-1980s with those in similar age groupings who came on to the market in the mid-1970s. By following these respective cohorts for a period of up to ten years he is able to determine the extent to which the life-time earnings trajectory has changed in a permanent way. He also examines the length of time these groups can expect to spend in low-income.

Meunier, Bernard, and Boisjoly present in Chapter 10 a complementary study that deals with three related aspects of the living arrangements of the young: housing and cohabitation; schooling; and work patterns. Paying particular attention to the changes that took place during the 1980s, they assess the extent to which moving away from home is delayed, the extent to which the transition to independence is characterized by a host of other changes, and the differences between young men and women.

The labour market outcomes of the young are related to their family background in Chapters 4 and 5. This research assesses the degree of equality of opportunity in the labour market during these turbulent times. To what degree and how have the young been prepared to become self-sufficient and successful adults? Will past and present inequalities be transferred to the next generation? Or, to put the issue in the way that Fortin and Lefebvre do in the opening sentences of Chapter 4, “Will the children of high income families achieve equally high income? Will the children of low income families become low income adults?”

Fortin and Lefebvre’s objective is to accurately estimate the correlation between the incomes of adults and the incomes of the families they were raised in. Their focus is on father-son and father-daughter income correlations, and how they have changed through time. They also offer some evidence on how both of these correlations vary across the income distribution by tabulating what fraction of individuals raised in low-income families go on to have low-income as adults, and conversely what fraction of individuals raised by upper income families remain at the top of the income distribution in the next generation.

Corak and Heisz develop this theme further in Chapter 5. While concerned with the degree to which being raised in a low-income family may permanently scar children, they also address the extent to which low-income *per se* contributes to disadvantage, or is a reflection of other underlying factors. They do this by examining three broad factors influencing labour market outcomes of children: the amount and composition of the father’s income; the characteristics of the neighbourhood; and the structure of the family.

These two chapters are broad overviews of intergenerational relationships, but they do not address the underlying processes in full detail. They might also be considered to apply to a best case situation: families in which the father is present. The remaining analysis, Chapters 6 through 9, attempts to fill in some of the details and omissions by examining just how families and communities prepare children for adulthood, and what role income plays in this process. The authors of Chapter 6 deal with the relationship between parental separation and divorce and the marital and fertility decisions of children; those of Chapter 7 examine how income and lone parenthood are related to psychiatric and social problems among children; in Chapter 8 the education of parents and the parenting strategies they adopt are related to the educational decisions of their children; and in Chapter 9 the authors assess the degree to which maternal education and family income influence the health care received by infants.

Le Bourdais and Marcil-Gratton in Chapter 6 note that the long-term economic well-being of children is related not only to how much income their parents had to raise them, but also the social attitudes that they passed on. In particular, they note that the current generation of youths are the first to be raised in an era of less stringent attitudes and legislation towards divorce, and contrast the marital decisions of children whose parents divorced or separated with those whose family environment was stable. Do the children of divorced parents have a higher likelihood of experiencing marital instability in their turn? Do they have a greater tendency to forego marriage altogether and prefer cohabitation? Do they bear

more children at a young age? Given that the risk of low-income among children is strongly related to lone-parenthood, their study helps to pin down the extent to which young Canadians may be predisposed to raising children in economically deprived circumstances as a result of their inherited "social capital."

With this in mind, Chapter 7 explores the potential impact of lone-parenthood on the well-being of young children. Dooley, Curtis, Lipman, and Feeny examine a host of important behaviours reflecting that children get a troubled start in life. These are grouped into three broad categories: psychiatric disorders, poor school performance, and social problems. They assess the relative role played by lone-parenthood and family income in the onset of these problems, and the degree to which higher income compensates for the absence of a parent. Their data also permit a limited assessment of the change in the incidence of the various behavioural problems from the early 1980s to the early 1990s.

The background and child rearing strategies of parents come under further scrutiny in Chapter 8 by de Broucker and Lavallée who examine the educational outcomes of the young as a function of their family background. Since educational attainment is an important determinant of economic and social standing, the authors examine the relative influence of parents and the educational system in determining the schooling obtained by both a recent and an older cohort of men and women. Among other things they are able to relate the education of these groups not only to the education levels of their parents, but also to a host of parenting strategies dealing with educational support.

In Chapter 9 infant health during the first year of life is examined by Knighton, Houle, Berthelot, and Mustard who focus on the relative roles of family income and maternal education in how newborns are treated by the medical system, the type of care they receive, and the cost implications. Their analysis is based upon a unique data set that links socio-economic information from the Census to the medical history of a group of newborns in Manitoba during the mid-1980s. Since the first few years of life are often considered crucial to the development of children this study is important because it illustrates the relationship between parental socio-economic status and the type of care newborns receive.

Using the findings of the research in Chapters 2 through 10, Chapter 11 contains two contributions, one by Susan McDaniel and another by Bob Baldwin, that outline the implications for policy makers, the information gaps that remain, and that offer some directions for future research.

2. Major Findings

Labour market conditions have deteriorated for the young, particularly men, with the result that a much higher proportion are now part of the so-called "contingent" workforce. Their earnings capacity seems to have permanently deteriorated during the 1980s.

Fewer young men participate in the labour market; fewer are employed; and a greater proportion are unemployed. In fact, over one-third of men aged 17 to 24 can be classified as belonging to the contingent workforce: either unemployed, employed involuntarily part-time, or holding non-permanent employment. Even the types of jobs held by full-time workers has changed. They are now more prevalent in lower-paid sectors like consumer services rather than in manufacturing and the public service. Up to 30% of young men in 1981 worked full-time in manufacturing; by 1995 this was down to 23%. The numbers are almost reversed in consumer services: 23% worked in this sector in 1981, but 33% in 1995. Further, the fraction of full-time workers in union jobs has fallen by half (from 33% to 15% between 1981 and 1995).

The upshot of all of this is that young men (working full-time, and year round) earned in 1994 the same as their counterparts in 1969 (in real terms). In contrast, 45 to 54 year olds are earning over 30% more than their counterparts of 25 years ago. The earnings capacity of young men grew during the early to mid-1970s, began to deteriorate afterward, dropped tremendously during the 1981-82 recession, with no recovery since. (See Figure 3.1 in Chapter 3.) Young men coming onto the labour market between 1984 and 1993 earned almost 11% less over this period than young men in the previous decade; in contrast, 35 to 44 year olds earned about 4% more (Table 3.7). These changes reflect a pervasive decline in the earnings capacity of the young regardless of industry, occupation, union status, and even the prevailing macro-economic climate (that is higher overall unemployment rates). Even if unemployment had been the same, youths in the 1980s would have started their

careers with earnings that were almost 20% lower than their counterparts ten years earlier. In essence, there has been a permanent deterioration in the earnings capacity of young men.

This has raised the risk that they and their children will fall into a state of low-income.

The rate of low-income, based entirely upon market sources, among families with children 14 years of age or younger was 20% up to about the early 1980s, but rose to over 25% by the mid-1990s. At the same time individuals over the age of 45 experienced no changes in the chances that they would obtain low market incomes (Figure 2.1).

Government transfers went a long way in preventing the higher risk of low market incomes from being transferred into low family incomes.

Even though the labour market earnings of families with young children fell during the 1980s and early 1990s, total family income—because of a substantial rise in the contribution of government transfers—did not. The labour market was the source of about 65% of total family income in the early 1970s, but about 30% in the mid-1990s. At the same time, transfers made up less than 40% of total family income in 1973, but over 60% by the mid-1990s. As a result low-income rates after taxes and transfers have remained essentially constant at about 15%. (See Figures 2.1 and 2.2.)

Another important factor shielding children from low-income has to do with changes in the marital and fertility behaviour of young adults, but by the late 1980s or early 1990s this buffer had reached its limit.

Throughout the 1970s and 1980s young people put off marriage and childbearing, and increased their earning power by obtaining more education. In addition, women entered the labour market in ever greater numbers and the number of two-earner couples rose. A related strategy to cope has been an increased tendency to remain or return to the parental home. For example, in 1981 about 26% of 23 and 24 year olds lived with their parents, while in 1990, 40% did so. Furthermore, those who left home were less likely to be living as couples. To cite one example from Chapter 10, almost 55% of 21 and 22 year olds who were not living with their parents lived as couples in 1981, but only 39% did so in 1990 (Table 10.2). Part of the reason has to do with the rising number of young who spend most of their time in schooling, up over 13% during the 1980s. In short, the living arrangements of young adults changed dramatically.

These changes have helped to contain the rate of low-income among children. However, in contrast to the 1970s and 1980s, changes in demographic and labour supply behaviour during the 1990s have actually exacerbated the risk of falling into low-income. For example, the proportion of children in families of three or more children fell from 48% in 1973 to about 30% in 1988, but has changed little since then; the proportion of children in households with at least one parent holding a university degree more than doubled from 8.3% in 1973 to about 18% in 1988, but has not changed since; finally, the proportion of children in two parent/two earner families went from 47% in 1973 to over 66% in 1988, but fell to 63% in 1995 (Table 2.1). Indeed, a growing number of children live in households that are less able to cope. While only 4.6% of children under the age of 14 lived in lone-parent households in 1973, this proportion rose steadily to reach almost 13% during the mid-1990s. Those people who could adapt to turbulent labour markets did so—either by putting off marriage, staying in their parental homes longer, attaining higher education, or by having a partner not previously working enter the labour market. But at the same time for others who could not cope or in which the stress of doing so proved too great, relationships either broke up or failed to form in a lasting way, with the result that the incidence of lone parenthood and low-income rose. As Picot, Myles and Pyper state, "future gains in reducing low-income among children will depend mainly on improved earnings opportunities for their parents…and/or improved social transfers" (Chapter 2, p. 20).

The labour market outcomes of the young are only loosely tied to the incomes of the families they were raised in. Much more than money matters in determining how children get ahead in life.

In fact, the Canadian labour market seems to be characterized by more intergenerational mobility than that of the US or UK. Fortin and Lefebvre find that the correlation between father and son incomes is less than 0.2; between fathers and daughters it is slightly higher, but in all cases the correlations are considerably lower than the generally reported figure of 0.4 for the US and UK. In this sense, Canada is more like continental Europe than the Anglo-American economies. The tie to parental income is even looser for the cohort

born after 1955, the period corresponding to the expansion of the welfare state and the development of a universally accessible post-secondary system (Table 4.4). More specifically, those born to fathers at the bottom of the income distribution are slightly more likely to attain middle income than to remain in the bottom. Those born to fathers in the top of the income distribution, however, are most likely to remain in the top.

In fact, the composition of the father's income, not just the amount, has an influence on child outcomes. Market sources of income—earnings, self-employment income, and asset income—are positively associated with the eventual incomes of their children. Non-market sources, such as unemployment insurance and other transfers, either are not, or are negatively related, to child outcomes (Tables 5.3 and 5.4). The fact that a dollar of parental income has different consequences for children depending upon how it was obtained may be a signal that other unobserved attributes of the family are important. In addition, Corak and Heisz find that neighbourhoods, peer groups, or in general the networks available to parents are important indicators of child outcomes. An often used measure of this "social capital" inherited by children, the number of residential moves experienced during the early teen years, is strongly associated with their adult incomes. Children who move two or more times over a five year period, and hence have less of a chance to develop their "social capital," are much less successful in the labour market than their counterparts from families with an equivalent overall income level, but who did not move (Figure 5.3). Picking up on a theme raised in Mayer (1997) the authors suggest that if "factors other than low income are the true influences on a child's future prospects, then a policy thrust involving more than simply transferring money to parents is in order." (Chapter 5, page 65.)

A widely-accessible and high-quality education system certainly plays a role in determining the large degree of intergenerational income mobility for the young. But even so, the educational and occupational background of parents are equally important in how children access the resources society makes available to them.

There has been substantial upward educational mobility, with over 50% of Canadians having more education than their parents and only 17% having less (Table 8.2). Nevertheless, the probability of attaining a post-secondary education varies significantly with parental education. Those whose parents had a post-secondary degree or diploma have about a 56% chance of also getting one; those whose parents received only secondary education have about a 40% chance; and those whose parents did not complete a secondary degree have only a 22% chance of attaining post-secondary status.

These patterns are the same for the generation just completing their education as they are for the generation who completed their education before widely accessible post-secondary institutions were put into place. The one exception to this was the young of highly educated parents, who are even more likely to go on to get post-secondary qualifications than their older counterparts (almost 70% do so, compared with about 60% of the older group). See Figure 8.1. This pattern is even more marked for those whose parents had university degrees. In fact, this is increasingly the case, and implies that access to post-secondary degrees is becoming more polarized.

In addition, the authors of Chapter 9 find that maternal education plays an important role in how infants start life. Almost 80% of mothers with the least education experienced short gestation periods: over 60% gave birth to low weight babies, versus less than 40% of mothers with the highest education (Table 9.1). Furthermore, infants born to mothers with low education are much more likely to receive treatment care services during the first year of life, and less likely to receive preventative care services. The latter is often considered to be an important key to long-term health, and as such the children of these parents are at higher risk of poor health. In fact, their hospital admission rates are almost twice as high as those for better educated groups, while ambulatory preventative care rates are only 60% those of other groups. As in the case of the post-secondary education system, access and delivery of health care services of most long-term benefit to children is skewed toward those with better educated parents. Maternal education seems to be the important determinant of how health care is accessed; household income levels do not seem to be as important (Table 9.3).

However, an important limitation of the research in Chapter 9 is that lone-parent status is not simultaneously controlled. Maternal education may be a proxy for lone-parenthood. Indeed, this general limitation applies to all of these studies, including Chapters 4 and 5.

Lone parenthood seems to be a very important correlate of how children get a start in life, and it may be that it cannot be compensated for by higher household incomes.

About 43% of children who are raised in low-income lone-mother families experience at least some psychiatric disorders, or schooling and social problems, versus only 24% of those in a similar income situation but living with both parents. Higher income seems to only partially compensate for the absence of a father, as the incidence of at least one of these problems is 32% among children in lone-mother families above the low-income cutoff. In addition, the rate for children in low-income two-parent families is almost the same as for their counterparts above the low-income cutoff: 24% versus 20% (Table 7.1).

In this regard it is important to note that two-thirds of the children in lone-mother families live below the low-income cutoff, while only 15% of those in two-parent families do so. Lone-mothers also tend to have lower levels of education, and to be younger than their counterparts. Despite these differences it seems that children from lone-mother families face a higher risk of psychiatric disorders—be it hyperactivity, conduct disorder, or emotional disorder—regardless of family income, and other variables. The mother's education level, for example, does not seem to make a major difference, but having a young mother does raise the incidence of these problems, which also tends to be higher for boys than for girls. The probability on average of experiencing one of these problems is about 15%, but rises to 25% for those from lone-mother families (holding all other things constant). Changes in the family income from below to above the low-income cutoff has no discernable impact (Table 7.3). The same conclusion applies to schooling problems (repeating a grade, poor performance, or frequent social problems). The risk of one or more of these problems is 20% for a representative child from a two-parent family, but 34% for a child with similar characteristics but from a lone-mother family.

The authors of Chapter 7 suggest that there may also have been a tendency for the risk of psychiatric problems among children to increase between 1983 and 1993, but their most important overall conclusion is "that lone-mother status is the variable most consistently and significantly associated with … psychiatric, schooling and social outcomes." (Chapter 7, page 116.)

Familial instability echoes through the generations. Young adults whose parents went through a separation or a divorce have in turn higher rates of family instability, and are more likely to be lone-parents.

Parental separation and divorce may have long-lasting impacts on family formation patterns in the next generation. Le Bourdais and Marcil-Gratton summarize the major findings of Chapter 6 by saying that "parental separation or divorce tends to be positively related to the likelihood that offspring will experience cohabitation while decreasing the chances of directly marrying. It also tends to be related to early, pre-union or premarital childbearing among young women, and to increases in the risk of union dissolution, at least for married men." (Chapter 6, page 91.) For example, after controlling for a host of other characteristics the probability of cohabitation before the age of 25 is more than 70% higher among young adults whose parents were separated or divorced, while the probability of marriage is significantly lower (particularly among women, where the rate is 40% lower). In addition, women who experienced the separation or divorce of their parents are almost two times as likely to give birth to a child before their 20th birthday than those from intact families. They are also almost twice as likely to be lone-mothers (Table 6.2).

The process leading to these outcomes may be complex. In particular, it is likely that familial instability may influence a girl's education attainment, which in turn directly influences the chances of lone-motherhood. Finally, marriages that do occur are more likely to break-up if there is a history of separation or divorce. This is particularly so among men, who are about three times more likely to see their marriages fall apart if they also experienced the breakup of their parents' marriage (Table 6.3).

3. A Synthesis and Directions for Future Research

One possible synthesis consistent with these eight findings would begin by recognizing that three fundamental institutions determine the well-being of children, and their preparedness for adult life: the market, the state, and the family. The scope and role of these institutions has changed dramatically over the course of the last two decades, and some of these changes seem to have been triggered by important labour market developments. In particular, labour markets

changed during the 1980s such that the permanent income of the young and especially young men declined on average by as much as 10%.

Unlike in the United States, government income transfers insulated Canadian children from the worst aspects of these adverse labour market developments to the point that the incidence of low-income among children in Canada did not increase.[1] Other government institutions were also important. A widely accessible and high quality system of higher education permitted many young people to increase their credentials. Indeed, the labour market was characterized by a good deal of equality of opportunity despite many other changes. While young adults from the highest income families were most likely to fare the best, those from the lowest income families were still more likely to move up the income ladder than stay at the bottom. Overall, the correlation between income and family background is relatively weak, consistent with a labour market in which individuals are paid according to their skills and motivation. However, since the underlying labour market changes were long-lasting, budget deficits at all levels of government rose to levels deemed to be unsustainable.

The family also played an important role in supporting young adults. The most obvious example of an increased intergenerational transfer from parents to children was the tendency of young adults to spend a longer time at home. Family formation among the young was also changing in other important ways. Living with parents went hand in hand with staying longer in school, delayed coupled formation, and declining fertility. All of this, however, represents the best case scenario: young people most likely to have followed this path tended to come from intact families and families with highly educated parents.

In contrast, individuals whose parents had separated or divorced were more prone to cohabitate, have children out of wedlock, or if they did marry, to face a greater risk of a breakup. Further, they were more prone to have behavioural and schooling problems, particularly the boys. Young adults were more likely to earn lower incomes if: they had experienced frequent residential moves (and by implication school changes); their parents either had lower levels of education or did not adopt the best parenting strategies or attitudes; and if their parents relied on non-market sources of income. Obviously, all of these risk factors are higher for those from families with divorced or separated parents. Coming onto a more hostile labour market with a social capital endowment of this kind implies a greater likelihood of having low income, and less of a tendency to respond by getting more education, or by putting off childbearing. With lower incomes among men and with the greater need to participate in the labour market among women, the stress on already fragile relationships may have increased the likelihood that the next generation of children will be raised in lone-mother families.

Now this story, although informed by the findings in the following chapters, makes a number of suppositions that call for further research.

[1] What are the origins of the dramatic changes in the labour market, and how did they place such a large burden upon the young? The causes of greater labour market turbulence are still not well understood, but may be related to long-delayed adjustments to the decline in productivity growth that began in the early 1970s. Many have hypothesized that these shocks may have been aggravated by the introduction of information based technology (particularly the personal computer) and the globalization of capital and product markets. (See for example, Osberg, Wein, and Grude 1995, and Wood 1994.) There is certainly still a good deal of controversy about the impacts computer based technologies and globalization have had on the polarization of incomes here (and in other OECD countries). Whatever the causes, however, it is clear Canadian labour market institutions structured the adjustments to these shocks in a way that put heavy burdens upon the young, and particularly upon young unskilled men. What aspects of labour markets were responsible? Are they immutable? Though these questions are beyond the scope of the following essays, they are nonetheless central to policy development.

[2] Is the relationship between lone-parenthood and detrimental child outcomes causal? It would certainly seem to be the case that children from lone-parent families on average have more behavioural and social problems, and will ultimately attain lower levels of education and income. At the same time, however, it may not be appropriate to argue that family status is the cause of these patterns. Such a comparison does not necessarily answer the question of how

children from lone-parent families would have fared had **their** parents stayed together. In fact, it may well be that some of these children are better off as a result of the breakup. An extreme example of such a situation might be a family in which children witness or experience physical or mental abuse. If abuse of this sort, or the stress associated with it, is the underlying cause of how children fare, then the breakup of a marital relationship simply represents a signal or symptom of this deeper problem. The extent to which lone-parenthood actually plays a causal role is still very much a question in need of more research.

[3] A related issue is the extent to which money, and in particular transfers from the state, improve child outcomes. Does money matter? This is particularly germane to the development of policy since one of the main tools available to governments is the transfer of more funds to families with children. For example, the suggestion that market sources of the parents' income are positively associated with the future earnings of the children, while non-market sources are negatively associated, might be taken to imply that there are limits to the beneficial impact of government transfers. This, however, leaves many questions unanswered. Is this a true causal relationship? If it is, higher transfers could even contribute to lower educational attainment among children, poor labour market outcomes, and imply an intergenerational transmission of reliance on government transfers. But this assumes that all factors determining these outcomes are being controlled for, particularly factors that may be correlated with the receipt of transfers, a task that is difficult with many of the available data sets. As such, there is a strong risk of overstating any potentially detrimental effect. More convincing analyses of better data are still needed.

[4] Both families and communities play an important role in determining how children fare, but just how do they do so? How exactly do families create resilience among children in spite of the income available to them? What is the role of the community and "social capital" in this process? These would seem to be crucial questions to answer since many children from low-income or lone-parent families go on to become successful adults. The tendencies unmasked in research are often "average" effects, and say little about the variety of experiences or the causes of these variations.[2] To understand these variations will require a more detailed understanding of the internal workings of the family, of how resources are shared and decisions made within it, and of the system of supports in the community. Role models, peer groups, and the characteristics of neighbourhoods are part of this broader community role, but research for policy purposes needs to go beyond these and examine how families access the resources made available by the state. For example, the availability of a universal education and health-care system does not imply they will be used in the most effective ways by some families.

4. Conclusion

The future of Canada's children is both a good and a bad news story. Many children are well prepared by family, friends, and public institutions, and have fared well in spite of important labour market changes; others are not so fortunate. The differences between these groups are a concern in and of themselves, but also because they are likely to echo into the next generation. The children of today's young adults are likely to enter a virtuous or vicious circle as advantages and disadvantages are passed on. Is this fair? Do we know enough about intergenerational dynamics to do something about it?

These are central but very difficult questions to answer, and the last word belongs to Susan McDaniel and Bob Baldwin in Chapter 11. They examine, each in their own way, the implications of the research in this book for intergenerational fairness and government policy. McDaniel, in particular, argues that to cast developments over the past two decades in terms of an intergenerational conflict between the current group of elderly and current cohorts of young (and potentially their young or as yet unborn children) would be incorrect and indeed obstructive. She offers a host of issues that need clarification (both theoretical and empirical), examines the degree to which a new generational compact is emerging in Canada, and highlights three alternative policy frameworks for the way ahead.

In his turn, Baldwin offers an admirable checklist of what younger generations should reasonably expect to inherit from older

generations. His analysis begins by relating the research in this book to this checklist, and goes on to point out the important information gaps that continue to exist. He also speculates on the nature of the intergenerational compact linking Canadians, and contrasts society's attitude toward the pension arrangements given to the elderly with the support provided to the young. He concludes by underscoring the importance of the public sector to all of these relationships.

Notes

[1] This is clear from the work in Chapter 2 in conjunction with that of Blank and Hanratty (1993) who undertake a comparative analysis of the Canadian and US programs of social transfers and how they operated in the two countries during the 1980s. They find that the "primary group that would benefit from the adoption of the Canadian antipoverty system [in the US] is families with children" (p. 219).

[2] A striking example of this point is made by Docherty (1997) who also points out that the "labelling" of children as being part of a high risk group may lead others to change their behaviour, treat them differently, and contribute to detrimental outcomes. The general point is also echoed in the essays by Osberg (1998) and Helliwell (1998).

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Chapter 2

Markets, Families and Social Transfers: Trends in Low-Income Among the Young and Old, 1973-95

GARNETT PICOT, JOHN MYLES AND WENDY PYPER

Like the members of all developed market economies, Canadians rely for their economic well-being on three main institutions: the market (especially the labour market), their families, and the state (federal, provincial, and local governments). Therefore changes in economic well-being are the result of : [1] economic events that influence the availability of jobs, employment earnings, and other sources of market income; [2] "demographic" events that influence the types of families in which Canadians live (the number of earners, the number of children); and [3] political events that influence the type and magnitude of transfer payments governments provide to individuals and families.

In this chapter we document trends in social transfers, market incomes and family composition from 1973 through 1995, and their impact on the incidence of low-income among four generations: children (new-borns to those 14 years of age), young adults (25 to 34), the older working-age population (45 to 54), and the elderly (over 65).

For seniors, recent trends in low-income are largely the result of developments that took place prior to 1973 (the year our data begins). These developments influenced the low-income rate of seniors over the 1970s, 1980s, and 1990s. The period from the end of the Second World War until 1973 was one of dramatic economic expansion in all Western societies. For the working-age population, the result was high and rising wages and vastly improved living standards relative to any previous generation in history. By the mid-1960s, however, it was evident that the elderly had largely missed the rising tide of post-war prosperity. Higher rates of retirement combined with relatively modest old age security systems in most countries resulted in high levels of low-income among the elderly. As a result, the 1960s brought an unusual period of social legislation aimed at enhancing their economic security (Myles, 1989). In Canada, the Canada and Quebec Pension Plans (C/QPP) were adopted in 1965 and the Guaranteed Income Supplement (GIS) a year later. It would take almost two decades for the results of this legislative flurry to become apparent however. The first cohort to receive full benefits under the C/QPP turned 65 in 1976.

Similarly, until the 1980s few retiring workers had accumulated much in the way of private pension entitlements. Until the Second World War employer pensions were rare. Pension coverage expanded rapidly up to the 1960s, rose modestly during the 1970s, and then declined somewhat in the 1980s. The first cohorts of retirees to have a significant private pension entered the labour force after the Second World War, and collected benefits in the late 1980s.

We find that in 1973 about 25% of the elderly population still had incomes less than half the median income of the population. By the mid-1980s this figure had fallen to about 10%, and by 1995 to less than 4%. Though by no means affluent—by 1995 the median income of seniors was 87% of the median of all individuals—Canada's seniors had come a long way since the nadir of the sixties.

In contrast, recent trends in low-income among children and working-age adults are the result of developments that have taken place since 1973. During the 1970s, the high rates of growth that benefited working-age families in the 1950s and 1960s began to decline. More significantly, inequality in the distribution of labour market earnings began to rise, especially after 1980 (Morissette, Myles and Picot 1995). One consequence of this development was a substantial decline in the earnings of young adults, exposing them and their children to higher risks of low-income. Until recently, however, and unlike the United States, higher risks were not translated into higher rates. From the 1970s through

the 1980s, the incidence of low-income among the working-age population and their children was remarkably stable, rising during periods of recession but falling again during periods of economic recovery.

We show that this relative stability in low-income rates among children and working-age adults is the result of two developments. First, government transfer payments to working-age families, and especially to working-age families with children, grew substantially. Second, young adults changed their patterns of family formation and labour market behaviour in ways that significantly offset the consequences of declining earnings. They began to marry later, had fewer children, and more women went into the labour market. In brief, families and governments responded to the new economic risks evident in the labour market. But this is a two way street, and trends in the labour market may have partially been in response to changes in the transfer system and other policies.

Our results also indicate, however, that the outcome of the recession during the early 1990s may prove to be less benign. Low-income levels rose as recession set in 1990 and then declined modestly through 1994. Unexpectedly, however, the downward trend did not continue through 1995 nor (as preliminary results indicate) through 1996, despite the continuing recovery. One of the reasons for this development is that changes in family behaviour that partially offset declining market incomes in the past have been exhausted or even reversed. In part, this is to be expected: young adults cannot go on increasing the age at which they have their first child or reducing fertility levels indefinitely. In contrast, a decline in labour force participation (especially among men) and two-earner families since 1990 was largely unanticipated.

A second development of the 1990s that may affect future trends in the incidence of low-income is a result of changing trends and policies. The percentage of unemployed Canadians receiving unemployment benefits fell from 86.8% in 1990 to 48.1% in 1996. Income Assistance rates in many provinces have been reduced, in some cases, significantly (National Council of Welfare 1997). Potentially offsetting these trends for families with children has been the enrichment of the Child Tax Benefit (now known as the National Child Benefit). On balance, 1995 results show a small decline in average transfer payments and preliminary 1996 data suggest a continuation of this trend (Statistics Canada 1997). But changes to the tax-transfer system are too recent to draw strong conclusions about their consequences. Nor are we able to assess the possible behavioural response to these changes in the form of increased work effort among those affected by the new social politics of the 1990s.

In summary, from the 1960s to the1990s trends in the incidence of low-income among the generations have changed substantially. Because of their changing relation to the labour market, the elderly were the main, though not exclusive, focus of social policy during the 1960s. Since the1980s, rising inequality in the labour market has directed attention to new economic risks faced by the younger generations and especially by children. The purpose of this chapter is to inform the current discussion with an empirical-historical description of these developments.

1. Social Transfers, Market Income, and Low-Income

Our data are from the Survey of Consumer Finances (SCF) economic family file for the years 1973, 1981, 1986, 1988, 1990, 1991, 1994 and 1995. We use a “50 percent median” low-income measure (or LIM) to document trends in low-income. To compute this rate, a per capita income for each family is calculated and assigned to each individual family member. This per capita value is then adjusted to account for economies of scale associated with family size and composition, leading to an “adult-equivalent adjusted” family income for each individual. Our measure of low-income is one-half of the median adult-equivalent adjusted income, where the median is computed for all individuals (not families) in Canada. More details are offered in the Appendix.

We begin by comparing rates of low-income based on market incomes alone (before transfers and taxes) with rates of low-income based on final disposable income (after transfers and taxes). Trends in the pre-tax/pre-transfer rate are often thought of as indexing the changing “risk” of low-income faced by individuals and families in the labour market and the difference between the two rates as measuring the “effectiveness” of the tax-transfer system in reducing this risk (McFate, Smeeding and Rainwater, 1995). Clearly, however, assessing the causal role of changes in labour markets and social transfer systems in shaping the economic well-being of Canadians is more complex than this simple

accounting suggests. In particular, behavioural response to changes in the transfer system can influence the level of market earnings, a topic which we will address.

Trends in low-income by age cohort are highlighted in Figure 2.1. In the case of the elderly these trends are largely the product of economic and policy developments that occurred well before 1973. In Canada, as in all Western countries, the relative economic status of the elderly declined continuously from the end of the Second World War through the 1960s, when old age poverty rose to the top of the political agenda.[1] This was mainly the result of increasing retirement in the absence of a well-developed retirement income system. In 1946, just following the war, almost half (48%) of men over 65 were still in the labour force. By 1973, this had fallen to 18% and the low-income rate among seniors before taxes and transfers was 60%, a level that has remained relatively unchanged. In contrast, the post-tax/post-transfer low-income rate has fallen continuously since 1973, from 25% to less than 4% in 1995.

The distance between the two lines in the Panel of Figure 2.1 describing the 65+ group reveals the remarkable change in the difference between the incidence of low-income among the elderly before and after taxes and transfers. This difference is 35 percentage points in 1973, but rises to 55 percentage points in 1995. These changes are largely the result of policy reforms of the 1960s—the adoption of the Canada and Quebec Pension Plans (C/QPP) in 1965 and the Guaranteed Income Supplement a year later—and an expansion in private pension plan coverage. Although the average income received by seniors still falls below that of the rest of the population (87% of the median in 1995), it too was up considerably from 1973 (when it was 72% of the median). (See Appendix Table 2A.1 for more details.)

Whereas the market-based low-income rate among seniors has been relatively stable since the 1970s, it has risen substantially among working-age adults and their children (Figure 2.1). The rising trend is particularly pronounced among children and younger adults. Trends for these two age groups tend to move in tandem since the former are disproportionately the children of the latter. The pre-tax/pre-transfer low-income rate among 25 to 34 year-olds rose from 14% in 1981 to about 19% in 1995, and among children from 20% to 26%. The rate was relatively stable for the middle-aged through the 1980s, but has risen by a little over two percentage points during the 1990s.

Changes in market-based low-income rates among working-age adults and their children may occur because of changes in the labour market and fertility behaviour of young adults or both. The declining fortunes of young working-age adults and their children since 1980 are mainly the result of changing markets rather than changing families. As is well documented, the relative wages and earnings of younger adults fell substantially after 1980 (Morissette, Myles and Picot 1995, Picot 1998, and in Chapter 3 by Morissette). And as we show in a later section, changes in family structure tend to alleviate rather than reinforce the effects of declining wages on the low-income rate.

Despite the rising risk of low-income, actual low-income rates (after transfers and taxes) in these age groups have remained relatively stable. Between 1981 and 1995, the incidence of low-income rose by 1.2 and 1.8 percentage points among younger adults and children respectively, and by less than 1 percentage point among 45 to 54 year-olds. The difference between the low-income rate before and after taxes and transfers rose by 5 percentage points among children over the same period, by 3 percentage points among 25 to 34 year-olds, and by 2.5 percentage points among those 45 to 54.[2] This increase in the gap between the low-income rate based on market income and post tax/transfer income demonstrates the increased role played by the transfer system, certainly up to the early 1990s, in maintaining the incomes of these age groups.

A significant consequence of these changes since the 1970s has been a growing convergence in the sources of income of the low-income population of younger and older generations (Figure 2.2). At the beginning of the 1970s, few older people were employed and low-income seniors depended on social transfers for most (about 90%) of their income. In contrast, social transfers accounted for just over a third of the income of low-income children and adults, with about two-thirds coming from employment and other market sources. By the 1990s, social transfer payments played a much larger role. About 60% of the income received by working-age adults and children in low-income households now comes through the tax-transfer system and about 40% from the market.

Low-income rates are widely watched indicators of social policy performance. By this standard, our results suggest two significant policy

Figure 2.1
Proportion of Individuals Below 50% of the Median Income: Pre- and Post-Tax/Transfers, 1973 to 1995

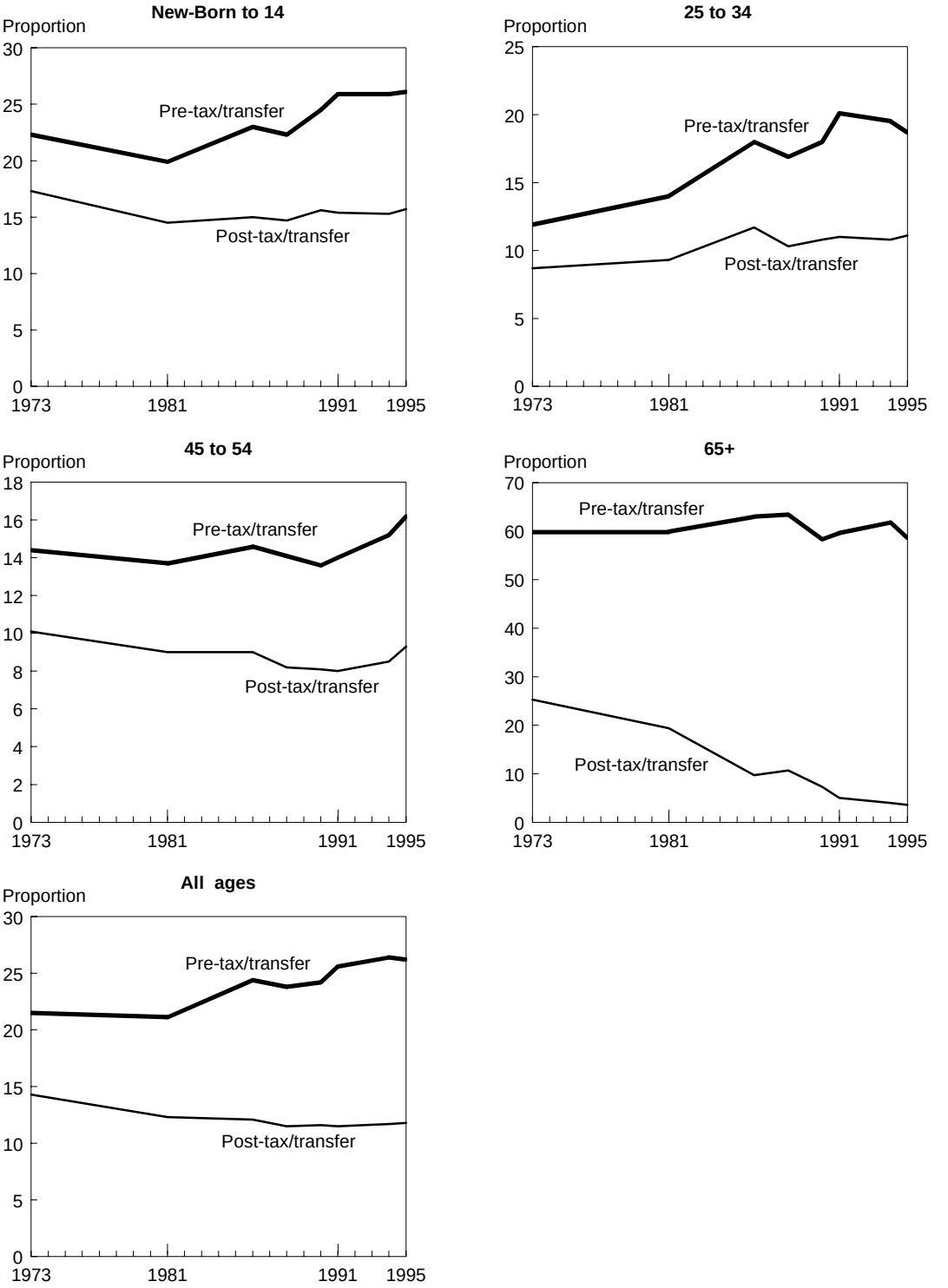
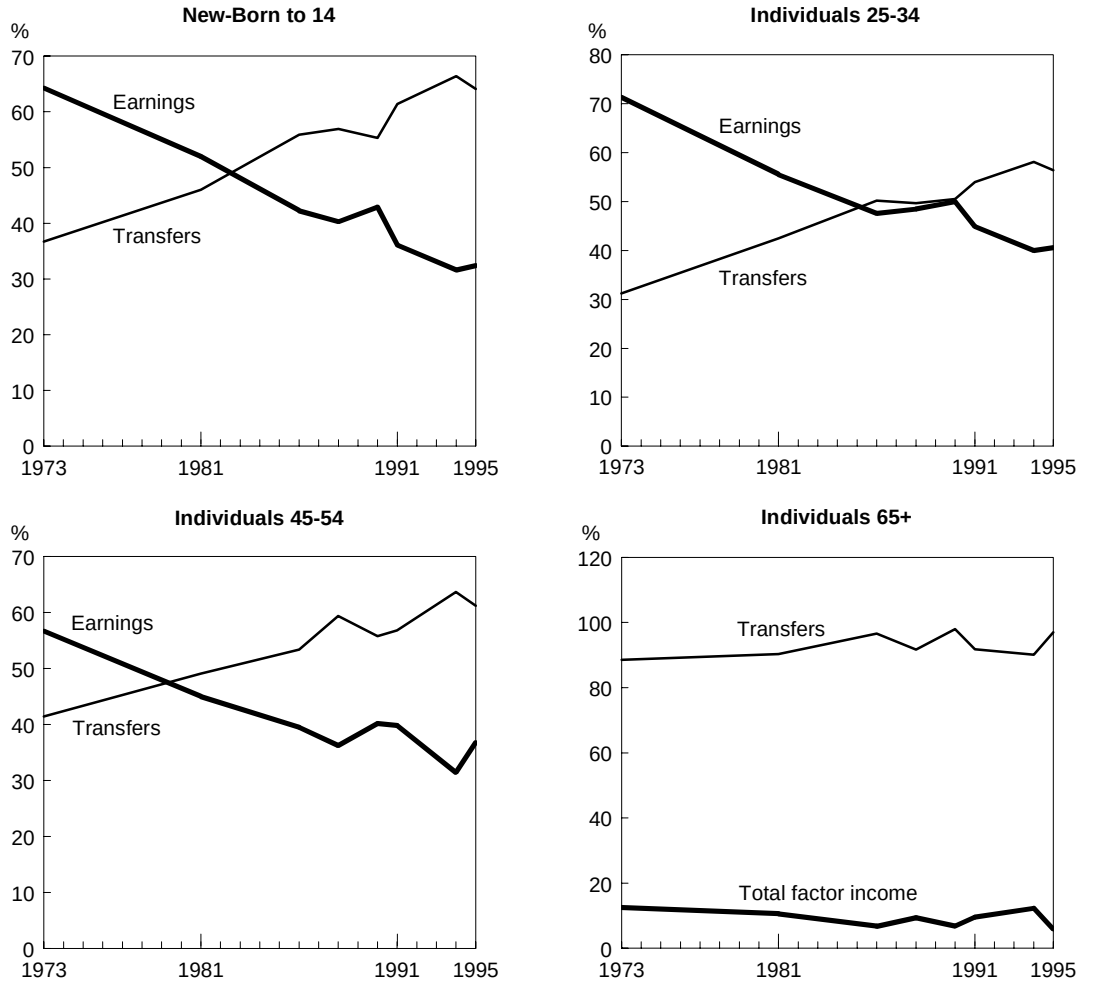


Figure 2.2
Sources of Disposable Family Income for Different Generations: Persons with Less Than 50% of the Median Income, 1973 to 1995



Note: *Family income is measured as per capita adult-equivalent income.*

achievements of the past quarter century: [1] a significant and sustained long term decline in low-income among seniors; and [2] relatively stable rates of low-income among the working-age population and their children despite the rising risk of low-income in the market. Matters, however, are decidedly more complex than this simple accounting would suggest since the effects of public policy on labour market earnings are ignored. Public policies impact on market incomes in many ways: through their effect on unemployment rates, on wage structures, on opportunities for education and training, and by the disincentives to participate in the labour market created by social transfers. Hence, the results we offer should be regarded as an historical description of trends in low-income rates rather than a behavioural-causal account of the origins of these rates. Conservative critics of the tax-transfer system will tend to conclude that, by creating work disincentives, social transfers are in fact the cause of rising risk of low-income among working-age adults and their children. Their opponents will emphasize the role of decreasing labour demand for less skilled, lower paid workers combined with inadequate attention to education and training, and more recently, the cut-backs to the transfer system.

In either case, however, the historical record that we have documented is clear and of no small significance. Like most Western nations, Canada

has dramatically reduced the rate of low-income among seniors and like most European countries has stabilized the rate of low-income among working-age adults and their children, at least to 1994. Whether this trend will continue into the future remains to be seen. Low-income rates have generally followed the business cycle. In the 1990s, low-income rates among children and working-age adults rose with the onset of the recession in 1990 and then declined through 1994. Despite continuing recovery, however, low-income rates rose again in 1995 and 1996 (Statistics Canada 1997). There are several possible reasons. First, wages and employment opportunities for low-income adults may have deteriorated despite improving conditions in the economy as a whole. Second, government efforts to restrain the rate of growth in social expenditures (especially in UI and Income Assistance) may have begun to have an impact. Finally, the changing fertility and labour market behaviour that helped offset rising rates of low-income during the 1980s may have changed (Picot and Myles 1996). In future work, we shall evaluate all three hypotheses. Here, we restrict our attention to the third alternative and show that in the 1990s, demographic changes cannot be relied upon to provide solutions to rising risk of low-income.

2. Changing Families and the Risk of Low-Income

Social transfers were not the only factor buffering low-income Canadians during the past twenty years. The kinds of families in which Canadians live in 1995 are very different from those of the 1970s and, until recently, these changes have on balance muted the growth of low-income among working-age adults and their children. Since the early 1970s, young adult Canadians have been marrying later, having fewer children, and Canadian woman have dramatically increased their participation in the labour market. All of these changes have tended to reduce the low-income rate (particularly among children), and until recently have far outweighed the impact of the rising number of single parent families.

Dooley (1991, 1994a) and Picot and Myles (1996) in Canada, Gottschalk and Danziger (1993) in the U.S. have shown that changing characteristics of families had a significant impact on the incidence of low-income during the 1970s and 1980s. We extend this work into the 1990s. Through the 1980s, changing demographic and labour market characteristics of households generally reduced the risk of low-income among children and young adults. Since the end of the 1980s, however, many of these trends (particularly women's labour force participation) have stabilized and others (the proportion of families with multiple earners) have reversed direction. A number of the more important developments are highlighted in Tables 2.1 through 2.4.

With respect to children:

[1] The proportion of children in families where the highest earner had a university degree rose from 8.3% in 1973 to a peak of 18.2% in 1986, then fell back to 17.7% by 1995 (Table 2.1). Thus, the earnings power of these families (as influenced by educational attainment) was rising until the mid-1980s but not since.

[2] The number of children per family fell between 1973 and 1981, resulting in fewer people to share the family income and hence reducing the risk of low-income. But this number has remained more or less constant since that time.

[3] The proportion of children in families with two or more earners rose significantly between 1973 and 1988 (from 47% to 66%) but then declined to 63% in 1995 as the participation rates of men fell and those of women stabilized.

[4] The proportion of children in single parent (economic) families rose over the entire period from 4.6% in 1973 to 9.8% in 1988, and 12.7% in 1995.[3]

Overall, these trends reduced the likelihood of low-income among children through the 1970s and much of the 1980s.

The trends among 25 to 34 year-olds are similar to those reported for children, which is not surprising since many of these individuals are the parents of children. Most importantly, the proportion of those 25 to 34 year-olds in family units (including the unattached) with two or more adult earners peaked in 1988 at 63.7% and fell to 59.6% in 1995. The proportion who are unattached or single parents continued to rise into the 1990s as well (Table 2.2). As with children, changes in demographics and labour supply have not placed downward pressure on low-income in the 1990s, but rather the opposite, as will be seen later.

Table 2.1
Distribution of Individuals New-Born to 14 Years: By Familial Characteristics

	1973	1981	1986	1988	1994	1995
			(Percent)			
Age of Family Head[1]						
Less than 26	9.1	9.3	7.4	6.8	6.0	5.7
27 to 34	28.9	36.1	35.4	34.9	32.3	31.4
35 to 44	42.6	41.1	45.4	47.0	49.0	50.1
45 to 54	16.4	11.3	9.7	9.5	11.0	11.1
55 and Older	3.1	2.2	2.0	1.7	1.8	1.7
Education[2]						
Elementary	31.1	18.6	11.5	10.4	6.3	5.7
Secondary	46.4	47.4	47.9	46.8	50.1	50.5
Some Post-Secondary	14.2	20.5	22.4	25.2	25.9	26.2
University Degree	8.3	13.5	18.2	17.6	17.7	17.7
Number of Children						
One	17.2	24.5	24.5	24.5	25.6	26.3
Two	35.0	44.6	45.0	46.9	45.5	44.9
Three	24.9	22.1	22.7	20.7	20.8	20.7
Four or More	22.9	8.8	7.8	8.0	8.1	8.2
Family Status/Number of Earners						
Single Parent / No Earners	1.9	2.5	3.3	3.4	5.4	5.1
Single Parent / One Earner	2.7	4.6	5.2	6.2	7.4	7.6
Two Parent / No Earners	2.4	1.7	2.7	1.9	3.6	3.5
Two Parent / One Earner	45.6	32.4	26.5	22.0	20.6	20.8
Two Parent / Two Earners	47.4	58.7	62.3	66.4	63.0	63.0

[1] Adult with highest earnings.
[2] Education level of highest earner in economic family.

Changes in family and labour market characteristics among the middle-aged has been less dramatic than in the younger age groups. Educational attainment has risen and continues to do so into the 1990s. However, like the younger age groups, the proportion of 45 to 54 year-olds in two earner families peaked in 1988 (Table 2.3).

In contrast to the younger generations, changing demographic and labour market characteristics of the elderly tended to exert, for the most part, a downward influence on the low-income rate over the entire period.

[1] The educational attainment of seniors rose continuously through the period, and will continue to do so as more highly educated cohorts age.[4] The proportion in families headed by a person with elementary education fell from 58% in 1973 to 37% in 1995 (Table 2.4).

[2] The proportion of the elderly in families with at least one private pension has risen significantly, from 29% in 1973 to 54% in 1995. This rise has also been continuous, and quite significant in the 1990s.

[3] With the maturation of the public pension system, the proportion of the elderly in a family receiving C/QPP rose from 29.5% in 1973 to 88.6% in 1995. The proportion in families where two or more are receiving C/QPP has also increased dramatically, from 2% in 1973, to 22% in 1988, and 32% in 1995. This too would tend to put downward pressure on low-income continuously throughout the period.

[4] In contrast, the proportion of elderly living in a family with at least one earner has fallen from 42% in 1973 to 27% in 1995 potentially increasing the risk of low-income.

To isolate the influence of changing family structure on the probability of low-income, we decompose the change in this probability into two parts: that due to the change in the characteristics of families (higher education level, more single parents, fewer children, more earners), and

Table 2.2

Distribution of Individuals 25 to 34 Years:
By Demographic and Labour Market Characteristics

	1973	1981	1986	1988	1994	1995
			(Percent)			
Education[1]						
Elementary	20.4	12.0	9.3	9.3	6.8	6.5
Secondary	46.8	46.3	47.7	46.2	46.6	46.4
Some Post-Secondary	20.4	24.8	26.1	28.3	27.8	27.6
University Degree	12.4	16.8	17.0	16.2	18.9	19.4
Number of Children						
None	31.1	40.8	47.3	47.8	51.8	53.1
One	20.4	21.5	19.2	19.2	19.4	18.3
Two	29.5	26.7	23.0	23.8	20.7	20.2
Three or More	19.0	11.0	10.4	9.1	8.1	8.4
Number of Earners[2]						
None	2.5	2.8	4.3	3.4	6.2	5.7
One	47.8	38.7	34.8	32.8	33.3	34.7
Two or More	49.8	58.6	60.9	63.7	60.5	59.6
Family Status						
Unattached	8.5	14.2	16.3	17.1	17.9	19.0
Single Parent	2.4	2.9	3.2	3.3	4.3	4.2
Two Adults Plus	89.1	82.9	80.5	79.6	77.8	76.8

[1] Education level of highest earner in economic family.
[2] Number of earners in economic family.

Table 2.3

Distribution of Individuals 45 to 54 Years:
By Demographic and Labour Market Characteristics

	1973	1981	1986	1988	1994	1995
			(Percent)			
Education[1]						
Elementary	38.1	32.3	24.6	22.6	13.1	13.7
Secondary	42.9	42.2	43.2	42.0	47.5	46.2
Some Post-Secondary	12.3	14.6	16.7	18.5	19.6	20.3
University Degree	6.7	10.9	15.5	16.9	19.7	19.8
Number of Children (New-Born to 14 years)						
None	56.0	71.5	76.9	79.0	80.0	79.7
One	23.1	19.4	16.0	13.7	12.9	13.8
Two	12.5	6.4	5.1	5.5	5.4	5.2
Three or More	8.5	2.6	2.0	1.8	1.5	1.3
Number of Earners[2]						
None	4.1	4.2	4.8	5.2	6.3	6.3
One	31.6	24.5	22.7	20.9	23.9	24.3
Two or More	64.3	71.2	72.4	73.9	69.6	69.3
Family Status						
Unattached	6.3	7.9	9.4	10.8	11.9	12.4
Single Parent	0.5	0.6	0.8	0.7	0.9	1.2
Two Adults Plus	93.1	91.5	89.8	88.4	87.0	86.5

[1] Education level of highest earner in economic family.
[2] Number of earners in economic family.

Table 2.4

Distribution of Individuals 65 Years and Over: By Demographic and Labour Market Characteristics

	1973	1981	1986	1988	1994	1995
			(Percent)			
Education[1]						
Elementary	57.5	49.9	44.2	42.9	37.2	37.1
Secondary	31.0	35.0	37.2	37.5	42.5	42.9
Some Post-Secondary	8.7	9.7	12.1	11.9	12.8	11.6
University Degree	2.7	5.4	6.5	7.7	7.6	8.4
Number of Adults in Family[2]						
One	27.2	32.2	30.8	32.2	31.7	30.9
Two	51.3	48.6	50.8	51.3	53.6	55.0
Three or More	21.5	19.2	18.4	16.5	14.7	14.0
Number of Earners						
None	58.0	65.0	69.4	71.1	74.4	73.1
One or More	42.0	35.0	30.6	28.9	25.6	26.9
Number of Persons in Family with C/QPP						
No C/QPP	70.5	36.5	26.7	21.9	11.3	11.3
One with C/QPP	27.1	52.6	57.3	56.5	57.5	56.2
Two or More with C/QPP	2.4	11.0	16.0	21.6	31.2	32.4
Number in Family with Private Pension[3]						
No Private Pension	71.1	63.1	55.3	52.3	46.0	45.3
At Least one Private Pension	28.9	36.9	44.7	47.7	54.0	54.7

[1] Education of highest earner (pension) in family.
[2] Economic family, where unattached individuals are considered a family.
[3] Includes RRSP annuities.

that due to the change in the risk that someone in a family with a given set of characteristics will be in low-income.

For example, the risk of low-income is usually higher among individuals in a family where the primary earner has little education, and hence a lower earnings potential. Thus, a change in the educational composition of families in a particular generation can alter the overall incidence of low-income. However, the risk of low-income given a particular level of education can also change. Thus, relative earnings may fall or unemployment might rise among the less educated in response to declining demand for their skills. We assess the influence of both factors.

As noted earlier both the rate and direction of change has varied considerably over the 1973 to 1995 period. To capture these differences, three periods are used in the analysis: 1973 to 1981 when the rise in female participation rates was especially strong; 1981 to 1988, which represents the change over an entire business cycle (peak to peak); and 1988 to 1995, representing changes since the last business cycle peak.

Logistic regression is used to decompose the change in the probability of low-income into that due to changes in composition and that due to changes in the risk of low-income associated with a given characteristic. The dependent variable takes on the value 1 if the individual has an income less than half the median income (of all individuals in the population), and 0 otherwise. The independent variables, which define the dimensions across which compositional change can take place, resemble the variables outlined in Tables 2.1 to 2.4. The variables are not used in exactly the manner shown in these tables as some combinations of these variables are undefined, such as two or more adult earners in a single parent family. More methodological detail as well as definitions of the variables and the regression results are presented in the Appendix.

The results, presented in Table 2.5, indicate that family composition changes in the 1990s have raised the risk of low-income. In the 1970s

Table 2.5
Decomposition of the Change in the Probability of Having Low-Income

	New-Born to 14 Years	25 to 34 Years	45 to 54 Years	65 Years and Older
		(Percentage Points)		
A. 1973 to 1981				
Change in the Incidence of Low-Income	-2.8	+0.7	-1.2	-5.9
Change Due to Family Characteristics	-5.5	-1.6	-1.8	-2.5
Change Due to Risk of Low-Income Associated with Particular Characteristics	+2.7	+2.2	+0.6	-3.4
B. 1981 to 1988				
Change in the Incidence of Low-Income	+0.2	+1.0	-0.8	-8.7
Change Due to Family Characteristics	-1.7	-0.4	-0.7	-3.7
Change in Risk of Low-Income Associated with Particular Characteristics	+1.9	+1.4	-0.1	-5.0
C. 1988 to 1995				
Change in Incidence of Low-income	+1.0	+0.8	+1.1	-7.1
Change Due to Family Characteristics	+2.0	+1.5	+0.6	-2.7
Change Due to Risk of Low-Income Associated with Particular Characteristics	-1.0	-0.7	+0.5	-4.4

and 1980s compositional effects reduce the probability of low-income for all age groups. Changes in fertility and labour market behaviour of working-age adults in particular reduced the risk of low-income (by the number of percentage points indicated in the table). In contrast, during the 1990s the impact is positive for all groups (except for the elderly) indicating that compositional changes have increased the risk of low-income.

The effects of these changes are particularly striking among children. Between 1973 and 1981 changes in family composition (especially the rise in two-earner families) put significant downward pressure on the likelihood of low-income: reducing the probability of low-income by 5.5 percentage points. Compositional effects in the 1980s were more modest (1.7 percentage points) but still in a favourable direction. In contrast, compositional changes between 1988 and 1995 increased the risk of low-income among children by 2 percentage points. This was mainly the result of a decline in the number of families with multiple wage-earners and an increase in single parent families.

A similar, if less dramatic, reversal is observed among working-age adults. After tending to reduce the incidence of low-income through the 1980s, compositional changes (especially labour market participation) tend to increase the likelihood of low-income in the 1990s. The impact was substantial for 25 to 34 year-olds (about 1.5 percentage points) but quite modest among the middle-aged.

Some of the changes during the 1990s may prove to be temporary. Declining employment levels among working-age adults, for example, may be due in part to the recession. However, by 1995 the economy was well into recovery and one would have expected employment/population ratios to return to pre-recession levels. However, this did not occur in either 1995 or 1996.[5] More significantly, the large changes that buffered children against the risk of low-income in the 1970s and 1980s cannot be expected to do so in the future. Long term trends such as declining family size and rising rates of labour force participation among women have lower and upper limits. These developments are one-time events that cannot be repeated in the future. Rather, future gains in reducing low-income among children will depend mainly on improved earnings opportunities for their parents (young adults) and/or improved social transfers. Unlike the young, compositional changes among seniors—especially higher levels of education and improved access to public and private pensions—have reduced the risk of low-income in all three periods and by fairly substantial amounts: 2.7 percentage points in the 1970s; 3.7 percentage points in the 1980s; and 2.7 percentage points in the 1990s.

3. Conclusion

Relative stability in the incidence of low-income among children and the working-age population during the 1980s masked a number of underlying trends that demonstrated more volatility. As the earnings of the young, the less educated and the lower paid fell through the decade, the labour market became a less important source of income for low-income families. Based on market income alone, the incidence of low-income rose significantly among children and young adults through the 1980s and 1990s. The rising risk of low-income was offset by two factors: rising transfer payments and a change in the characteristics of the families in which Canadians live. Through the 1980s and early 1990s transfer payments were increasing as a source of income among low-income Canadians as market earnings fell, and families altered their characteristics so as to reduce the incidence of low-income.

This changed in the 1990s. Trends in family structure that had reduced the risk of low-income in the past either stabilized or reversed direction while the number of single parent families continued to rise. The employment/population ratio fell among men of all ages, and stopped rising among women. Between 1988 and 1995, these compositional changes increased the risk of low-income by about 2 percentage points among children and young adults.

In order to cut deficits and increase work incentives, governments began altering the transfer system in the 1990s. Because many of these changes are comparatively recent it is difficult to establish with any certainty what their consequences will be in the longer run. One aim of welfare reform is to increase work incentives so that low-income families will improve their incomes with higher earnings. Several studies have focused on this issue for lone parent mothers, and concluded that higher welfare benefits in the late 1980s had a significant effect on participation in welfare and a fall in employment in this group (Charette and Meng 1994, Kapsalis 1996, Dooley 1994b). The assumption is that reducing benefits will reverse the process. Although it is premature to reach strong conclusions on this matter, to date there is little evidence of such a change: the earnings of low-income families, especially those with children, have declined substantially since 1990. The 1996 Survey of Consumer Finances shows that transfer payments to families in the lowest quintile fell by 3% (Statistics Canada 1997). Higher earnings did not offset this reduction so that the average total income of these families also fell by about 3%.

The central issue, however, is not whether social transfers create work disincentives (they almost certainly do) but whether their magnitude could be such as to explain the declining earnings of young adults (and low-wage workers more generally) that have been documented. There are a number of reasons to believe that it is unlikely that the decline in employment earnings among low-income families was mainly the result of increased work disincentives associated with the transfer system. Hum and Simpson (1991) review the labour supply literature and conclude that labour supply responses to the tax transfer system are small. The decline in earnings of younger adults (who are the parents of most young children) is common to a number of countries with very different transfer systems (Davis 1992). Moffit (1992) concludes for the U.S. that while there is some work disincentive associated with welfare programs, the lack of such disincentives would only marginally increase the employment income of participants and that in general labour supply is relatively inelastic to potential policy changes regarding the welfare system. Researchers believe that changes on the demand side of the labour market, perhaps related to changes in trade or technology, are more likely to explain changes in the patterns of earnings in many developed countries, particularly the declining earnings among the lower paid/less skilled workers (Katz and Murphy 1992). Changes on the supply side, related to changing welfare incentives or other factors, are considered less significant.

In any case, it may be possible in the near future to test the extent to which changes in the social transfer system influence employment earnings, or alternatively influence the level of low-income, as social policy changes at the Federal and Provincial levels work their way through the system. Monitoring and explaining the impact on low-income of changes taking place in the labour market and the social transfer system will be important if we are to understand aggregate trends in the incidence of low-income in coming years.

Appendix

Data Sources and Variable Definitions

The Survey of Consumer Finances (SCF) is the source of our data. We define market income to include wages and salaries, military pay, self-employment earnings, investment income, and private pensions. Social transfers include family and youth allowances, OAS, GIS, C/QPP and Unemployment Insurance benefits, Income Assistance, provincial tax credits, child tax credits, federal sales tax credit, GST credit, other government transfers. Transfers are before tax amounts. Income taxes constitute another (negative) component of income. The SCF underestimates transfer income, especially income from UI and Income Assistance. However, the level of underestimation is consistent through time. Between 75% and 80% of government transfers are captured in the SCF file for the years under review. Hence the assessment of the effect of transfers is a conservative one, as we are underestimating its impact on family income, but it is consistent through time. In contrast, taxes payable reported in the SCF constitute 98% of those reported by Revenue Canada

Our calculation of "Adult-Equivalent Adjusted" family income relies upon a particular equivalence scale. There are many equivalence scales available, including those implicit in the construction of Statistics Canada's Low-Income Cut-offs (LICOs). We use the "central variant" scale proposed by Wolfson and Evans (1992). In this version the first adult is given a weight of 1.0, and each additional adult a weight of 0.4. The first and each subsequent child is assigned a weight of 0.3, except in single parent families where the first child is assigned 0.4.

Our measure of "low-income" is the Low-Income Measure (LIM), defined as 50% of the median income. LIMs , unlike LICOs, are sensitive to changes in the shape of the income distribution (inequality) but not to changes in average income levels (Wolfson and Evans 1992, Sharif and Phipps 1994). Our focus is on the impact of markets, families and public policy on the distribution of income, not its level. However, much of the analysis was replicated using the post-tax/post-transfer LICOs and very similar results were obtained. The two measures show similar trends but quite different levels of low-income. For example, among persons over 65 all measures indicate a continuous decline in the incidence of low-income. Based on the pre-tax, post-transfer LICO low-income is almost halved between 1981 and 1995, from around 34% to 18.7%. The post-tax, post-transfer LICO indicates a more dramatic decline, from 21.0% in 1981 to 7.7% by 1995. The reduction is even more dramatic when the LIM is used: declining from around 20% in 1981 to 3.6% by 1995. This is similar to the findings of Wolfson and Murphy (1996), who use a similar measure. They note that this very low value for the incidence of low-income is the result of the OAS/GIS income falling just above half the adjusted median income. Thus, even small changes to the level of the OAS/GIS income guarantee can have a large effect on the number of elderly falling below less than one-half the median income.

Logistic Analysis of Change in the Probability of Low-Income

A description of how the logistic regression model used in Section 2.2 is estimated (using the period 1981 to 1988 to illustrate) follows. The logistic functional form is: $Y = 1/[1+\exp(-\beta X)]$ where Y=1 if a child's family income is less than one-half the median family income, and Y=0 otherwise. Transforming in the usual manner, the equation estimated is $L = \beta X + u$, where $L = \ln[P/(1-P]$ is the logit, $P=Pr\{Y=1|X\}$, X is a vector of independent variables, β is the vector of associated coefficients.

Using data for 1981, we obtain $L_{81} = \beta_{81} X_{81} + u$, and then compute $\bar{P}_{81}$, the overall mean probability of a child having less than 0.5 median family income in 1981. To calculate the estimated mean probability of a child having a family income below one half the median, one could simply estimate the probability at the mean values of the variables. However, since a nonlinear function is used, this typically does not match sample mean derived from the raw data. Thus, the mean probability is calculated by estimating the probability of each child in the sample having a family income below one half the median based on the regression equation and then averaging these probabilities across all individuals in the sample (using the sample weights). In this way the probability estimated using the regression equation matches the sample mean from the raw data.

Thus, $\overline{P}_{81} = \frac{\sum_{i=1}^{n} w_i \hat{P}_{i,81}}{\sum_{i=1}^{n} w_i}$, where w_i is the sample weight associated with individual i, n is the number of observations, and where $\hat{P}_{i,81}$ is the estimated probability for individual i in year 1981, which is computed as follows:

$$\hat{P}_{i,81} = \frac{1}{1+\exp(-\beta_{81} X_{i,81})}$$

To decompose the total change in P between, say 1981 and 1988, into that due to changes in family composition (that is, changes in the independent variables) and changes in the risk of being in low-income given a particular set of characteristics (changes in the coefficients), we:

[1] Alter the composition of families (the independent variables), keeping the value of the coefficients fixed at the 1981 values. Thus $L^* = \beta_{81} X_{88}$. We compute L*, and calculate $\overline{P}^*$ as described above. Then $\overline{P}^* - \overline{P}_{81}$ = the change in $\overline{P}$ between 81 and 88 due to the change in the composition of families with children

[2] The coefficients are then changed from their 1981 to their 1988 values. Thus, $L_{88} = \beta_{88} X_{88}$, and $\overline{P}_{88}$ is computed. Then $\overline{P}_{88} - \overline{P}^*$ = change in P due to change in the risk of being in low-income given a particular set of family characteristics (that is, to change in coefficients).

Whether the coefficients or the values of the variables are altered first does matter; it is done both ways and the average value of the two results used. Also, the usual caveat associated with the interpretation of such results applies here. There are no explicit behavioural links between the two basic factors (demographic change and the income position of children within demographic groups) in the model, although in reality there almost certainly are. To some extent, changes in the economic position of families and changes in family composition are jointly determined. Ideally one would like to estimate the effect of exogenous changes in demography and labour market circumstance on the likelihood of low-income, but there is some endogeneity in the model. If economic conditions of, say, young families with low levels of education deteriorate, this may well influence their probability of having children, and hence the demographic composition of children. Also, declining labour market earnings of young individuals may have prompted many second earners in young families to enter the labour market. Such relationships are not addressed here. Hence, the results provide a decomposition of history in an accounting sense. They estimate the direct, but not indirect, influence of these factors on low-income among children during the period.

The complete regression results from the logistic regressions are offered in Table 2A.2.

Table 2A.1

Changing Economic Status of Different Age Groups: Adult Equivalent Adjusted Family Income of Individuals

	1973	1981	1986	1988	1990	1991	1994	1995
A. New-Born to 14 Years								
Number of Persons ('000)	5,900	5,306	5,270	5,338	5,467	5,552	5,852	5,867
Pre-Tax Pre-Transfer Income								
Median Income (1991 $000's)	16.2	20.4	20.9	21.4	21.5	20.3	20.3	20.1
Indexed Median Income	100	126	129	132	133	125	125	124
Relative Median Income	0.89	0.91	0.93	0.92	0.91	0.92	0.93	0.92
Percent Below 0.5 Median Income	22.3	19.9	23.0	22.3	24.5	25.9	25.9	26.1
Post-Tax Post-Transfer Income								
Median Income (1991 $000's)	14.9	18.6	18.7	19.1	19.2	18.5	18.5	18.3
Indexed Median Income	100	125	126	128	129	124	124	123
Relative Median Income	0.88	0.89	0.90	0.89	0.89	0.90	0.89	0.89
Percent Below 0.5 Median Income	17.3	14.5	15.0	14.7	15.6	15.4	15.3	15.7
B. 25 to 34 Years								
Number of Persons ('000)	3,053	4,169	4,478	4,581	4,640	4,624	4,864	4,783
Pre-Tax Pre-Transfer Income								
Median Income (1991 $000's)	21.7	25.1	24.6	25.6	25.0	23.6	24.5	23.6
Indexed Median Income	100	116	113	118	115	109	113	109
Relative Median Income	1.19	1.12	1.09	1.09	1.06	1.07	1.12	1.08
Percent Below 0.5 Median Income	11.9	14.0	18.0	16.9	18.0	20.1	19.5	18.7
Post-Tax Post-Transfer Income								
Median Income (1991 $000's)	19.2	22.2	21.7	22.2	22.0	21.1	21.9	21.2
Indexed Median Income	100	116	113	116	115	110	114	110
Relative Median Income	1.13	1.07	1.05	1.04	1.02	1.03	1.05	1.03
Percent Below 0.5 Median Income	8.7	9.3	11.7	10.3	10.8	11.0	10.8	11.1
C. 45 to 54 Years								
Number of Persons ('000)	2,240	2,454	2,536	2,678	2,867	3,027	3,602	3,755
Pre-Tax Pre-Transfer Income								
Median Income (1991 $000's)	22.4	27.7	28.4	30.1	30.9	29.7	29.9	29.3
Indexed Median Income	100	124	127	134	138	133	133	131
Relative Median Income	1.23	1.24	1.27	1.29	1.31	1.35	1.36	1.34
Percent Below 0.5 Median Income	14.4	13.7	14.6	14.1	13.6	14.0	15.2	16.2
Post-Tax Post-Transfer Income								
Median Income (1991 $000's)	20.1	24.8	24.6	25.9	26.5	25.6	25.5	25.2
Indexed Median Income	100	123	122	129	132	127	127	125
Relative Median Income	1.19	1.19	1.19	1.21	1.23	1.24	1.23	1.22
Percent Below 0.5 Median Income	10.1	9.0	9.0	8.2	8.1	8.0	8.5	9.3
D. 65 Years and Older								
Number of Persons ('000)	1,683	2,223	2,557	2,710	2,873	2,950	3,297	3,379
Pre-Tax Pre-Transfer Income								
Median Income (1991 $000's)	5.6	7.3	6.5	6.6	8.4	7.7	6.8	8.1
Indexed Median Income	100	130	116	118	150	138	121	145
Relative Median Income	0.31	0.33	0.29	0.28	0.36	0.35	0.31	0.37
Percent Below 0.5 Median Income	59.8	59.9	63.0	63.4	58.3	59.6	61.8	58.6

Table 2A.1 – Concluded

Changing Economic Status of Different Age Groups:
Adult Equivalent Adjusted Family Income of Individuals

	1973	1981	1986	1988	1990	1991	1994	1995
Post-Tax Post-Transfer Income								
Median Income (1991 $000's)	12.3	15.3	15.9	16.3	17.8	17.0	17.3	18.0
Indexed Median Income	100	124	129	133	145	138	141	146
Relative Median Income	0.72	0.74	0.77	0.76	0.82	0.82	0.83	0.87
Percent Below 0.5 Median Income	25.3	19.4	9.7	10.7	7.3	5.0	4.0	3.6
E. All Ages								
Number of Persons ('000)	20,805	23,814	24,807	25,347	26,099	26,495	28,867	29,197
Pre-Tax Pre-Transfer Income								
Median Income (1991 $000's)	18.2	22.4	22.4	23.4	23.6	22.1	21.9	21.9
Indexed Median Income	100	124	124	129	130	121	120	120
Relative Median Income	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Below 0.5 Median Income	21.5	21.1	24.4	23.8	24.2	25.6	26.4	26.2
Post-Tax Post-Transfer Income								
Median Income (1991 $000's)	16.9	20.8	20.7	21.4	21.6	20.6	20.7	20.6
Indexed Median Income	100	123	122	126	127	122	122	122
Relative Median Income	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Below 0.5 Median Income	14.3	12.3	12.1	11.5	11.6	11.5	11.7	11.8

Note: The base year for the indexed median income is 1973.

Table 2A.2

Logistic Regression Results of the Probability of an Individual Having Income Below 50% of the Median Income

	1973		1981		1988		1994		1995	
	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic
A. New-Born to 14 Years										
Intercept	-2.168	-24.42	-1.358	-17.28	-0.820	-9.15	-0.880	-9.74	-0.889	-8.90
Age of Family										
Less than 26[a]										
27 to 34	-0.746	-9.38	-0.757	-10.47	-1.095	-13.37	-0.923	-10.85	-0.663	-7.07
35 to 44	-0.606	-7.97	-0.933	-12.74	-1.552	-18.61	-1.067	-12.67	-0.963	-10.34
45 to 54	-0.259	-3.11	-0.582	-6.49	-1.165	-10.71	-0.951	-8.73	-0.662	-5.67
55 and Older	0.144	1.12	-0.303	-2.09	-1.525	-7.89	-1.304	-6.28	-0.909	-4.18
Education										
Elementary	0.849	19.47	0.982	19.03	0.765	11.07	0.710	8.75	0.541	5.74
Secondary[a]										
College/Some University	-0.639	-8.07	-0.709	-10.41	-0.493	-8.03	-0.397	-6.83	-0.039	-0.67
University Degree	-2.079	-12.27	-0.952	-10.25	-1.074	-11.99	-0.779	-9.50	-0.812	-9.09
Number of Children										
One[a]										
Two	0.340	4.40	0.215	3.40	0.287	4.20	0.067	1.06	0.236	3.59
Three	0.900	11.36	0.779	11.43	1.013	13.34	0.628	8.90	0.420	5.48
Four or More	1.957	25.49	1.404	17.94	1.792	20.34	1.241	14.57	1.071	11.67
Family Type/Number of Earners										
One Adult, No Earners	4.372	24.26	4.167	25.54	4.010	26.28	2.343	29.39	2.314	26.15
One Adult, One Earner	1.517	15.77	1.082	14.41	1.188	15.95	0.681	9.22	0.363	4.65
Two or More Adults, No Earners	3.621	24.08	3.733	21.64	3.499	22.53	3.033	28.69	2.729	24.54
Two or More Adults, One Earner[a]										
Two or More Adults, Two or More Earners	-0.865	-19.31	-1.285	-26.55	-1.257	-23.24	-1.312	-22.61	-1.515	-25.13
Sample Size	24,253		25,438		22,380		21,527		18,360	
Model Chi Square	6253.40		6272.57		6501.76		5861.47		4799.58	
B. 25 to 34 Years										
Intercept	-5.605	-21.19	-4.924	-29.91	-4.539	-31.39	-4.057	-32.56	-3.943	-29.04
Education										
Elementary	2.043	10.18	1.623	13.31	0.870	6.73	0.716	5.25	0.595	4.06
Secondary	1.206	6.11	0.650	5.92	0.429	4.44	0.408	4.32	0.246	2.53
College/Some University	0.954	4.56	0.289	2.38	0.264	2.57	0.247	2.43	-0.060	-0.55
University Degree[a]										

Table 2A.2 – Continued

Logistic Regression Results of the Probability of an Individual Having Income Below 50% of the Median Income

	1973		1981		1988		1994		1995	
	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic
Family Type/Number of Earners										
Unattached, No Children, No Earners	6.568	15.08	7.088	16.77	5.541	24.89	4.524	27.59	4.720	24.77
Unattached, No Children, One Earner	2.363	10.61	2.272	14.85	2.494	18.77	1.936	16.52	1.791	13.43
One Adult, One Child, No Earners	5.515	10.88	7.901	8.55	6.358	14.85	4.142	19.32	5.317	15.81
One Adult, One Child, One Earner	2.695	7.35	3.393	15.53	3.351	16.67	2.371	11.90	2.514	11.81
One Adult, Two or More Children, No Earners	7.243	12.46	7.057	15.15	6.983	15.78	4.726	22.80	5.069	20.72
One Adult, Two or More Children, One Earner	3.812	13.15	3.886	18.56	4.143	21.63	3.003	15.50	3.045	14.19
Two or More Adults, No Children, No Earners	4.765	11.54	3.831	15.27	4.357	17.56	3.089	14.84	3.056	13.91
Two or More Adults, No Children, One Earner	1.769	6.54	2.218	11.99	1.728	8.74	1.497	9.22	1.901	11.34
Two or More Adults, No Children, Two or More Earners[a]										
Two or More Adults, One or More Children, No Earners	5.906	16.17	6.291	18.81	5.930	20.62	4.884	27.10	5.128	22.44
Two or More Adults, One or More Children, One Earner	2.149	10.93	2.476	17.24	2.549	18.93	2.122	17.51	2.393	17.82
Two or More Adults, One or More Children, Two or More Earners	0.946	4.48	0.910	5.98	1.061	7.82	0.253	1.93	0.528	3.69
Sample Size	11,320		17,225		16,747		15,354		12,481	
Model Chi Square	1592.35		2910.31		2984.63		2826.06		2304.55	
C. 45 to 54 Years										
Intercept	-5.928	-16.57	-4.708	-23.46	-5.197	-26.75	-4.418	-32.15	-4.007	-31.83
Education										
Elementary	2.486	7.47	1.463	7.76	1.722	9.54	1.028	7.16	0.576	4.23
Secondary	1.589	4.74	0.686	3.58	0.945	5.29	0.816	6.44	0.465	4.02
College/Some University	0.634	1.66	0.200	0.88	0.767	3.80	0.477	3.22	0.225	1.65
University Degree[a]										
Family Type/Number of Earners										
Unattached, No Children, No Earners	6.631	16.55	4.757	23.33	5.791	26.91	4.442	29.67	4.626	30.16
Unattached, No Children, One Earner	2.287	11.05	2.028	13.20	2.466	16.38	1.857	15.30	1.787	14.47
One Adult, One or More Children	4.135	11.59	3.468	12.46	3.546	12.60	3.009	13.81	2.601	11.81
Two or More Adults, No Earners	4.811	22.51	4.352	25.58	4.089	24.27	3.772	29.38	3.713	27.16
Two or More Adults, No Children, One Earner	1.562	8.67	1.796	13.94	1.854	11.69	1.455	11.62	1.487	11.88

Table 2A.2 – Concluded

Logistic Regression Results of the Probability of an Individual Having Income Below 50% of the Median Income

	1973		1981		1988		1994		1995	
	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic	coefficient	t-statistic
Two or More Adults, No Children, Two or More Earners[a]										
Two More Adults, One or More Children, One Earner	2.505	15.09	2.476	17.26	2.841	15.92	1.928	11.00	2.340	14.88
Two or More Adults, One or More Children, Two or More Earners	1.479	9.05	1.006	7.61	1.229	7.66	0.733	5.21	0.677	4.81
Sample Size	8,390		10,464		9,670		12,167		11,085	
Model Chi Square	1554.75		1724.45		1902.85		1911.99		1818.92	
D. 65 Years or Older										
Intercept	-6.056	-15.98	-6.312	-22.08	-7.365	-20.68	-6.323	-17.44	-6.815	-15.58
Education										
Elementary	1.216	3.83	0.733	3.60	0.840	3.90	0.493	1.88	-0.167	-0.69
Secondary	0.765	2.38	0.267	1.29	0.595	2.72	-0.122	-0.46	-0.782	-3.11
College/Some University	0.256	0.74	-0.050	-0.22	0.503	2.10	-0.132	-0.42	-1.066	-3.21
University Degree[a]										
Number of Earners										
None	2.258	11.78	2.614	12.04	3.062	10.09	1.864	6.46	1.781	4.83
One	0.910	4.78	1.520	7.00	1.734	5.79	0.630	2.12	1.022	2.76
Two or More[a]										
Number of Adults										
One	1.403	10.69	0.923	7.98	-0.025	-0.15	-0.634	-2.94	0.384	1.57
Two	-0.027	-0.21	-0.663	-5.64	-0.913	-5.59	-1.305	-6.02	-0.463	-1.91
Three or More[a]										
Pension Coverage										
No C/QPP, with Private Pension Plan	0.180	0.95	1.395	8.46	2.132	9.87	2.825	8.10	1.982	4.11
With C/QPP, No Private Pension Plan	1.689	10.11	1.829	14.97	2.101	13.91	2.125	9.52	2.537	9.57
No C/QPP, No Private Pension Plan	2.218	14.55	2.925	24.52	3.703	24.61	4.147	18.52	4.348	16.14
With C/QPP, With Private Pension Plan[a]										
Sample Size	7,225		10,260		10,573		11,272		10,426	
Model Chi Square	2260.98		3097.42		2071.74		1001.56		842.14	

[a] Reference case.

Notes

We would like to thank Dean Lillard, and an anonymous referee for helpful comments, while at the same time noting that this paper reflects solely the views of the authors, and not necessarily those of Statistics Canada.

[1] Pampel (1979) illustrates this nicely with U.S. data. The relative incomes of seniors declined continuously from the late 1940s through the 1960s. Major reforms to Social Security took place in the late 1960s and early 1970s so that by the end of the 1970s the relative economic status of the elderly had returned to post-war levels. Comparable continuous series of income data for Canada only begin in the late 1960s. The similarity in employment trends among the population 65 years and over, however, combined with heightened concern with old age poverty in the 1960s would suggest a comparable pattern in Canada. For data on the incomes of the elderly in 1951 and 1961 see Podoluk (1968).

[2] This analysis was repeated using the post-tax and transfer LICO as the measure of low-income, and the results are very similar. The tax/transfer system increasingly reduced the level of low-income over the 1980s and early 1990s. For example, among children, based on market income, the incidence of low-income rises quite dramatically (from 16.8% in 1981 to 24.1% in 1994). After taxes and transfers are added, the actual rate of (post-tax/transfer) low-income increase much less (from 12.7% to 15.6%). Adding the taxes and transfers reduces the rate by about four percentage points in 1981, but by fully seven points in 1990 and 8.5 points by 1994, indicating the increased role played by the transfer system up to that time. Similar results are evident for 25 to 34 and 45 to 54 year-olds, where the actual incidence of low-income based on disposable income rises in the 1990s, but much less than it does under market income alone.

[3] This statistic is usually calculated using census families, which include only immediate family (the children and the parent). We use the economic family which includes immediate families and other related individuals. Thus, the child of a single mother who is living with her parents would not be counted as living in a "single parent" family under the definition used here but would be if the "census family" definition were used. Our assumption is that such a child shares in some of the economic resources of the larger family unit. This means, however, the share of children in single parent families will be lower than reported elsewhere.

[4] Since most seniors are not employed, one might argue that the higher level of education is not relevant regarding its influence on income in old age. First, higher levels of education improve the employment and earnings capacity of those elderly who remain in the labour market. Second, those with higher levels of education are more likely to have accumulated savings and pension entitlements during their working lives.

[5] The proportion of men employed (the employment/population ratio) has been falling slowly for some time, from 73.1% at the 1981 business cycle peak to 71.4% at the 1989 peak. It then fell dramatically to 65% in 1992 and has remained at that level through 1996. Especially noteworthy is the decline for men aged 25 to 44 from 88% in 1989 to 83% in 1996. The employment/population ratio of women rose continuously throughout the period to a peak of 54% in 1990 and has fallen since then to about 52%. In contrast to men in the same age group, however, the participation rate for 25 to 44 year-old women did return to its pre-recession level of about 71% by 1996.

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Chapter 3

The Declining Labour Market Status of Young Men

René Morissette

From the early 1960s to about the mid-1970s young Canadians lived in an economy which produced high growth rates of output and real income and relatively low unemployment rates. They could benefit from the expansion of employment in the goods sector and public services, industries typically offering good entry-level opportunities. They were entering the labour market in a period when the country's social safety net was becoming more generous. Most of them probably expected that their lifetime earnings would exceed that of their parents.

Today, young Canadians face a different world. The growth of real GDP per capita has slowed; median incomes of families and earnings of full-year full-time employees have stagnated; the unemployment rate has been persistently high; budgetary constraints have halted employment growth in the public sector; and Unemployment Insurance and Income Assistance programs have become more restrictive. Anecdotal evidence suggests that today's young generation does not appear to anticipate having a brighter future than that of their parents. Rather, they seem to be concerned that structural changes in the labour market may have decreased their chances of reaching a "decent" standard of living.

The goal of this chapter is to document how the young fare in today's labour market. The focus is on young men for two reasons. First, most of the recent literature on the growth of earnings inequality has concentrated on the study of male earnings. This approach is chosen because one of the questions addressed is about the consequences of the growth of earnings inequality on youth age-earnings profiles. Second, and more importantly, the labour market behaviour of women is much more complicated to examine because their participation rates have changed dramatically over the last twenty years.

Using a wide variety of both cross-sectional and longitudinal data four major results are uncovered. First, as compared to their counterparts at the beginning of the eighties, today's young men are faring worse across a wide range of labour market indicators. The 1990s generation is attending school in much greater proportions, but those who are not attending school full-time are less likely to be employed. At the same time those employed are less likely to have a full-time job, while those who have a full-time job receive lower wages and are much more concentrated in consumer services, less likely to be unionized, and somewhat less likely to be covered by a pension plan. Second, most of the decline in young men's real wages remains even after accounting for their substantial drop in unionization rate and changes in their industrial distribution of employment. Third, the drop in their real wages measured on a cross-sectional basis appears to have had long-term effects: compared to that of previous cohorts, the age-earnings profile of recent cohorts of young men has deteriorated. Fourth, young men's chances of moving upwards appears to be slightly lower in the 1980s than in the mid-1970s, even after considering both cyclical effects and any drop in real earnings.

1. Trends in Employment

As is well known, the relative importance of youth in the population has fallen substantially over the last twenty years. In 1976, young men (those aged 17 to 24) accounted for 25% of the male population aged 17 to 64; twenty years later that proportion had dropped to 17% (Table 3.1). Either in response to adverse economic conditions or to increasing returns to education, a larger proportion of young individuals has been staying in school full-time since the beginning of the 1980s. This proportion has risen from 28% in 1981, to 37% in 1989 and stands at 45% in 1996.

Table 3.1
Employment Trends of Men Aged 17 to 24 (1976 to 1996)

	1976	1981	1986	1989	1993	1996
A. Labour Market Shares of Young Men						
[1] Share of Men Aged 17 to 24 as Percentage of Men Aged 17 to 64	25.4	24.8	21.5	18.9	17.4	16.7
[2] Percentage of Men Aged 17 to 24 who are Full-Time Students	27.8	27.7	33.6	36.7	44.7	44.6
[3] Percentage of Men Aged 17 to 24 who are Neither Employed nor in School	11.4	12.1	12.4	9.3	12.4	11.2
[4] Percentage of Men Aged 17 to 24 who are Neither Active nor in School	4.5	3.8	3.6	3.5	4.2	4.6
[5] Percentage of Men Aged 17 to 24 who are not Active but are in School	20.3	17.6	21.2	20.9	26.2	27.2
B. All Men Aged 17 to 24						
[1] Participation Rate	75.2	78.6	75.3	75.6	69.6	68.2
[2] Employment/Population Ratio	67.5	68.6	64.6	68.1	57.7	58.2
[3] Unemployment Rate	10.2	12.6	14.2	9.9	17.1	14.8
[4] Rate of Involuntary Part-Time Employment*	1.0	2.1	3.4	2.6	6.3	5.3
[5] = [3] + [4]	11.2	14.7	17.6	12.5	23.4	20.1
C. Men Aged 17 to 24 not Full-Time Students						
[1] Participation Rate	93.3	94.6	94.0	94.0	91.5	90.6
[2] Employment/Population Ratio	83.5	82.7	80.5	84.6	75.6	77.5
[3] Unemployment Rate	10.5	12.5	14.3	10.0	17.4	14.5
[4] Rate of Involuntary Part-Time Employment*	1.1	2.3	4.0	3.1	7.9	6.7
[5] = [3] + [4]	11.6	14.8	18.3	13.1	25.3	21.2

* Number of men aged 17 to 24 involuntary employed part-time divided by the number of men aged 17 to 24 in the labour force.
Source: Statistics Canada, Labour Force Survey (September files).

The labour market experience of those who are **not** full-time students and thus, who presumably have made a transition from school to work, has deteriorated. Between the mid-1970s and the late 1980s, the participation rate, employment/population ratio and unemployment rate of this group have displayed some cyclical variation but no upward trend. Roughly 94% of young men who were not in school full-time were active in the labour market in both 1976 and 1989. Further, 85% were employed and 10% of those who were active did not have a job (Table 3.1, Panel C). However, all three statistics show that between 1989 and 1996, labour market conditions have deteriorated. Fewer of them participate in the labour market, fewer of them are employed, and a greater fraction of those who are active are unemployed.

Panel B of Table 3.1 tells the same story for all men aged 17 to 24. The participation rate of this group fell from 76% in 1989 to 68% in 1996. In an accounting sense, most of this decline is associated with an increase in school attendance: the fraction of young men who are not participating in the labour market but who are attending school either part-time or full-time rose 6 percentage points during the same period, from 21% in 1989 to 27% in 1996. As a result, the percentage of young men who are neither active nor in school has shown little variation between these two years.

Table 3.2 considers individuals who are not full-time students and compares their employment, unemployment and underemployment rates by age group. Two points are worth noting.

Table 3.2

Employment Patterns of Men who are not Full-Time Students: by Age, 1976 to 1996

	1976	1981	1986	1989	1993	1996
A. Employment/Population Ratio						
[1] 17-24 Years	83.5	82.7	80.5	84.6	75.6	77.5
[2] 25 to 34 Years	93.5	92.1	88.9	90.8	84.8	86.7
[3] 35 to 64 Years	93.5	92.1	88.9	90.8	84.8	86.7
[4] = [1] /[3]	0.89	0.90	0.91	0.93	0.89	0.89
B. Unemployment Rate						
[1] 17 to 24 Years	10.5	12.5	14.3	10.0	17.4	14.5
[2] 25 to 34 Years	4.0	5.1	8.3	5.9	10.9	8.5
[3] 35 to 64 Years	2.9	3.8	5.5	4.3	8.3	6.8
[4] = [1] /[3]	3.6	3.3	2.6	2.3	2.1	2.1
C. Unemployment Rate + Rate of Involuntary Part-Time Employment						
[1] 17 to 24 Years	11.6	14.8	18.3	13.1	25.2	21.2
[2] 25 to 34 Years	4.3	5.9	10.1	6.9	13.9	10.7
[3] 35 to 64 Years	3.1	4.3	6.6	5.0	10.3	8.5
[4] = [1] /[3]	3.7	3.4	2.8	2.6	2.4	2.5
D. Duration of Unemployment*						
[1] 17 to 24 Years	12.3	14.3	15.8	11.5	23.3	17.9
[2] 25 to 34 Years	13.3	16.6	23.4	19.8	29.0	26.7
[3] 35 to 64 Years	18.9	20.8	33.2	27.5	35.1	32.8
[4] = [1] /[3]	0.65	0.69	0.48	0.42	0.66	0.55

* Average number of weeks a person has been looking for work, as of the time of the interview.
Source: Statistics Canada, Labour Force Survey (September files).

First, although unemployment rates and rates of underemployment (unemployment plus involuntary part-time employment) of young males are now higher than they were in 1976, they are in fact lower **relative** to those of males aged 35 to 64. The same argument applies to the employment rates: employment/population ratios of young males are now lower than they were in 1976 but show no deterioration relative to those of older workers. Second, between 1981 and 1989, the duration of (truncated) spells of unemployment has trended upwards for workers aged 25 or more but not for young men. As a result, even though the duration of unemployment has risen for youth over the last seven years, it is lower in 1996 than it was in 1976 relative to that of older workers.

The type of jobs young men hold has changed in at least three ways over the last fifteen years. First, the distribution of full-time youth employment has shifted markedly away from manufacturing and public services to low-paid jobs in consumer services. Of all young males employed full-time in 1981, 30% worked in manufacturing industries, 23% in consumer services and 8% in public services (Table 3.3). The corresponding numbers were 23%, 33% and 4% in 1995. While these shifts are also observed among the population of male workers aged 25 to 64, they are much less pronounced. Second, while the unionization rate of all full-time male workers has decreased slightly between 1981 and 1995, the rate of young men working full-time has dropped by 50% during that period: from

Table 3.3
Distribution of Employment by Industry: Men Employed Full-Time, 1981-1995

	17 to 24 Years			25 to 64 Years			17 to 64 Years		
	1981	1989	1995	1981	1989	1995	1981	1989	1995
Agriculture	2.6	2.4	2.8	0.7	0.9	0.9	1.1	1.1	1.1
Forestry and Mining	4.5	2.6	3.5	4.4	4.0	3.6	4.4	3.8	3.5
Construction	10.8	13.1	12.3	7.4	8.6	7.1	8.0	9.2	7.7
Manufacturing	30.2	26.2	22.9	28.0	27.7	27.2	28.4	27.5	26.8
Distributive Services	15.2	11.7	14.1	19.5	18.5	18.3	18.7	17.5	17.9
Business Services	5.7	6.7	7.0	7.6	8.0	9.7	7.2	7.8	9.4
Consumer Services	23.3	29.7	33.3	11.7	12.1	13.8	13.8	14.5	15.9
Public Services	7.7	7.5	4.2	20.9	20.4	19.4	18.4	18.6	17.8

Source: Statistics Canada, Survey of Work History for 1981, Labour Market Activity Survey for 1989, Survey of Work Arrangements for 1995.

33% in 1981 to 15% in 1995 (Table 3.4). Third, the fraction of full-time jobs covered by a pension plan has fallen for young men from 29% to 25% between 1984 and 1995 but has remained virtually unchanged at 64% among older male workers. Hence, full-time jobs held by young men are now found less often in high-paying sectors of the economy, are much less unionized and provide lower pension plan coverage.

The result is that a large fraction of youth is now part of what could be called a contingent workforce. In 1995, 17% of all young men active in the labour market were unemployed, 8% were involuntarily employed part-time, and 10% were employed in non-permanent positions (Table 3.5). Hence, 35% of them either did not have a job, were underemployed or employed in temporary jobs. The corresponding number for men aged 25 to 64 years is 15%.

2. Annual Earnings and Hourly Wages

Between 1969 and 1977, real annual earnings of men aged 18 to 24 employed full-year full-time rose 30% (Figure 3.1). Earnings began dropping after 1977, fell abruptly between 1981 and 1983 and have not recovered. As a result, young men working full-time year round in 1994 earned (in real terms) what their counterparts received in 1969.

This decrease in real annual earnings occurred in conjunction with a drop in real hourly wages. Real hourly wages of men aged 17 to 24 working full-time fell roughly 20% between 1981 and 1986 (Figure 3.2). They rose 5 percentage points between 1986 and 1990 and then fell again between 1990 and 1993. Meanwhile, men aged 45 or more enjoyed substantial gains: between 1981 and 1993 their real wages rose by at least 15%.

The drop in earnings of youth relative to prime-age workers is not unique to Canada. While there are cross-country differences in both the timing and magnitude of the drop, youth relative earnings fell in numerous countries between the mid-1970s and the mid-1990s: the United States, the United Kingdom, Australia, France, Germany and Japan (OECD 1996).

Various explanations have been put forward to explain the widening of wage differentials across age groups. The idea that changes in the relative labour supply of youth caused that widening can be easily dismissed because in most of these countries the share of young individuals in the labour force has been falling. Hence, other things equal, one would expect that changes in the relative labour supply of youth would decrease wage differentials across age groups.

The changes in the composition of employment by industry could explain part of the decrease in youth real relative wages in Canada. Between 1981 and the mid-1990s, full-time employment has shifted towards consumer services (which generally offer low-paid jobs) among youth to a greater extent than it did among older workers. Furthermore, youth unionization rate has fallen substantially.

Table 3.4

Unionization Rate of Men Employed in Full-Time Jobs, 1981-1995

	17 to 24 Years	25 to 64 Years	17 to 64 Years
1981	32.8	46.1	43.6
1986	22.2	45.3	41.9
1989	24.0	44.5	41.7
1995	15.1	40.4	37.8

Note: For the years 1981, 1986 and 1989, the numbers are based on the following question:
"Are you a member of a union or other group which bargains collectively with this employer?"
For 1995 the numbers are based on the following question:
"Are you a union member in your (main) job?"

Source: Statistics Canada, Survey of Work History for 1981, Labour Market Activity Survey for 1986 and 1989, Survey of Work Arrangements for 1995.

Table 3.5

Contingent Workforce: Men Aged 17 to 64, not Full-Time Students and in the Labour Force, 1995

	17 to 24 Years	25 to 64 Years	17 to 64 Years
Unemployed	16.9	7.7	8.7
Employed Involuntary Part-Time	8.3	2.2	2.8
Non-Permanent Employment	9.9	5.1	5.6
Contingent Workforce	35.1	15.0	17.1
Other	64.8	85.0	82.9

Note: Contingent Workforce refers to the sum of Unemployed, Employed Involuntary Part-Time and Non-Permanent Employment.

Source: Statistics Canada, Survey of Work Arrangements for 1995.

Figure 3.1

Indexed Real Annual Wages and Salaries of Men Employed Full-Year Full-Time, by Age, 1969-1994 (1969 = 100)

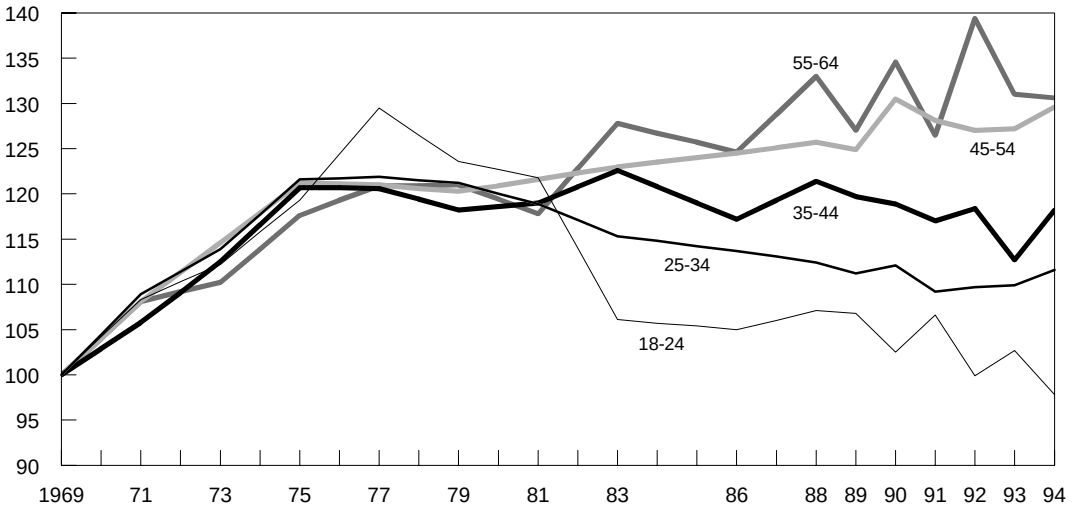
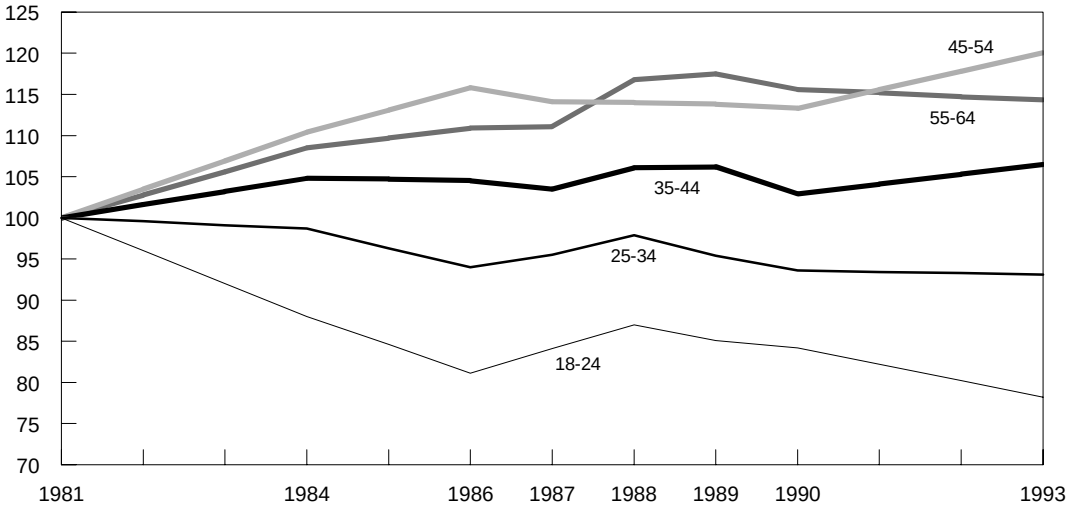


Figure 3.2
Indexed Real Hourly Wages of Male Paid Workers* Employed Full-Time, by Age,1981-1993 (1981 : 100)



* Male paid workers aged 17-64 employed full-time in their main job in December.

Source: *Survey of Work History of 1981, Survey of Union Membership of 1984, Labour Market Activity Surveys of 1986-1990, and Survey of Labour and Income Dynamics of 1993.*

To assess the contribution of these two factors the data for 1981 and 1993 are combined, and the natural logarithm of hourly wages is regressed on a set of controls for industry, union status, occupations and regions for each of five age groups (17 to 24, 25 to 34, 35 to 44, 45 to 54, and 55 to 64). The regressors also include a dummy variable that equals 1 in 1993 and 0 in 1981 (referred to as year93). This variable measures how much real hourly wages fell between 1981 and 1993. Ideally, one would like to include controls for education. However, changes in the educational categories introduced in 1990 do not allow a comparison of schooling levels between 1981 and 1993. Interaction terms between the year dummy and the other regressors are excluded: this restricts the temporal changes in real hourly wages to be the same in all industries, occupations, regions and types of jobs (unionized versus non-unionized). The year dummy can be thought as capturing "average" changes in real wages that occurred between 1981 and 1993 within jobs. The results obtained from this specification (Model 2) are compared to those of a simple model where the natural logarithm of hourly wages is regressed only on an intercept and year93 (Model 1). This allows us to assess the extent to which sectoral changes in the composition of employment by industry and union status can explain the changes in real hourly wages across age groups.

The results are presented in Table 3.6. The message is unambiguous. For all five age groups, most of the change in real hourly wages observed between 1981 and 1993 remains after controlling for interindustry employment shifts and changes in unionization rate. For instance, Model 1 suggests that real hourly wages of young men employed full-time fell 19% (exp[-0.216] - 1) between 1981 and 1993. Model 2 shows that even after controlling for changes in employment across broad industrial groups and union status, real wages for this group dropped 14% (exp[-0.151] -1). Thus sectoral changes in the composition of employment by industry and the drop in unionization rate do not appear to be the main factors behind the drop in youth real wages. This is consistent with the fact that the decline in youth relative wages is observed in all broad industrial and occupational groups (Betcherman and Morissette 1994).

Another argument is that the growth of international trade has increased the worldwide supply of low-skilled workers and thus has put downward pressures on wages of these workers while at the same time pulling up wages of high-skilled workers (Wood 1994). Alternatively technological changes—such as the introduction of the personal computer—may have increased the relative demand for high-skilled workers and thus increased the wage gap between workers with

Table 3.6
Changes in Real Hourly Wages by Age:
Male Paid Workers Employed Full-Time 1981 and 1993

	Model 1	Model 2	Sample Size
17 to 24 Years	-0.216	-0.151	4,054
	(15.26)	(11.53)	
25 to 34 Years	-0.063	-0.038	7,397
	(6.36)	(4.16)	
35 to 44 Years	0.081	0.085	5,787
	(6.94)	(7.89)	
45 to 54 Years	0.214	0.171	4,174
	(15.31)	(13.32)	
55 to 64 Years	0.139	0.142	2,422
	(7.27)	(8.13)	

Note: The numbers presented in this table are the coefficients of a dummy variable (year93) which equals 1 in 1993, 0 in 1981. For both models, the data for the years 1981 and 1993 have been pooled. The dependent variable is the natural logarithm of hourly wages (in 1993 constant dollars). Model 1 includes only an intercept and the dummy variable year93. Model 2 includes the following additional regressors : 1) industry (7 dummy variables), 2) occupation (7 dummy variables), 3) regions, (4 dummy variables) and, 4) union status. The percentage change in real hourly wages equals the antilog of these coefficients, minus 1. For instance, Model 2 suggests that between 1981 and 1993, real hourly wages of men aged 17-24 fell by 13.9%, i.e. exp(-0.151) - 1. Absolute values of t-statistics are in parentheses. Regressions are run using ordinary least squares. The categories “consumer services”, “clerical occupations”, “Ontario” and “non unionized” are the reference groups.
Source: Survey of Work History for 1981 and Survey of Labour and Income Dynamics for 1993.

high and those with low human capital, which is generally proxied by labour market experience and education (Katz and Murphy 1992).

3. Changes in Age-Earnings Profiles

While the drop in youth real earnings is, on a cross-sectional basis well documented (Beach and Slotsve 1994; Morissette, Myles and Picot 1994), whether the age-earnings profile of young workers has shifted downward over time remains unknown. Real earnings of young workers could be lower at the beginning of their career but could increase faster afterwards and thus exceed those of their counterparts after a certain number of years. In other words, the new age-earnings profile could cross the former age-earnings profile. To determine whether this is the case or not, longitudinal data are required.

Longitudinal data from the T4 supplementary (T4S) tax file, over the period 1975 to 1993 are used. The data are based on a 1% sample of all Canadians who received a T4S form **and** filed a T1 tax return in **at least one year** between 1975 and 1993 (see the Appendix for more details). The annual earnings in this file are based on T4S forms issued by employers, while the age and gender of workers are determined from T1 records.

Both the T4S and the T1 file are required to create the tax-based data set. This is so because annual earnings derived from the former are consistent over time, but not necessarily so for low earnings if derived from the latter. (Tax credits introduced in the mid-eighties provided an incentive for low earners to file a T1 form that they would otherwise not have had to complete). The T1 file is required to obtain information on the age and gender of individuals. The three main advantages of this longitudinal file are: [1] the accuracy of annual earnings; [2] the large size of the sample; and [3] the length of the time interval covered. The main weakness of the file is the absence of detailed information on individual socio-economic characteristics: the file contains no data on education levels, school attendance, occupation and marital status, among other variables.

The extent to which the drop in youth real earnings measured on a cross-sectional basis has had long-term effects is assessed by

Table 3.7
Real Annual Earnings Cumulated Over Ten Years by Male Paid Workers: 1975 to 1984 and 1984 to 1993

Age at the Beginning of the Period	[1] 1975 to 1984	[2] 1984 to 1993	[3] Difference [1]-[2]	[4] Percentage Change
		(1989 Dollars)		
18-24	258,130	230,619	27,511	-10.7
25-29	346,117	322,772	23,345	-6.7
30-34	392,203	375,916	16,287	-4.2
35-44	402,704	418,860	-16,156	4.0

Note: The calculations are for men with positive earnings during all ten years of the period considered.
Source: T4 Supplementary file.

considering two periods: 1975 to 1984, and 1984 to 1993. Each period covers ten years, includes a recession and ends with the beginning of a phase of recovery. For each, a sample of workers who had positive earnings during all ten years was selected. For instance, to compare the outcomes of young males over the last two decades, I select: [1] men who were aged 18 to 24 in 1975 and who had positive earnings during all ten years from 1975 to 1984; and [2] men who were aged 18 to 24 in 1984 and who had positive earnings during all ten years from 1984 to 1993.

First, average real cumulated earnings of men aged 18 to 24 (at the beginning of the periods considered) fell 11% or by roughly $27,000 between these periods (Table 3.7). In contrast, earnings of men 35 to 44 years rose a modest 4%. Second, the age-earnings profile of the sampled workers reveals that in 1984 real annual earnings of men 18 to 24 were 20% lower than those of their counterparts in 1975 (see year 1 in Figure 3.3). This gap narrowed to 10% five years later (in year 6) but did not disappear by the end of the period.[1] The same story holds for 21 to 24 year olds and for those 25 to 29 years of age. However, real earnings of cohorts of 35 to 44 year olds exhibit a different pattern. Specifically, after the third year, the real earnings of those 35 to 44 in 1984 lie well above those who were the same age in 1975.

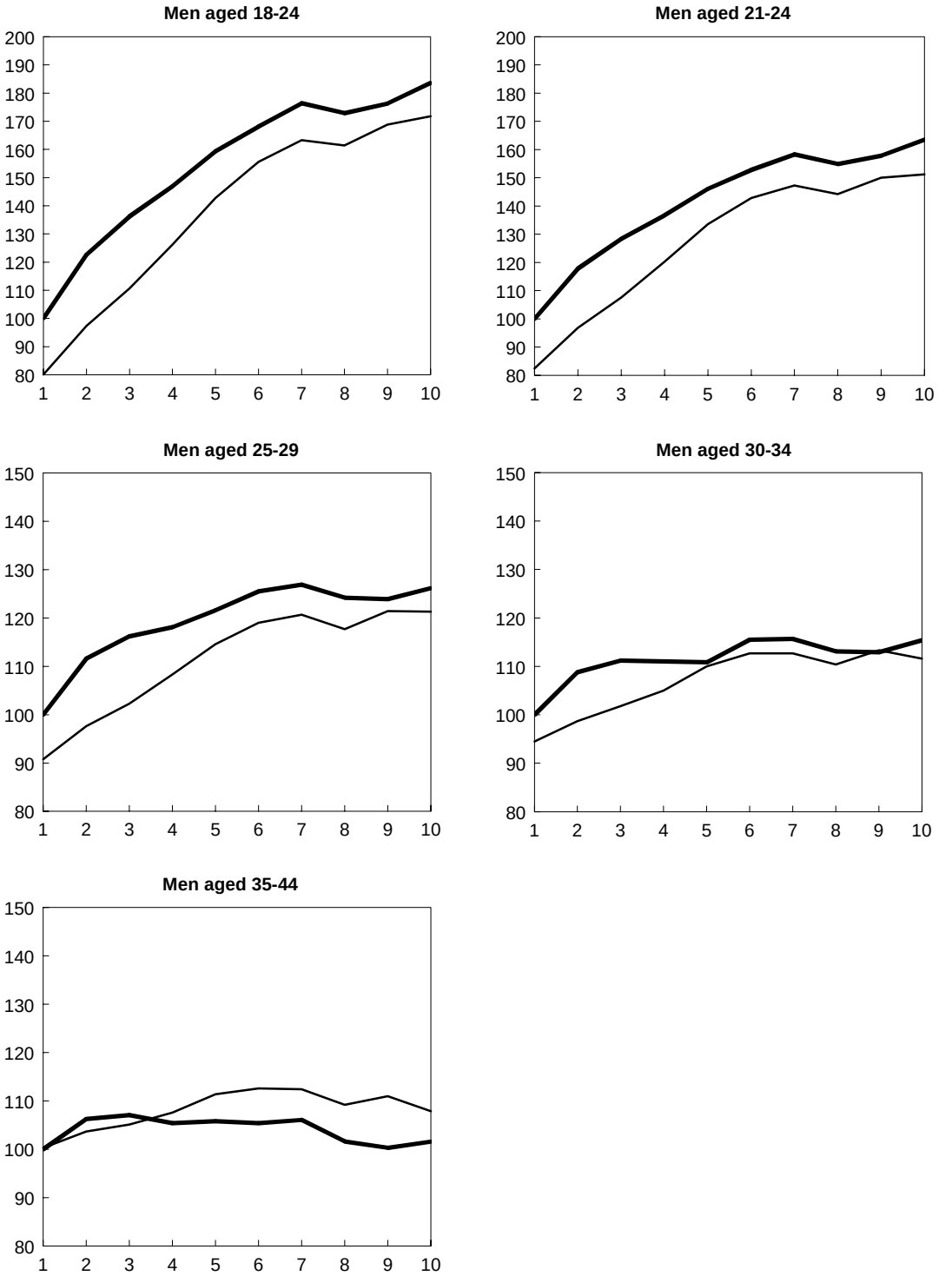
One could argue that the downward shift in the age-earnings profile of men aged 21 to 24 can be explained **entirely** by the growth of individuals combining full-time school and part-time work. There are, however, two problems with this reasoning. First, while this argument may explain part of the gap between the real earnings of the 1984 cohort and those of the 1975 cohort during the first years of the period (that is, more young men combining school and part-time work and thus receiving relatively low earnings), it can hardly explain why a gap still remains after ten years of observations. Second, data from the Survey of Consumer Finances show that a similar shift is observed among men aged 21 to 24 who work full-year full-time (Figure 3.4). Thus, the growing importance of individuals combining school and part-time work cannot be the whole story.

An alternative explanation is that this downward shift in youth age-earnings profile could simply be due to higher unemployment rates during the second period: once cyclical effects are taken into account the age-earnings profile could have remained unchanged. To deal with this issue, the natural logarithm of real earnings of individual i at time t, y(i,t), is modeled as:

$$y(i,t) = \beta_0 + \beta_1 X(i,t) + \beta_2 URate(i,t) + u(i,t) \quad (3.1)$$

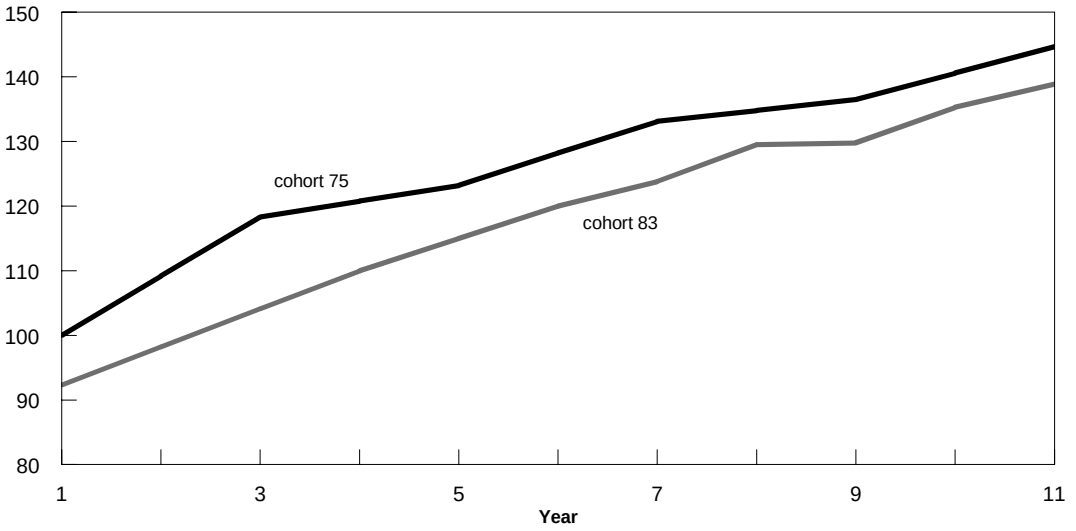
where u(i,t) is a random term, URate(i,t) is the regional unemployment rate of men aged 25 to 54 and X(i,t) is a vector containing the following explanatory variables: five regional dummies; a quadratic in age; two cohort dummies (cohort79=1 if individuals are 21 to 24 in 1979, and 0 otherwise; cohort83=1 if individuals are 21 to 24 in 1983, and 0 otherwise); and four interaction terms between the cohort effects and the quadratic in age. The cohort dummies allow the **intercept** of the age-earnings profile to vary across cohorts, while the interaction terms allow the **slopes** of the age-earnings profiles to vary. The 1975 cohort is used as the reference group.

Figure 3.3
Real Earnings Path of Men Between 1975 and 1984, and Between 1984 and 1993



Note: *The thick (thin) line shows real annual earnings which workers aged x-y in 1975 (1984) received during the 1975-84 (1984-93) period. Real annual earnings are expressed relative to those received in 1975 by workers aged x-y in 1975.*
Source: *T4 data.*

Figure 3.4
Real Earnings of Synthetic Cohorts of Men Working Full-Year Full-Time (21 to 24 Years of Age at the Beginning of the Period)



Source: *Survey of Consumer Finances.*

I focus on men aged 21 to 24, rather than on those aged 18 to 24, in order to reduce the influence of the growth in school enrollment on the results. (It is impossible to distinguish full-year full-time workers from other workers because the T4S contains no information on hours worked.) This regression is run on a sample that pools three cohorts: [1] men aged 21 to 24 in 1975 with positive earnings between 1975 and 1985; [2] men aged 21 to 24 in 1979 with positive earnings between 1979 and 1989; and [3] men aged 21 to 24 in 1983 with positive earnings between 1983 and 1993. This is done in order to take full advantage of the information included in the data. (Since the observation period is from 1975 to 1993, choosing four-year birth cohorts allows three different cohorts of workers to be followed over eleven years.)

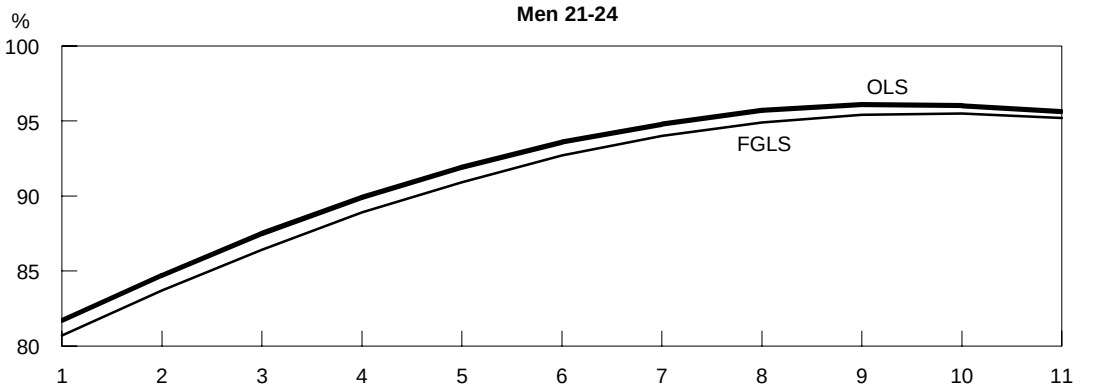
I first assume that the random term u(i,t) is independent across individuals (no cross-sectional correlation), has the same variance across individuals (no cross-sectional heteroscedasticity), and is independent across years for a given individual (no serial correlation). These assumptions permit the use of Ordinary Least Squares (OLS). I then allow for first-order serial correlation and reestimate the model using feasible generalized least squares (FGLS).[2,3] The regression results for selected coefficients using Least Squares and FGLS are presented in Table 3.8. As expected, annual earnings are negatively correlated with unemployment. The dummy variable for the 1983 cohort and the interaction terms between the cohort dummy and the quadratic term in age are significant, suggesting that the age-earnings profile of the 1983 cohort does differ from that of the 1975 cohort. To see how they differ, we plot the relative age-earnings profile that would have been observed had the unemployment rate been the same for both cohorts.

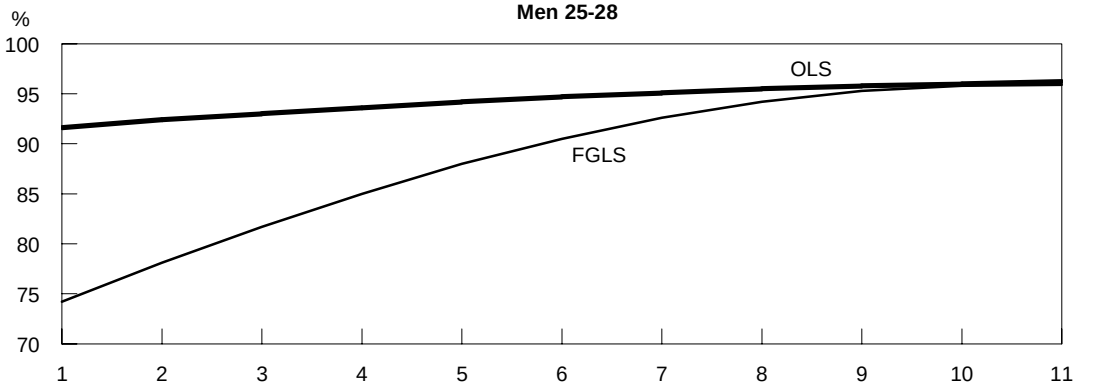
The first panel of Figure 3.5 suggests that even if unemployment rates had been the same for both cohorts, real earnings of the 1983 cohort would have still started at a much lower level than those of the 1975 cohort, would have approached those of the 1975 cohort as individuals aged, but would have remained roughly 5% lower even after ten years in the labour market. This is evidence that lifetime earnings of youth have fallen.

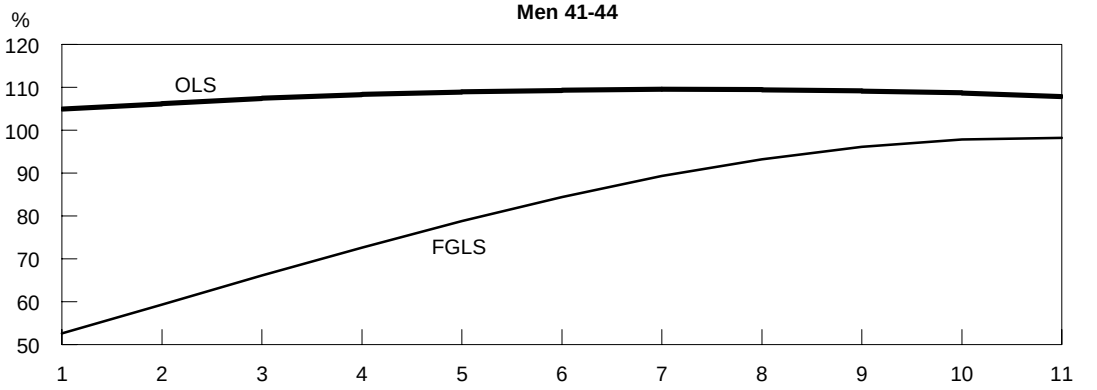
This exercise is repeated for four-year birth cohorts of men aged 25 to 28 and 41 to 44, and the results shown in Table 3.8 and the second and third panels of Figure 3.5. Contrary to the findings for men aged 21 to 24, Least Squares and FGLS yield strikingly different results. In particular, the coefficients of cohort83 and the two interaction terms change drastically when a correction for first-order serial correlation is applied.

Why do these coefficients change so much? One possibility is that cohort effects may be hard

Figure 3.5
Estimated Age-Earnings Profile of the 1983 Cohort Relative to the 1975 Cohort







OLS: Ordinary Least Squares Method

FGLS: Feasible Generalized Least Squares

Table 3.8
Regression Results from Longitudinal Data

Selected Coefficients	Men Aged 21-24		Men Aged 25-28		Men Aged 41-44	
	Least Squares	FGLS	Least Squares	FGLS	Least Squares	FGLS
Age	0.356	0.114	0.205	-0.111	0.089	-0.286
	(26.07)	(2.79)	(14.35)	(2.28)	(3.13)	(2.22)
Age Squared/100	-0.537	-0.149	-0.277	0.165	-0.097	0.250
	(21.53)	(2.21)	(12.20)	(2.36)	(3.23)	(2.04)
Cohort83	-2.15	-2.14	-0.519	-3.6	-2.49	-17.33
	(8.21)	(2.49)	(1.65)	(3.05)	(2.68)	(3.73)
Cohort83 x Age	0.139	0.136	0.025	0.2	0.107	0.668
	(7.25)	(2.40)	(1.25)	(2.95)	(2.74)	(3.80)
Cohort83 x (Age Squared/100)	-0.228	-0.222	-0.033	-0.282	-0.111	-0.644
	(6.59)	(2.36)	(1.03)	(2.88)	(2.70)	(3.85)
Unemployment Rate	-0.027	-0.025	-0.021	-0.019	-0.015	-0.014
	(25.93)	(24.57)	(22.25)	(21.24)	(12.45)	(13.65)
rho*		0.681		0.728		0.822
		(377.48)		(414.29)		(404.04)
Sample Size	172,040	156,400	169,620	154,200	100,529	91,390

* The dependent variable is the natural logarithm of real annual earnings. The full set of regressors is: an intercept; four regional dummy variables; regional unemployment rate of men 25 to 54; two dummy variables for the 1983 and 1979 cohorts (the 1975 cohort is the omitted category); age; age squared; four interaction terms between the cohort dummies and the quadratic term in age. The model is estimated both with Least Squares and with feasible generalized least squares (FGLS) assuming first-order serial correlation. The coefficient for rho is derived by regressing res(i,t) = rho*res(i,t)-1 + v(i,t), where res(i,t) and res(i,t-1) are residuals (from least squares) for individual i at time t and v(i,t) is a white noise error.T statistics are in parentheses. The sample size equals N times T, where N is the number of individuals and T is the number of periods in the panel. For this sample T = 11. When FGLS is used the first observation is deleted for each individual and thus the sample size then equals N times T-1.

Source: Revenue Canada's T-4 supplementary file.

to identify once we start correcting for first-order serial correlation. If $\rho=1$ and one were to transform the data and apply generalized least squares, the cohort effects (in levels) would not be identified. It is possible that even though ρ equals only 0.73 in our models, we start losing identification of the cohort effects when the correction for autocorrelated residuals is applied. The fact that the coefficients of the cohort effects change more than the coefficients of some other explanatory variables (the unemployment rate and the regional dummies) is consistent with that conjecture.

In any event, although the results are mixed (in terms of the estimated age-earnings profile of the 1983 cohort relative to that of the 1975 cohort) for men aged 25-28 and men aged 41-44, both raw data and the regression results from LS and FGLS provide evidence that (for men aged 21 to 24) the age-earnings profile of the 1983 cohort has shifted downward relative to that of the 1975 cohort even after removing cyclical effects. Estimated earnings from OLS coefficients suggest that men aged 24 in 1983 experienced a cumulative earnings loss of $16,430 (in 1989 constant dollars) during an eleven-year period compared to men aged 24 in 1975. (Furthermore, estimated earnings from LS coefficients suggest that in 1983, men aged 24 earned $16,923 while in 1975, men aged 24 received $19,278.) Thus, the long-term effects of the drop in youth real wages appear (at least for 21 to 24 year olds) to be far from negligible.

4. Upward Earnings Mobility

The decline in youth real earnings measured on a cross-sectional basis and the downward shift

of the age-earnings profile suggest that today's young workers will spend a greater fraction of their career receiving low earnings than their counterparts did in the mid-seventies. This would be so, simply because they start at lower wages and do not catch up even after ten years.

A related issue is whether the chances of moving out of the bottom of the real earnings distribution have changed in the 1980s **after** controlling both for cyclical effects and for any drop in their earnings. In other words, net of cyclical effects and of changes in real earnings, the duration of spells of low earnings experienced by young workers may have increased over the last decade. This could happen if changes in firms' hiring practices (due to greater competition and/or technological changes) led more young men to be trapped in non-permanent jobs that would offer little or no prospect for career advancement and would therefore lower the speed at which they cross different earning thresholds.

In pursuing this issue, the first task is to define a low-earnings threshold. Since any definition is arbitrary, two thresholds are selected to measure transitions into the bottom of the earnings distribution. The first is set at $13,509 (in 1993 dollars) and is close to Statistics Canada's low-income cut-off (LICO) for one adult living in an urban area of less than 30,000 people ($13,063). The second is $21,073 (in 1993 dollars) and approximates the LICO for a family of two people living in an urban area of at least half a million people ($20,603). For simplicity, these two thresholds will be referred to as being equal to $13,000 and $21,000 respectively.

It is well known that the fraction of male earners who receives low earnings has increased during the 1980s. The relative importance of low earners has increased in all age groups, especially among males under 35. For instance, Morissette and Bérubé (1996) show that 23% of male earners 25 to 34 years received less than $21,000 in 1975, compared to 40% in 1993.

To examine whether the duration of spells of low earnings has changed through time, I first calculate the fractions of new spells of low earnings started by young men between 1976 and 1992 lasting **at least** 2 years, 3 years, 4 years, and so on.[4,5] A spell of low earnings is defined to begin when a worker starts receiving **positive** earnings less than $13,000 or $21,000. It ends either when a worker stops receiving earnings **next year** or when he starts receiving higher earnings **next year**. It is right-censored (that is, incomplete) if a worker is still earning less than $13,000 or $21,000 in 1993, the last year of available data.

Table 3.9 shows the results of this exercise. Of all men who start earning less than $13,000 ($21,000) in a given year, roughly 40% (50%) remain in that state for at least two years. A quick examination of the table reveals that the chances of remaining in the bottom of the earnings distribution for a given number of years are affected by macroeconomic conditions. Hence, to test whether or not spells of low earnings lasted longer in the 1980s than in the 1970s, we have to control for business cycle effects.

The duration of a spell of low earnings is likely to depend not only on macroeconomic conditions prevailing at the **beginning** of the spell, but also on those prevailing during the years **following** the beginning of that spell. It should also depend on workers' real earnings at time t. Other things being equal, the greater the distance between workers' real earnings and the threshold used to define low earnings, the less likely a worker is to move out of the bottom at time t+1. An empirical framework incorporating time-varying covariates is needed to take these issues into account. Even if the endings of all spells were observed, conventional regression analysis (the use of Least Squares to model the duration of spells of low earnings as a function of certain explanatory variables) would not deal with this problem. To incorporate time-varying covariates, we need to use a duration model (Kiefer, 1988).

Since the unit of time used to analyze spells of low earnings is long (one year) relative to the total period of observation (19 years for the period 1975 to1993), and since spells of low earnings cannot take place at any time, a duration model based on discrete time analysis is used. Specifically, a logit model is used to estimate the probability of a spell ending in a given year.

To estimate the probability of an individual leaving the bottom of the earnings distribution at time t+1, a data set whose unit of observation is a spell-year of low earnings is constructed. Put simply, if a spell of low earnings lasts seven years, there will be seven observations associated with that spell in the data set. For each spell-year, the following explanatory variables are included: four regional dummies; a regional unemployment rate (specific for each age group) at time t; the distance between workers' earnings at time t and the threshold used to define low earnings; a set of spell length dummies; and a dummy variable equalling 1 from 1985 onward and 0 otherwise. The regional dummies allow the hazard rates (the

Table 3.9

The Fraction of Low Earnings Spells Lasting at Least a Given Number of Years

	Year in Which a Spell of Low Earnings Began																
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
A. Low Earnings Defined as Less Than $13,509 in 1993 Dollars																	
2 Years	39.1	41.0	39.0	40.2	40.3	45.4	46.9	46.8	47.3	47.7	44.4	45.0	44.1	44.2	45.9	45.8	45.2
3 Years	19.2	19.0	20.1	20.5	21.4	25.9	24.5	25.9	26.7	26.2	24.1	24.2	23.0	24.6	25.0	24.4	
4 Years	10.1	11.0	11.1	11.4	12.8	15.3	14.4	15.3	16.1	14.9	14.2	13.9	14.1	14.1	15.2		
5 Years	6.0	6.9	7.1	7.5	8.3	9.2	8.9	9.1	10.2	9.1	8.6	8.1	8.8	9.0			
6 Years	3.9	4.3	4.9	5.2	5.0	5.6	5.6	5.7	6.6	5.3	5.4	5.5	5.7				
7 Years	2.5	3.2	3.4	3.8	3.5	3.9	3.6	3.7	4.2	3.7	3.6	3.7					
8 Years	1.6	2.4	2.6	2.5	2.4	2.7	2.5	2.6	2.9	2.6	2.4						
9 Years	1.1	1.6	1.9	1.8	1.7	2.1	1.8	1.9	2.0	1.9							
10 Years	1.0	1.4	1.4	1.3	1.2	1.7	1.3	1.5	1.6								
Number of Spells	3,775	4,129	4,280	4,087	4,452	4,659	5,667	5,976	5,446	5,269	5,365	5,272	5,147	5,272	5,674	6,323	6,062
B. Low Earnings Defined as Less Than $21,073 in 1993 Dollars																	
2 Years	48.4	49.7	48.8	51.2	50.8	55.7	55.8	56.4	57.0	57.8	56.4	56.3	54.0	53.7	57.0	54.0	53.9
3 Years	28.3	28.6	28.6	31.7	32.3	36.7	34.0	36.3	37.7	37.6	35.4	34.9	33.8	34.9	36.7	33.3	
4 Years	18.1	18.8	18.6	21.0	23.0	25.8	23.0	24.9	26.4	25.5	24.4	24.0	23.7	23.3	25.9		
5 Years	12.3	13.5	12.0	15.1	17.0	18.5	16.0	17.8	19.2	18.4	17.3	16.9	16.9	16.6			
6 Years	8.9	9.5	8.6	11.3	12.6	13.2	11.3	12.5	14.0	13.2	12.5	12.9	12.6				
7 Years	6.7	7.6	6.5	8.5	9.1	9.4	8.3	9.0	10.8	10.0	9.1	9.6					
8 Years	5.3	5.7	5.4	6.5	7.0	6.8	6.3	6.6	8.4	7.6	6.9						
9 Years	4.3	4.6	4.1	4.9	5.4	4.9	4.8	5.2	6.5	6.0							
10 Years	3.4	3.8	3.3	3.9	4.2	3.8	3.8	4.0	5.1								
Number of Spells	4,201	4,692	4,841	4,693	5,109	5,218	6,206	6,375	5,721	5,608	5,652	5,620	5,487	5,762	6,127	6,614	6,182

Note: Table entries refer to new spells of low earnings started by male workers who were 18 to 50 at the beginning of the spell. Incomplete spells as well as completed spells are included.

chances of ending a spell of low earnings given that one has been in that state for a given number of years) to vary across regions. This may happen if regions vary in the diversification of their industrial structure. If so, opportunities for moving from a low-wage industry to a high-wage industry–and thus the degree of upward mobility–may differ across regions.

The age/region-specific unemployment rate is used to control for business cycle effects. The distance between workers' earnings at time t and the low earnings threshold allows us to measure the rate of mobility conditional on workers' earnings. The set of spell length dummies are used to estimate the slope of the hazard rates.[6] I also test whether workers' chances of leaving the bottom of the earnings distribution are (after controlling for cyclical effects and changes in real earnings) lower during the second half of the 1975-1993 period than during the first half by including a dummy variable equalling 1 in 1985 and 0 afterwards. The use of this variable is based on the assumption that the expansion period of the second half of the 1980s was, in some sense, different from previous expansion periods. Specifically, increases in competition induced by the growth of international trade and technological changes may have led firms to increase the flexibility with which they manage their workforces. Firms may have increased the number of temporary, part-time or contract workers, especially among young workers. If this were the case, the rate at which youth earnings would grow could decrease and thus, youth upward mobility could have dropped.

A **multinomial logit** model is used because spells of low earnings may end in two different ways: a worker may stop receiving earnings or may start receiving earnings higher than $13,000 or $21,000 next year (Hosmer and Lemeshow 1989). Since earnings mobility is likely to differ across age groups, the model is estimated separately for the three following age groups defined at the beginning of the spell: 18 to 24 years; 25 to 34 years; and 35 to 50 years. The model is also estimated for each of the two thresholds, $13,000 and $21,000. The dependent variable equals: 0 if a worker remains in the bottom of the earnings distribution at time t+1; 1 if he stops receiving earnings at time t+1; and 2 if he starts receiving higher earnings next year at time t+1.[7] (The detailed estimation results are available upon request as an appendix to this chapter.)

Two facts emerge for workers under 35 regardless of the threshold used. First, after controlling for cyclical effects, the chances of leaving a state of low earnings are slightly lower from 1985 on than before 1985. Second, the longer a worker has been receiving low earnings, the smaller are the chances of ending a spell of low earnings.[8] Why this is so is unclear. At least two explanations can be put forward (Bane and Ellwood 1986). One possibility is that, for given observable as well as an unobservable characteristics, it may be harder for workers to escape the bottom of the earnings distribution as time elapses. Long periods of low earnings could make it increasingly difficult for workers to get high-paying jobs that allow them to move up in the earnings distribution. A second possibility is that workers are heterogeneous in terms of unobserved abilities. Some workers can have low and constant exit rates while others can have high and constant exit rates. As time elapses, the former account for a larger fraction of spells. As a result, the declining exit rate observed in the aggregate could result from this mixture of group-specific exit probabilities.

To illustrate, the probability of a worker moving out of the bottom of the earnings distribution next year, given that he has been receiving low earnings for a given number of years, is presented in Table 3.10. This probability is the sum of the probability of moving down (of receiving no earnings next year) and the probability of moving up (receiving higher earnings next year). Estimates of these two probabilities are also offered.[9] The numbers are calculated by assuming an unemployment rate of 10%, 6%, and 4% for male workers aged 18 to 24, 25 to 34 and 35 to 50 respectively.[10] Furthermore, they are based on the mean distance (defined for each age group) between workers' earnings and the low earnings threshold.

As indicated in Table 3.10 the probability of moving out of the low earnings area has dropped slightly among workers under 35. For these employees, the lower exit probabilities are mainly due to falling chances of moving up in the earnings distribution. For instance, among males aged 18 to 24, the probability of moving up after receiving less than $21,000 for two years dropped from 16% in 1976-84 to 13% in 1985-92. This probability dropped from 22% to 20% among males aged 25-34 and remained unchanged at 21% for males aged 35-50, suggesting no decline in upward mobility for older workers. Results not shown here indicate that these qualitative conclusions hold when the $13,000 earning threshold is considered.

Table 3.10

Probabilities of Escaping Low Earnings by Length of the Spell and Type of Exit

Year	Probability of No Earnings		Probability of Higher Earnings		Total Probability of Escaping	
	1976-84	1985-92	1976-84	1985-92	1976-84	1985-92
A. Spells of Low Earnings Started by Men 18 to 24 at the Beginning of the Spell						
			percentage			
1	13.9	13.0	18.7	15.5	32.5	28.6
2	13.5	12.6	15.7	12.9	29.2	25.5
3	12.0	11.2	14.4	11.8	26.5	23.0
4	11.6	10.8	13.4	11.0	25.1	21.8
5	12.0	11.1	13.6	11.2	25.6	22.3
6	10.5	9.7	13.0	10.6	23.5	20.3
7	11.5	10.6	10.8	8.8	22.2	19.3
8	10.1	9.3	10.8	8.7	20.9	18.1
9	11.1	10.2	10.5	8.5	21.6	18.7
10 or More	11.3	10.3	7.4	5.9	18.6	16.2
B. Spells of Low Earnings Started by Men Aged 25 to 34 at the Beginning of the Spell						
			percentage			
1	20.6	20.3	27.3	25.4	47.9	45.6
2	17.7	17.3	21.7	20.0	39.4	37.3
3	16.2	15.8	17.8	16.4	34.1	32.2
4	15.6	15.1	15.3	14.0	30.8	29.1
5	14.1	13.6	12.8	11.7	26.9	25.2
6	13.4	13.0	12.0	10.9	25.5	23.9
7	12.7	12.2	10.7	9.7	23.4	21.9
8	13.7	13.2	9.4	8.5	23.1	21.7
9	13.6	13.0	7.4	6.7	21.0	19.7
10 or More	11.2	10.7	6.1	5.5	17.3	16.2
C. Spells of Low Earnings Started by Men Aged 35 to 50 at the Beginning of the Spell						
			percentage			
1	23.2	23.2	27.7	27.7	50.9	50.9
2	19.3	19.3	20.9	20.9	40.2	40.2
3	16.7	16.7	14.3	14.3	31.1	31.1
4	15.4	15.4	12.2	12.2	27.6	27.6
5	13.3	13.3	11.0	11.0	24.3	24.3
6	13.5	13.5	9.1	9.1	22.5	22.5
7	12.0	12.0	8.3	8.3	20.2	20.2
8	11.0	11.0	7.4	7.4	18.3	18.3
9	11.6	11.6	5.2	5.2	16.8	16.8
10 or More	11.2	11.2	4.4	4.4	15.6	15.6

Note: Low earnings refers to less than $21,073 in 1993 constant dollars. The numbers presented in this table assume that the unemployment rate equals 10%, 6% and 4% for men aged 18 to 24, 25 to 34 and 35 to 50, respectively. For men aged 35 to 50, the probabilities are the same for both periods because the dummy variable which equals 1 in 1985 and afterwards is not statistically significant at the 5% level.

Thus, even after removing cyclical effects and any drop in real earnings, the duration of spells of low earnings appears to have risen in the 1980s among young workers. Why do young workers now take longer to move up in the earnings distribution than they used to? One explanation is that more and more young individuals work part-time while they attend school full-time. (The percentage of individuals aged 18 to 24 who were employed while attending school rose from 8.9% to 19.6% between 1976 and 1993.) As a result, a larger fraction of youth could receive low earnings for a long period of time simply because more of them now combine part-time work and school.

A second explanation is that young men who have already made a transition from school to work may now face greater problems getting access to well paid permanent jobs than their counterparts did in the 1970s. As indicated in Table 3.5, many young workers who are no longer at school are now either involuntary employed part-time or hold temporary jobs. This may affect the speed at which they move up in the real earnings distribution.

A third explanation could be that some of the workers under 35 lack the skills or education in demand on the labour market. Since the T4S contains no information on school attendance or education levels, it is impossible to disentangle the relative contribution of each of these factors. The fact that the relative unemployment rate of low-educated young workers has increased in the 1980s is consistent with that view. Between 1981 and 1989, the ratio of the unemployment rate of individuals with 0 to 8 years of schooling to that of university graduates rose from 3.0 to 3.9 among individuals 15 to 24 and from 3.3 to 3.7 among 25 to 34 year olds.

A fourth explanation relies on the possibility that unobserved heterogeneity could explain part of the decrease in youth upward mobility. Specifically, if spells of low earnings in the 1980s are concentrated to a greater extent on low-skilled workers (who should be expected to have low exit rates) than they were in the mid-seventies, the hazard rates may have shifted downwards because of this composition effect. Hence, the decrease in upward mobility among young workers should be interpreted with caution. It could reflect both a true decline in exit rates for all types of workers or it could reflect the greater concentration of spells of low earnings on low-skilled workers (without any change in group-specific exit rates).

5. Conclusion

In **absolute** terms, employment, unemployment and underemployment rates of young men are now worse than they were either prior to the 1990-92 recession or indeed twenty years ago. Because the employment outcomes of older workers have also deteriorated during the period considered, young males, **relative** to their older counterparts, are not worse off than they were twenty years ago.

The same story does not apply to wages. Both in real terms and relative to those of older employees, hourly wages and annual earnings of young men have fallen substantially since 1981. The fact that the age-earnings profile of recent cohorts of young men has deteriorated relative to that of previous cohorts (even after removing cyclical effects) suggests that the drop in youth wages has had long-term effects. At the very least, earnings cumulated by young men over a period of ten years have been affected.

Even after controlling both for cyclical effects and any drop in their real earnings, young men appear to take more time to move up in the earnings distribution now than they used to do in the mid-1970s. The growth in the relative importance of students combining school and part-time work, the (assumed) greater difficulty of youth getting access to well paid permanent jobs, the lack of appropriate skills for some low-educated young men, and unobserved heterogeneity could explain this pattern.

Taken together, these findings raise at least two questions. First, what factors have led youth wages to fall? A fast-growing literature on earnings inequality has not yet provided a satisfactory answer. One of the leading explanations, the hypothesis of skill-biased technological change, is hard to reconcile with the idea that young workers are the most likely to be able to work with new processes and recently developed technologies. Second, will the downward shift in the age-earnings profile of recent cohorts of young workers translate into a decrease in their lifetime earnings or will it eventually be offset by faster growth of earnings in the years to come? Whatever answers are given to these questions, today's young Canadians do face a quite different labour market than their counterparts a generation earlier.

Appendix

The T4 supplementary tax file (T4S), covering the years 1975 through 1993, is the major data set used. The analysis sample is based on 1% sample of all personal tax records received by Revenue Canada. Specifically, it consists of 1% of individuals who received a T4S form and filed a T1 tax form in **at least one year** between 1975 and 1993. The file was constructed by merging employers' T4S with T1 records.

Employers have to complete a T4 supplementary form when: income tax, contributions to the Canada/Quebec Pension Plan (C/QPP), or contributions to the Unemployment Insurance (UI) program have to be deducted from an employee's pay; or when the annual earnings of an employee exceeds a certain threshold. The threshold was $250 between 1975 and 1988, and $500 afterwards. Income tax has to be deducted whenever an employee's annual **income** (annual wages plus income from other sources such as interest and dividends) exceeds his or her personal exemption. In most cases, the underlying annual wages should be higher than the thresholds of either $250 or $500. Contributions to C/QPP have to be deducted whenever the annual wage of an employee exceeds the Yearly Basic Exemption (YBE). The YBE amounts roughly to 10% of the average industrial annual wage and thus exceeds the thresholds of $250 and $500. Contributions to UI have to be deducted from an employee's pay whenever he or she works more than a certain number of hours per week (15 hours in 1993) or earns more than a given amount per week ($149 in 1993).

Since the thresholds associated with income taxation (the personal exemption) or with C/QPP contributions (the YBE) exceed $250 or $500, most jobs require a remittance of a T4. However, this may not be the case when individuals earn more than the UI threshold on a weekly basis (or work more hours per week than the minimum number required) yet earn less than either $250 or $500 on an annual basis. Such cases are likely of very limited importance.

A two-step procedure is used to derive a sample that is consistent over time. First, all jobs with annual wages less than $250 in 1975 constant dollars are excluded from the analysis. The resulting thresholds equal $250 in 1975, $645 in 1989 and $738 in 1993. Then annual earnings are derived by summing earnings from all remaining jobs an individual holds in a given year. Thus, unless otherwise stated, **the earning concept used consists of annual earnings resulting from jobs that paid at least $250 in 1975 constant dollars.** This implies that reference to "workers with no earnings" includes not only workers who did not receive any wages during the reference year, but also those whose earnings were (in total) based on jobs that paid less than $250 per year in 1975 constant dollars. The term "workers with no earnings" should be viewed as referring to workers who did not have a meaningful spell of employment during the reference year. A related point is that the earnings concept used excludes any income from self-employment. Thus, an individual whose annual earnings drop from year t to t+1 but who starts receiving income from self-employment in year t+1 could start a new spell of low earnings in year t+1 even though his employment income (the sum of annual wages and salaries plus self-employment income) had remained unchanged between these two years. More generally, transitions of individuals from paid work into self-employment are excluded from the analysis.

Notes

The author wishes to thank the anonymous referees for their comments on an earlier draft. However, the final responsibility for the analysis rests solely with the author, and in particular should not be attributed to Statistics Canada.

[1] In other words, real annual earnings in 1989 of men aged 18 to 24 in 1984 (and who were thus 23 to 29 in 1989) were 10% lower than earnings received in 1980 by men aged 18 to 24 in 1975 (who were 23 to 29 in 1980).

[2] To do so, I proceed in two steps. First, I estimate ρ, the autocorrelation coefficient, through the following regression: $res(i,t) = \rho res(i,t-1) + v(i,t)$, where res(i,t) and res(i,t-1) are the residuals from Least Squares estimation of equation (3.1) for individual i at time t and t-1, and v(i,t) is a random error. Second, I omit the first observation for each individual, transform the data and regress the following equation by Least Squares: $y(i,t) - \rho y(i,t-1) = b_0(1-\rho) + b_1(X(i,t)-\rho X(i,t-1)) + b_2(URate - \rho URate(i,t-1))$.

[3] One way to test for first-order serial correlation is to regress the residuals from the first-stage regression, res(i,t), on res(i,t-1) as well as on all the regressors used in the first-stage regression. If the resulting coefficient for res (i,t-1) is significant, then the null hypothesis of no first-order serial correlation can be

rejected (Davidson and MacKinnon 1993, 357-58).

[4] As is well-known, neither the average duration of new spells in progress nor the average duration of new completed spells can provide unbiased estimates of the true duration of new spells of low earnings.

[5] Spells of low earnings for which we observe the beginning are first available in 1976 or after. If a male worker has low earnings in 1975, it cannot be determined whether he started receiving low earnings in 1975 or before since there are no data prior to 1975. Similarly, spells of low earnings started in 1993 cannot be included in the analysis because it is not known whether these spells ended the following year or not. For this reason, the analysis is based on spells started between 1976 and 1992.

[6] Nine spell length dummies are included. Using a set of spell length dummies allows a very flexible specification of the probabilities of ending a spell of low earnings, given that one has been receiving low earnings for a certain number of years. The hazard rates can be monotonically increasing or decreasing through time, have a U-shape, an inverted U-shape, or exhibit other non-linear trends.

[7] The analysis is based on spells started by men of a given age group at the **beginning** of the spell. The sample consists of spells of low earnings started between 1976 and 1992. The former is the first year for which I observe the beginning of a spell and the latter is the last year for which I know whether or not a person left the bottom of the earnings distribution at time t+1.

[8] There are some exceptions. For instance, if low earnings are defined as those under $13,000, the chances of moving out of the bottom of the earnings distribution are, among males aged 35-50, higher if the spell has lasted 8 years than if it has lasted 7 years.

[9] The probabilities are calculated as follows. The dependent variable is subject to three events. It equals: 0 if a spell is not completed during a given year; 1 if a spell ended with the worker moving down; 2 if a spell ended with the worker moving up. Let b1 and b2 be the two vectors of coefficients associated with the vector of explanatory variables X. Then, the probability of a worker moving down equals: $\exp(b_1X) / [\,1 + \exp(b_1X) + \exp(b_2X)\,]$. Similarly, the probability of moving up equals: $\exp(b_2X) / [\,1 + \exp(b_1X) + \exp(b_2X)\,]$. The probability of a spell **not** ending during a given year equals one minus the sum of these last two probabilities.

[10] To assess the impact of the business cycle on workers' chances of leaving the bottom of the earnings distribution, I recalculated the aforementioned probabilities assuming unemployment rates of 14%, 9% and 6% for men in the three age groups. For all age groups and for both thresholds, these higher unemployment rates led to lower probabilities of moving out, moving down and moving up. Thus, high unemployment rates appear to decrease the upward mobility (defined in real terms) of low earners.

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Chapter 4

Intergenerational Income Mobility in Canada

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Will the children of high income families achieve equally high incomes? Will the children of low income families become low income adults? These important questions deal with intergenerational income mobility, that is with the transmission of economic status between generations. Our objectives in this chapter are to determine the degree of intergenerational income mobility in Canada during the mid-1980s and 1990s and to investigate whether it has changed over time. In an era of increasing income inequality within a generation, it is important to understand whether equality of opportunity is preserved, or whether increasing polarization in labour market outcomes will be further exacerbated in the next generation. Equality of opportunity makes it possible for citizens to exploit their personal abilities and resources without consideration of family background. The higher the transmission of economic status between two generations, the lower the equality of opportunity. The degree of economic transmission between two generations, in turn, affects income inequality within a generation. For example, Becker and Tomes (1986) have shown that income mobility is affected by parental investments in their offspring, which then affects income inequality. The degree of transmission between two generations tells us how a society deals with the issues of income inequality and equality of opportunity; it can be seen as a socioeconomic barometer of a society. It is also of great importance to many public policy concerns, such as the public financing of schooling.

Not surprisingly, many recent studies of intergenerational equity have concentrated on the two countries where within-generation income inequality has increased most dramatically: the United States (Altonji and Dunn 1991, Solon 1992, Zimmerman 1992, Peters 1992) and the United Kingdom (Dearden, Machin and Reed 1997). Another reason for the focus on these countries has to do with the availability of longitudinal data tracking individuals for sufficiently long periods. Data limitations have prevented similar research in Canada. However, Corak and Heisz (1995, 1998) have recently overcome this problem by using income tax information on close to 450,000 father-son pairs. In this chapter, we use a different route to examine the same issue by combining publicly available data on average occupational income from the decennial Canadian Censuses of 1951 through 1991 (including the 1986 Census) with data from the General Social Survey of 1986 and 1994. In spite of the very different data used, our results are similar to those of Corak and Heisz (1995, 1998), and indicate that there is a greater degree of intergenerational income mobility in Canada than in the U.S. or the U.K. We also find a higher degree of transmission of economic status between fathers and daughters than between fathers and sons. Finally, our estimates show that the rate of intergenerational income mobility is higher among more recent cohorts than among older cohorts.

1. Data Description

The choice of an appropriate data set is an especially crucial methodological issue in studies dealing with intergenerational income mobility. The need for information on the status of individuals in two successive generations at approximately the same points in the life cycle is a particularly stringent requirement. The General Social Surveys (GSS) conducted by Statistics Canada do, however, provide a rich set of information of this kind and have permitted a host of sociological studies dealing with occupational or educational mobility between generations. In particular, the respondents to the 1986 and 1994 GSSs were asked detailed questions about their parents. Respondents provided information on the employment status, the education level, the

occupation and the industry of their fathers and mothers when they (the respondents) were 15 years of age. In addition, the GSS provides respondent information on gender, age, years of education, occupation and before-tax income from wages, salaries and self-employment. However, the absence of information on parental income is an important limitation for our purposes. We therefore develop a strategy to obtain a measure of incomes for the fathers using the information available on them. The resulting estimation strategy is equivalent to an instrumentation of fathers' incomes with fathers' occupations and implies problems of its own, which we discuss in detail in Section 2.

A related important issue in the estimation of intergenerational mobility is the determination of parental permanent income. Solon (1992) and Zimmerman (1992) have shown that the use of income in a single year can seriously overstate the degree of income intergenerational income mobility, especially in combination with the use of an overly homogeneous sample. We link occupational information from the GSS to income information from the Census to obtain average income by occupation. This assumes that occupation is a good instrument to estimate the parent's permanent income. In the 1986 GSS the occupation of the parents is given only in terms of the Pineo-Porter-McRoberts Socioeconomic Classification of Occupations (Pineo, Porter and McRoberts 1977). This system reclassifies the Canadian Standard Classification of Occupations (4-digit codes) of 1971 and 1981 into 15 categories, ordered by skill levels. These range from farm labourers, unskilled manuals, and unskilled clerical sales and services; to semi-skilled manuals, semi-skilled clerical sales and services, farmers; to skilled crafts and trades, skilled clerical sales and services, foremen, supervisors, middle managers, technicians, semi-professionals; and finally to high-level managers and professionals. The ordering by skill levels represents the main advantage of the Pineo-Porter-McRoberts reclassification over the standard 2-digit classification of the 1980 occupation codes provided by Statistics Canada. The latter was not designed to measure economic status and sometimes aggregates occupations by industry rather than by skill levels. In fact the new 1990 occupation codes have been completely redesigned to correct this problem. The Pineo-Porter-McRoberts system is relatively well suited to our needs since it can be applied to the earlier classifications systems (Pineo, 1985). Nonetheless, this reclassification system presents some problems. The disadvantage of an ordering by skill levels is that the resulting classes may represent a job ladder rather than lifetime occupational choices. Clearly, an improvement in our estimation strategy would be to use the detailed occupation codes and obtain average occupational income by years of education. However, such a strategy is not feasible from publicly available data.

Since detailed 4-digit occupation codes are not available in the Census public release files, we use the average employment income by detailed occupation from the "Tables of Average Employment Income by Detailed Occupation." These tables offer the average income of all workers 15 years old and older, by gender for the Census years 1951 to 1991. For every Census table, we re-classify every 4-digit occupation by the Pineo-Porter-McRoberts classification and compute the weighted average employment income for the 15 occupational categories. The estimated average occupational income is then the weighted average occupational income for 1950, 1960, 1970, 1980, 1985 and 1990. Fathers' occupations are observed when the respondents were 15 years of age: from 1944 to 1982 for the 1986 sample, and from 1952 to 1990 for the 1994 sample. We linearly interpolate between every two Census periods to obtain the intermediate incomes. The estimated average occupational income computed in constant 1993 dollars are shown in Table 4.1. The mean income of the 15 occupational groups increased from $15,434 in 1950 to $34,979 in 1980, then decreased to $33,245 in 1985, and went back up to $34,251 in 1990. Alongside this rising trend in mean income is an increase in income inequality, the gap between the highest and lowest income widening substantially over the period. In 1950, the average income of unskilled manual workers was about half of that of high-level managers, while in 1990 it was less than a third.

Our measure of occupational income averages the income of workers at different points in their life-cycle, and therefore provides a better measure of economic status than one observation at a point in time. Income observed at any one year will contain both a permanent and a transitory element. Solon (1992) and Zimmerman (1992) average up to five consecutive years of father's income data in order to minimize the problems of biases arising from the presence of transitory components. (An ideal measure of permanent income would be based upon a series of observations over an individual's entire

Table 4.1
Estimated Average Occupational Income of Men in 1993 Dollars

Pineo-Porter-McRoberts Classification of Occupations	1950	1960	1970	1980	1985	1990
			(1993 Dollars)			
Professionals	20,888	32,457	43,547	54,153	53,928	54,872
High-Level Management	23,223	36,734	81,227	71,378	69,702	68,871
Semi-Professionals	18,293	27,100	31,518	35,753	34,628	36,632
Technicians	16,122	24,178	29,401	35,190	35,361	36,207
Middle Management	15,793	18,194	44,405	46,226	42,607	45,425
Supervisors	17,009	25,696	34,208	36,398	34,894	36,192
Foremen	19,851	26,033	37,596	42,217	39,335	40,763
Skilled Clerical Sales and Services	16,713	23,087	31,851	37,661	35,856	36,380
Skilled Crafts and Trades	15,381	20,852	27,941	32,205	30,835	32,155
Farmers	11,714	17,258	15,568	25,589	19,772	20,190
Semi-Skilled Clerical Sales and Services	14,653	16,581	21,048	22,478	21,209	22,052
Semi-Skilled Manuals	13,039	18,326	23,859	27,058	25,886	26,445
Unskilled Clerical Sales and Services	11,701	17,671	20,201	23,483	21,736	21,976
Unskilled Manuals	11,549	14,197	18,736	22,143	21,093	22,030
Farm Labourers	5,576	7,437	9,637	12,744	11,825	13,569

Source: Calculations by authors from Statistics Canada data, various censes.

life.) Our average occupational income measures may be contaminated by transitory components only insofar as these measures are linked to a transitory occupation. The issue of whether the father's occupation, as reported by the sons, is likely to have been a permanent or a transitory occupation, may depend on the age of the father. The older the father the more likely the occupation is permanent. A related issue is whether our measures of income are contaminated by life-cycle effects. Is the average income of high-level managers higher because of economic status, because high-level managers are further along their life-cycle paths, or because their life-cycle path is steeper? We cannot assess age differences by occupation for fathers, but the average age of sons from the 1986 and 1994 GSS does vary somewhat by the Pineo-Porter-McRoberts occupations. High-level managers and foremen are on average four years older than middle managers and skilled craft workers. The average age differences between the other occupations are smaller. One way to address the issue of differences in life-cycle paths by occupation would be to use different life-cycle corrections for each occupation. While this strategy is feasible for children, it is not for fathers and thus simply reduces the correlation between father and child incomes. An alternative strategy is to compare fathers and children at the same point in their life-cycle paths, assuming that these paths have not changed significantly over time. We do not know the age of the father, but if we assume 25 to 35 year differences between fathers and sons, this places the fathers of 40 to 50 year old children at the same stage in the life-cycle as their children. Thus estimates that focus on this age group are less likely to be contaminated by problems associated with transitory occupations and life-cycle effects.

Our samples from the GSS consist of men and women aged 17 to 59 years, whose main activity in the 12 months prior to the survey was working at a job or being self-employed. The main characteristics of the samples used in the estimation are presented in Table 4.2. We do not study intergenerational income mobility between mother-son and mother-daughter pairs mainly because we have information on the mother's occupation only for a fairly small sample. Our sample sizes are 3,400 father-son pairs and 2,474 father-daughter pairs from the 1986 GSS, and 2,459 father-son and 2,308 father-daughter pairs from 1994 GSS. The men in our sample are on average 35.5 years of age in 1986 and 37.4 in 1994, while the women average 34.2 years of age in 1986 and 36.5 in 1994. Overall the women are more educated than the men. In addition, fathers are less educated than their

Table 4.2
Descriptive Statistics

	Sons		Daughters	
	1986	1994	1986	1994
Age	35.5	37.4	34.2	36.5
	(10.12)	(10.76)	(9.98)	(10.70)
Years of Education	12.9	13.85	13.32	14.09
	(3.08)	(2.98)	(2.62)	(2.57)
Weekly Employment Income	$776.83	$702.94	$521.83	$474.48
	(456.86)	(383.50)	(365.79)	(284.59)
Occupational Weekly Income	$641.35	$680.80	$362.23	$398.58
	(241.83)	(245.50)	(143.30)	(151.42)
Father's Education	9.2	10.5	9.3	10.6
	(4.66)	(5.07)	(4.44)	(4.97)
Father's Occupational Weekly Income	$493.08	$559.83	$512.06	$560.71
	(223.61)	(250.45)	(228.51)	(237.26)
Sample Size	3,400	2,459	2,474	2,308

Notes: All incomes are in constant 1993 dollars. The numbers in parentheses are standard deviations.
Source: Calculations by Authors from General Social Survey, Statistics Canada.

children. The estimated occupational weekly income for sons is lower than the reported average income in the 1986 GSS; this discrepancy is much less important in the 1994 GSS. It is difficult to know whether this reflects life-cycle or cyclical effects.[1]

Our sample size compares favourably to recent U.S. studies, which have been based on as few as 348 to a maximum of 876 observations (Altonji and Dunn 1991, Solon 1992, Zimmerman 1992). For the U.K., Atkinson (1981) uses a sample taken from a study of men in York in 1950 and traces the sons of these individuals during the late 1970s. His final non-random sample covers only 307 father-son pairs. Another advantage of our data is the information it contains on individuals in many more cohorts. Because we have two observations on the same cohorts, we will also be able to perform some cohort analysis to investigate whether intergenerational mobility has changed over time. In contrast, Dearden, Machin and Reed (1997) use the National Child Development Survey, an ongoing survey of all persons born in the U.K. between March 3rd and 9th of 1958. They have access to child incomes only at age 23 and 33 and have only a single measure of father incomes when the children were 16 years old. In Canada, Corak and Heisz (1995, 1998) focus on a cohort of 27 to 31 year-olds using income drawn from tax records and multi-year averages for the father's income.

In our analysis we follow the thrust of the existing literature and appeal to two complementary analytical frameworks: the log-linear regression model and the quartile transition matrix. These methods have been applied by many authors and make comparisons possible. The log-linear regression model posits a simple linear relationship between the child's and the father's log income and may be interpreted as examining the average degree of transmission of economic status. The quartile transition matrix attempts to distinguish different degrees of transmission by income quartile. It allows us to assess whether there is more or less mobility at the bottom than at the top of the income distribution.

2. Regression Models

In the log-linear regression model, the logarithm of the permanent income of a child belonging to family i (y_i^{child}) is considered to be a linear function of the log of the permanent income of the father (y_i^{parent}) as shown by equation (1):

$$y_i^{child} = \alpha + \beta y_i^{parent} + \varepsilon_i \qquad (1)$$

where ε_i is an error term usually assumed to be distributed as $N(0, \sigma^2)$. This equation should be viewed as a reduced-form equation of a complex process of economic transmission, where the coefficient β indicates the degree of mobility between the two generations. There are two extreme cases. First if $\beta=0$, there is complete mobility, in other words complete regression to the mean. The income of the child shows no correlation with the father's income. At the other extreme, if $\beta=1$, there is complete immobility. The distribution of income in the father's generation is completely preserved in the child's generation. For values of β between 0 and 1, there is regression towards the mean, but the rate depends on the value of β. The lower β, the lower the chances the child will inherit the economic status of his father, and the higher the degree of mobility.

Methodological problems arise because we do not observe the child's or the father's permanent income, and have to use proxies for it. As mentioned earlier, Solon (1992) and Zimmerman (1992) have pointed out that an error-in-variables problem may arise from the use of proxies that include transitory components. While these transitory components will generally be uncorrelated with permanent status, they will lead to an overestimation of the variance of the father's income. This results in an underestimation of the true intergenerational transmission coefficient (which is equal to the covariance between the child's and the father's income divided by the variance of the father's income). We do not face problems arising from an overstated variance of the father's income. In fact, our measure of father's income may understate the true population variance which, in itself, would lead to estimates of β that are upwardly biased. However, this smaller dispersion of father's income may also lead to smaller covariance between the child-parent incomes. Therefore, it is difficult to assess the direction of the overall bias in our models.

We use the detrended average occupational employment income of fathers during the years the child was 15 years old. This measure corresponds to the instrumentation of the father's income with the father's occupation, and may be a subject of concern. As explained in Solon (1992), if the father's occupation is part of a structural model of the son's income, the corresponding instrumental variable estimate of β may be biased. If the father's occupation does not influence the son's income beyond its indirect effect through the father's income the estimate will be consistent. However, it will be upwards or downwards inconsistent if the father's occupation influences (positively or negatively) the son's status beyond its effect through income levels. We will thus perform an over-identification test to verify that our estimates are consistent. For children, we have information on employment income in 1985 from the 1986 GSS and in 1993 from the 1994 GSS. This single measure of income may deviate from permanent status because of age effects that we attempt to eliminate by using time-varying control factors that may affect current income (specifically age and age squared). We will also provide alternative estimates using the same instrumented measure of income for sons as we do for fathers. While we are aware of the potential problems with our measure of permanent income, we believe that these problems may not have evolved differently across age groups or over time and thus that our age groups and cohort analyses will be informative.

Two different approaches are used to estimate β. The first—which we refer to as the Instrumental Variables (IV) approach—assumes that occupation is a valid instrument to estimate the permanent income of the father. If this is the case then the father's income can be expressed as:

$$y_{it}^{parent} = \gamma_{kt} \Sigma Occ_{kt}^{parent} + v_{it}^{parent} \qquad (2)$$

where y_{it}^{parent} is the occupational income of the father in year t, Occ_{kt} are a set of dummy variables indicating occupation k (k=2 to 16) in year t, γ_{kt} is the average income of occupation k in year t, and v_{it} is an error term. We recover a residual measure of the permanent status of the parent, $\hat{y}_{ri}^{parent}$, by removing the time varying components from the occupational income,

$$\hat{y}_{ri}^{parent} = \hat{\gamma}_{kt} \Sigma Occ_{kt}^{parent} - \hat{\delta} x_t^{parent} \qquad (3)$$

where $\hat{\gamma}_{kt}$ is the estimated average income for occupation k in year t, where the time varying factors x_t^{parent} are dummies linked to the year of observation of the father's occupation.

Similarly, we do not observe the child's permanent income y_i^{child}, but rather y_{it}^{child}, that is employment income at a single point in time. We assume that employment income at time t is a

function of the permanent income y_i^{child} and also of x_{it}^{child}, a vector of observed time-varying factors which affect the current status of the adult "child" and of w_{it}^{child}, a transitory error term:

$$y_{it}^{child} = y_i^{child} + \delta x_{it}^{child} + w_{it}^{child} . \quad (4)$$

To obtain a measure of permanent income, we regress y_{it}^{child} on the time-varying factors x_{it}^{child} (age, age^2) and use the residual as an estimate of the child's permanent income:

$$\hat{y}_{ri}^{child} = y_{it}^{child} - \hat{\delta} x_{it}^{child} = y_i^{child} + w_{it}^{child} \quad (5)$$

When we run the following regression, we have thus removed the time-varying factors that we can control for,

$$\hat{y}_{ri}^{child} = \alpha + \beta \hat{y}_{ri}^{parent} + \varepsilon_i \quad (6)$$

so that

$$y_i^{child} = \alpha + \beta (\hat{\gamma}_{kt} \Sigma Occ_{kt}^{parent} - \hat{\delta} x_t^{parent}) + \eta_i^{child} (7)$$

where $\eta_i^{child} = \varepsilon_i + w_{it}^{child}$. The OLS estimator of the coefficient β will be consistent if the occupation dummies, Occ_{kt}^{parent}, and the trend variables, x_t^{parent}, are uncorrelated with η_i^{child}.

The second approach—referred to as the Occupational Income (OccInc) approach—assumes that the transmission processes between permanent income and occupational income is the same, that is, the essential features of economic status are transmitted through occupational status. This implies that the correlation between father and child permanent incomes will be the same as between father and child occupational income ($\hat{y}_{oi}^{parent}$ and $\hat{y}_{oi}^{child}$):

$$corr(y_i^{child}, y_i^{parent}) = corr(\hat{y}_{oi}^{child}, \hat{y}_{oi}^{parent}). \quad (8)$$

If our assumption is correct, we can estimate the following regression,

$$\hat{y}_{oi}^{child} = \alpha + \beta \hat{y}_{oi}^{parent} + e_i, \quad (9)$$

where

$$\hat{y}_{oi}^{child} = \hat{\gamma}_{kt} \Sigma Occ_{kt}^{child} - \hat{\delta} x_t^{child}$$

and

$$\hat{y}_{oi}^{parent} = \hat{\gamma}_{kt} \Sigma Occ_{kt}^{parent} - \hat{\delta} x_t^{parent}, \text{ and where}$$

$\hat{\gamma}_{kt}$ is the estimated income of occupation k in year t and where the time-varying controls are the same as in (3). If the assumption about the similarity of the transmission of occupational income and permanent income is valid, and if the occupational dummies, Occ_{kt}^{child}, and trend variables are uncorrelated with e_i, the coefficient estimated through equation (9) will be a consistent estimate of the true coefficient of transmission of economic status.

Table 4.3 offers the results from the log-linear model for fathers and sons, and fathers and daughters; separately for the two surveys and for the joint sample. We also conduct the analysis separately for three different age groups. This allows us to compare our estimates to other studies that focus on particular age groups. The estimates of the coefficient of intergenerational mobility (what we refer to as β) using the IV approach are given in Panel A. For the 1986 GSS, we estimate β to be 0.191 for father-son pairs, and 0.228 for father-daughter pairs. These estimates are essentially the same when the 1994 data are used: 0.217 and 0.226[2]. Over-identification tests (Newey, 1985) are performed to find out if there remains some correlation between the error term η_i and the dummy variables Occ_{kt}. For the 1994 sample of sons and daughters, the regression of the residuals from equation (7) on the variables Occ_{kt} passes the F test of non-significance. We conclude that our instrumentation strategy seems valid for the 1994 sample. On the other hand, the 1986 sample for sons and daughters almost passes the F test at 10%, but the null hypothesis is rejected; the two terms are correlated but the correlation is not strong. The fact that the estimates from 1986 and 1994 are not significantly different further indicates that the biases are quite small.

The results from the regressions that split the data into three age groups are presented in Panel B of Table 4.3. Intergenerational mobility diminishes with age for sons in the 1986 and 1994 samples. The estimates of β for the father-son pairs from the 1986 GSS are 0.105 when the sons are between 17 and 29 years old, 0.201 when they are between 30 and 39 years, and finally 0.297 when they are 40 to 59 years old. The same pattern is found for the father-daughter pairs of the 1994 sample, but with 1986 data the group showing the least mobility are 30 to 39 years of age. Interestingly, this group represents approximately the same cohort of women aged 40 to 59 in 1994. This raises the possibility of cohort effects. The higher mobility of the older group in 1986 may reflect a change in the work patterns of women, or may simply be attributed to smaller sample sizes. The sons' and daughters' income are adjusted for life-cycle effects by using the residuals of the regression of their income on their age and age square. It is possible that this adjustment does not fully capture the life-cycle effects. Alternatively, intergenerational mobility could have been different for different cohorts. The other interesting implication of these results for studies concentrating on children in their early

Table 4.3
Estimates of the Coefficient of Intergenerational Mobility

	Fathers and Sons		Fathers and Daughters	
	1986	1994	1986	1994
A. Instrumental Variables Method				
	0.191	0.217	0.228	0.226
	(0.029)	(0.032)	(0.041)	(0.040)
	[3,400]	[2,459]	[2,474]	[2,308]
B. Instrumental Variables Method by Selected Age Groups				
17 to 29 Years	0.105	0.048	0.143	0.145
	(0.052)	(0.065)	(0.062)	(0.070)
	[1,103]	[651]	[959]	[681]
30 to 39 Years	0.201	0.218	0.324	0.218
	(0.043)	(0.051)	(0.063)	(0.064)
	[1,220]	[811]	[842]	[733]
40 to 59 Years	0.297	0.351	0.208	0.309
	(0.062)	(0.055)	(0.104)	(0.076)
	[1,077]	[997]	[673]	[894]
C. Occupational Income Method				
	0.185	0.202	0.155	0.139
	(0.017)	(0.021)	(0.020)	(0.024)
	[4,013]	[2,335]	[3,027]	[2,153]
D. Joint Sample, Instrumental Variables Method				
	0.208		0.228	
	(0.022)		(0.029)	
	[5,859]		[4,782]	

Note: ( ) indicates standard errors, [ ] indicates sample size.

30s is that this choice for father-son pairs is representative of the whole sample.

The results from the occupational income approach are offered in Panel C of Table 4.3. To repeat, this approach assumes that the transmission process between generations is the same for permanent incomes as for occupational incomes. For the sons, the estimates of β for the 1986 sample and 1994 sample are respectively 0.185 and 0.202. These estimates are not significantly different from those based on the IV approach. However, they are significantly lower for daughters: 0.155 for 1986 and 0.139 for 1994 (versus 0.228 and 0.226)[3]. The occupational income results are in line with other studies that have found somewhat smaller coefficients with a prediction approach (Dearden, Machin and Reed 1997). They also indicate that our estimates for father-son pairs are more robust than our result for daughter-father pairs.

Another way to split our samples is by birth cohort (the approximate year of birth). An analysis of this sort reveals whether the degree of intergenerational income mobility has changed over time. Table 4.4 presents results for three cohorts. Individuals aged 50 to 59 in 1986 were removed from the joint sample in order to have two observations over time for each cohort. The first cohort consists of individuals born between 1935 and 1945 (who were in their forties in 1986 and in their fifties in 1994); the second consists of individuals born between 1946 and 1954 (those in their thirties in 1986 and in their forties in 1994); and the third of individuals born between 1955

Table 4.4
Estimates of the Coefficient of Intergenerational Income Mobility Using Cohort Analysis

	Fathers and Sons	Fathers and Daughters
Cohort Born Between 1935 and 1945	0.316	0.265
	(0.065)	(0.099)
	[1,061]	[756]
Cohort Born Between 1946 and 1954	0.246	0.323
	(0.035)	(0.050)
	[1,827]	[1,411]
Cohort Born Between 1955 and 1969	0.157	0.191
	(0.034)	(0.041)
	[2,248]	[2,021]

Note: ( ) indicates standard errors, [ ] indicates sample size.

and 1969 (in their twenties in 1986 and their thirties in 1994). The findings in Table 4.4 are based on the IV approach.

There are significant differences between the three cohorts. For the father-son pairs, we find an estimate of 0.316 for the first cohort, 0.246 for the second cohort and 0.157 for the third. Because we have only two observations over time, there remains substantial age differences between the cohorts, and for this reason our results showing an increasing mobility over time for sons should be interpreted with caution. We observe a different pattern for the father-daughter pairs. The estimates are 0.265 for the first cohort, 0.323 for the second and 0.191 for the third. The second cohort is the one showing the highest degree of transmission of economic status. The differences in participation rates of women across these cohorts may be at the origin of these different results for the father-daughter pairs. This second cohort represents the first generation of women to enter the labour market in great numbers. The degree of transmission of economic status between two generations seem to differ across cohorts, but it is not clear whether this is due to age differences, differences in the transmission process (for example, through universal access to higher education), or to an increase in the dispersion of income for younger cohorts. For example, since the coefficient of transmission of economic status is equal to the coefficient of correlation between two generations times the ratio of the standard deviations of fathers and children's incomes, a relative increase of 20% in the standard deviation of children's income would lead to an increase of 0.03 in β if the coefficient of correlation was 0.3.

In summary, our main estimates of the degree of intergenerational income mobility are in the range of 0.2, the consensus value that was found in the earlier studies using simple least squares regression models. These earlier estimates were criticized as being downwardly biased because the observed father's income was thought to include transitory components. While the presence of transitory components is less likely to be a problem with our estimation strategy, the fact that the variance of the father's occupational income may understate the true variance of the father's permanent income may be problematic. It is thus interesting to compare our results with findings of other recent studies conducted in the U.S., the U.K., and especially Canada. Some results from this literature are presented in Table 4.5. We find that our estimates of the degree of intergenerational income mobility (ranging from 0.19 to 0.21) between sons and fathers are very similar to those of the other Canadian study. Corak and Heisz (1995) obtain an estimate of 0.191 for the father-son pairs using a five years average of fathers' income with Least Squares regression. Their other estimates are even lower. A more conservative interpretation of our results would focus on the forty to fifty year age group, and place our estimate of income mobility in the low 0.3 range. Conversely, the latest studies done in the U.S., by Solon (1992) and Zimmerman (1992), show estimates of β between 0.413 and 0.538 using five and four years average of fathers' incomes with Least

Table 4.5

Estimates of Intergenerational Income Mobility from other Studies

Author	Country and Data Set	Estimation Method	Estimate of β for Father-Son Pairs
Corak and Heisz (1995)	Canada, Tax Record Data (1992) 450,000 father-son pairs sons aged 28 to 31	OLS with single year of father's income	TT: 0.121-0.136 AE: 0.115-0.143
		OLS with five years average of father's income	TT: 0.191 AE: 0.172
Altonji and Dunn (1991)	United States, NLSY (1965-1967) 678-739 father-son pairs sons aged 29 to 39	OLS with time averaging of father's income and age controls	AE: 0.180 HW: 0.263
		IV with later years income as instruments and full set of controls	AE: 0.218 HW: 0.282
Solon (1992)	United States, PSID (1984) 348 father-son pairs sons aged 25 to 33	OLS with single year of father's income	AE:0.386 HW:0.294
		OLS with five years average of father's income	AE: 0.413
		IV with father's years of education	AE: 0.526 HW:0.449
Zimmerman (1992)	United States, NLSY(1981) 876 father-son pairs sons aged 29 to 39	OLS with four years average of father's income	AE:0.538 HW:0.391
		IV with Duncan index for father's status	AE: 0.417 HW:0.485
		IV with forward quasi-difference instrument	AE: 0.36 HW:0.379
Atkinson (1981)	United Kingdom, Rowntree Survey (1975-1978) 288-307 father-son pairs sons aged 25 up	OLS	WE:0.358 HW:0.428
		OLS with life-cycle adjustments	HW:0.415
Dearden, Machin and Reed (1997)	United Kingdom, NCDS(1991) 1,665 father-son pairs, 747 father-daughter pairs children aged 23 and 33	OLS with single year of father's income	WE:0.216 (sons) WE:0.352 (daughters)
		IV with father's education and social class	WE:0.581(sons) WE:0.669 (daughters)
		Predicted wages with father's education and social class	WE:0.425(sons) WE:0.469 (daughters)

Note: PSID - Panel Study of Income Dynamics; NLSY - National Survey Study of Youth; NDCS - National Child Development Study; TT - Total Income; AE - Annual Earnings; WE - Weekly Earnings; HW - Hourly Wage.

Squares regressions. Similarly, the estimates for U.K. males found by Atkinson (1981) and Dearden, Machin and Reed (1997) are substantially higher than those found for Canada by Corak and Heisz (1995, 1998), and by us for similar age groups. Of course, there remain important differences in methodology. However, even when we compare the admittedly flawed Least Squares estimates presented in Solon (1992), Zimmerman (1992), and Dearden, Machin and Reed (1997) (and reported in Table 4.5) to the Canadian estimates (including our findings) these are still lower than those found in the U.S. or in the U.K. We thus conclude that there is more intergenerational income mobility in Canada than the U.S. and the U.K. It is interesting to note that Björklund and Jäntti (1997) in a meta-study reach a similar conclusion: the U.S. and the U.K. have the lowest mobility among seven other developed countries. We will now attempt to corroborate this conclusion using another technique to estimate the degree of transmission of economic status between generations.

3. The Transition Matrix Method

The quantile transition matrix method allows us to analyze movement between income quantiles across generations. Since it is a widely used method, it is possible to make comparisons with other studies. The major advantage of quantile transition matrices over the log-linear regression model is that it permits an assessment of whether there is more or less mobility at the bottom or at the top of the income distribution. If one is preoccupied by the existence of an "underclass," the degree of mobility in the lowest quantiles of the income distribution are more relevant than the average degree of intergenerational mobility. One should note, however, that because our study is limited to earnings mobility, it does not address issues related to the existence of a "poverty trap." There are generally no earners in Canadian families ranked in the lowest decile of family income-to-needs ratios (Fortin and Lemieux, 1997). In addition one must keep in mind that quantile transition matrices provide only a very crude way of looking at potential non-linearities in the transmission process. For example, Corak and Heisz (1998) examine this issue in much more detail using non-parametric regression methods.

The methodology of transition matrices is the following. The fathers and the children are each ranked according to income, and divided (in our case) into four groups of equal size. Individuals in the first group have the lowest income and those in the fourth group the highest. A matrix is then constructed where each element, referred to as a_{ij}, represents the probability that a child will be in quartile j if his or her father was in quartile i. This matrix exhibits a bi-stochastic property. If a_{ij} is the proportion of children of fathers in quartile i who enter quartile j, then $\Sigma_i a_{ij} = 1$ and also $\Sigma_j a_{ij} = 1$. The two extreme cases of income mobility can be represented using this approach: complete mobility occurs when each element of the matrix equals 0.25; complete immobility when the diagonal elements are equal to 1 (and all the others equal 0).

The estimates of the transition matrices for 1986 and 1994 (for sons and daughters) are given in Table 4.6. These are computed using the age-corrected residual income for the sons and daughters and the detrended average occupational income for fathers. Generally, the results display a high rate of mobility. Even in the top quartile, where there is usually less mobility, the rates of transmission of economic status are lower than those found in other studies. For the 1986 and 1994 samples, the probabilities that sons whose father were in the top quartile of the income distribution stayed at the top are 0.32 and 0.33. These correspond to the estimates in Corak and Heisz (1995), but are much lower than the 0.40 for the U.S. reported by Peters (1992) or the 0.39 for the U.K. reported by Dearden, Machin and Reed (1995). The same findings apply to the daughter samples, with estimates of 0.34 for 1986 and 0.33 for 1994. The other notable finding, by comparison with other studies, is that the mobility at the bottom of the income distribution is quite substantial. In fact, the 1994 results tell us that sons whose fathers were in the bottom quartile of the income distribution are more likely to be in the second or third quartile than in the bottom one. Our estimated probability that sons whose fathers were in the bottom quartile remain in that quartile from 0.260 to 0.285 and is, somewhat lower than the Peters and Dearden et al. findings for the U.S. (0.42) or the U.K. (0.315). While our estimates are generally not statistically different from 0.25, Corak and Heisz (1995) found a larger estimate (0.353) that is statistically different from the situation of perfect mobility. Corak and Heisz (1998), however, show that finer disaggregation (the use of deciles or percentiles) pushes any stickiness in the transmission process toward the very low and very high income classes. The general pattern of income mobility is thus relatively close to the situation of perfect mobility, with the exception of moves from either the very top or the very bottom of the income distribution.

Table 4.6
Quartile Transition Matrices

A. Fathers – Sons, 1986

		Sons			
		Bottom	2nd	3rd	Top
Fathers	Bottom	0.285	0.279	0.234	0.224
		(0.016)	(0.015)	(0.015)	(0.014)
	2nd	0.293	0.239	0.212	0.216
		(0.016)	(0.015)	(0.014)	(0.014)
	3rd	0.232	0.258	0.256	0.252
		(0.014)	(0.015)	(0.015)	(0.015)
	Top	0.184	0.222	0.296	0.322
		(0.013)	(0.014)	(0.016)	(0.016)

Immobility Index = 0.276

B. Father – Sons, 1994

		Sons			
		Bottom	2nd	3rd	Top
Fathers	Bottom	0.260	0.277	0.264	0.190
		(0.018)	(0.018)	(0.018)	(0.016)
	2nd	0.265	0.251	0.234	0.221
		(0.018)	(0.018)	(0.017)	(0.017)
	3rd	0.254	0.213	0.278	0.303
		(0.017)	(0.016)	(0.017)	(0.018)
	Top	0.187	0.241	0.231	0.332
		(0.015)	(0.017)	(0.018)	(0.019)

Immobility Index = 0.280

C. Fathers – Daughters, 1986

		Daughters			
		Bottom	2nd	3rd	Top
Fathers	Bottom	0.265	0.272	0.278	0.196
		(0.018)	(0.018)	(0.018)	(0.016)
	2nd	0.276	0.248	0.231	0.228
		(0.018)	(0.018)	(0.017)	(0.017)
	3rd	0.28	0.23	0.232	0.257
		(0.018)	(0.017)	(0.017)	(0.017)
	Top	0.171	0.233	0.276	0.338
		(0.015)	(0.017)	(0.017)	(0.019)

Immobility Index = 0.271

Table 4.6 – Concluded
Quartile Transition Matrices

D. Father –Daughters, 1994

		Daughters			
		Bottom	2nd	3rd	Top
Fathers	Bottom	0.256	0.274	0.244	0.22
		(0.018)	(0.019)	(0.018)	(0.017)
	2nd	0.281	0.27	0.239	0.211
		(0.019)	(0.018)	(0.018)	(0.017)
	3rd	0.25	0.229	0.246	0.281
		(0.018)	(0.018)	(0.018)	(0.019)
	Top	0.187	0.236	0.25	0.326
		(0.016)	(0.017)	(0.018)	(0.019)

Immobility Index = 0.275

Note: Child incomes are the age-corrected residual incomes, and father incomes are the detrended average occupational incomes. ( ) represents the standard errors due to sampling variability and should be interpreted as a lower bound to the true standard errors.

The ranking of different quartile matrices can be useful to compare the degree of mobility found in the various studies. An Immobility Index can be computed as the ratio of the sum of the diagonal elements to the sum of all elements in the matrix. We find an immobility index of 0.28 for the father-son pairs and 0.27 for the father-daughters pairs, as shown in Table 4.6. These estimates are in the range of those of Corak and Heisz (1995), who obtained an index value of 0.306 for Canada. As the authors report, these values are substantially lower than those found by others for the United Kingdom (0.3675) and the U.S. (0.350). These findings support the results of our log-linear model, and suggest that if intergenerational income mobility is higher in Canada than in the U.S. or in the U.K., this would be mainly because of more mobility both at the bottom and at the top of the income distribution.

4. Conclusion

In this chapter we combine publicly available data on average occupational income from the Canadian Censuses of 1951 to 1991 with data from the General Social Surveys of 1986 and 1994 to obtain estimates of intergenerational income mobility. We use an instrumental variables approach to the estimation of the standard log-linear models, as well as some cohort analyses of these data. Our estimates of the log-linear model are similar to the ones found by Corak and Heisz (1995, 1998), the only other Canadian studies done to date. These results suggest that intergenerational mobility is higher in Canada than in the U.S. or the U.K., where recent research has shown that previous estimates overstated the degree of mobility. Because of our somewhat larger sample sizes, we are also able to perform an analysis by birth cohort. This shows an increase in the degree of intergenerational income mobility over time. Income mobility is also greater for younger age groups. Finally, we construct quartile transition matrices that suggest intergenerational income mobility is higher in Canada than in the U.S. or the U.K. because there is more mobility at the top and (to a lesser extent) at the bottom of the earnings distribution. To drawn implications for public policy, the next step would be to investigate the dynamic process behind the transmission of economic status between two generations.

There are some important caveats that must be kept in mind when assessing our results. Since detailed occupation codes are not released in the public use files of the General Social Surveys, we had to estimate average occupational income for only 15 occupational groups. It is difficult to know whether this averaging process over detailed occupation categories and individuals of different ages brings us closer to an ideal estimate of the father's permanent income than estimates that average individual income for a few years. The best test of our methodology would be to apply it to the same U.S. data used in other studies and compare the findings.

Notes

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[1] Note that the Census tables average income from individuals aged 15 and up. Because employment among young people went down from 1986 to 1990, it is possible that the average age of that sample went up, thus mimicking our sample more closely.

[2] The differences between the 1986 and 1994 results are not statistically significant. Further, the reported standard errors do not take into account the fact that the measure of the father's income is an estimate and thus probably overstate the true standard errors.

[3] The estimated average occupational income for the daughters sample are average occupational income from a women sample.

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Chapter 5

How to Get Ahead in Life: Some Correlates of Intergenerational Income Mobility in Canada

Miles Corak and Andrew Heisz

The issue of child poverty has such a resonance among policy makers, and Canadians in general, because being raised in a "poor" family may have long-term consequences. It is believed that childhood and teenage experiences influence health, education, and labour market outcomes in adulthood to some important degree, and indeed that poverty may be transmitted through the generations. In this sense, the relationship between childhood experience and adult outcomes is central to the conduct of labour market and social policy.

This relationship has been the topic of a great deal of empirical research from a variety of disciplines. A large part of the economic literature has taken the form of an examination of the correlation between the income levels of young adults and the incomes their fathers earned during their early teenage years. Many sociological studies also deal with this process, but tend to focus on the relationship between the occupational status of the parent and either the educational or occupational attainment of the child. These correlations are certainly important—offering at the very broadest level an indication of the extent of equality of opportunity—but it is probably fair to suggest that they fall short of offering an explanation of the process at work.

It is very important to move to this level if policy is to be made in an informed way. For example, policy makers need to understand the degree to which money matters for the long-term prospects of children. Does low-income *per se* contribute to disadvantage, or is low-income merely a reflection of other underlying factors? If factors other than low income are the true influences on a child's future prospects, then a policy thrust involving more than simply transferring money to parents is in order. Mayer (1997) clearly summarizes this issue. Our objective is to take a first step in examining some of the possible correlates of how children get ahead in life.

The focus of this chapter is on the extent and nature of intergenerational income mobility, that is the degree to which an individual's income (as an adult) is related to the income earned by his or her parents (during the individual's childhood). As such our analysis is related to the economic literature surveyed for example in Becker and Tomes (1986), and more recently by Björklund and Jäntti (1997). However, we follow Hill and Duncan (1987) in suggesting that distinguishing between the various components of a family's income provides a way of incorporating both economic and sociological explanations into an empirical model of income mobility.

We use data associated with the income tax system to examine the income mobility of a large sample of young Canadian men and women, and begin by noting that there is a great deal of income mobility in Canada (indeed possibly more than in the United States). Even so, there is a strong relationship between the income levels of a father and the income that his son or daughter will ultimately earn as an adult. We analyse this relationship by focusing on three broad sets of factors: the amount and composition of the father's income; the characteristics of the neighbourhood; and the structure of the family. We find that an individual's income is related not just to the level of parental income but also its composition. In particular, one of the most significant correlates of an individual's adult income is whether or not the father reported earning any asset income. The very fact of having asset income implies a premium of about $3,000 over individuals whose fathers report no asset income. The opposite occurs, although not to the same degree, if the father reported receiving unemployment insurance (UI) benefits. The amount of UI income, however, does not have a statistically significant effect on the adult incomes of the children. In general, market sources of income are positively associated with the child's adult

income, while there is no significant association with non-market sources. We also find a very strong influence of family structure on the labour market outcomes of children: the earnings of other family members (more specifically the influence of the mother's income on the daughter's), the number of siblings, and single parenthood. Some of these findings suggest that parents, through their labour market behaviour, offer important role models for children.

The other major background influences on individual incomes are the median income of the neighbourhood in which they lived, and whether the father moved or not during the individual's adolescence. For every thousand dollar increase in the median neighbourhood income sons can expect on average to earn $400 more as young adults, but the association is only about a fifth as strong for daughters. Further, those of either gender who experienced a residential move or a series of moves during adolescence earn from $500 to almost $2,000 less than those who did not experience a move.

While our analysis does offer a basis for integrating both economic and sociological explanations of intergenerational income mobility, we remain very cautious in offering any sort of causal interpretation to many of our findings. In our view the variables we have pointed to, especially the presence of asset income but including UI, offer signals of unobserved variables related to the structure of families and individual characteristics that determine the adult incomes of children. In this way, we tentatively conclude that factors other than just money determine a child's labour market prospects.

1. A Framework for Analysis

The starting point for the empirical analysis of intergenerational income dynamics is an equation of the form:

$$Y^{child}(i,t) = \beta_0 + \beta_1 Y^{father}(i,t\text{-}1) + \varepsilon(i)$$

where Y represents income, i indexes a father-child pair, and $\varepsilon(i)$ is a random component specific to the pair. The objective of the analysis is to obtain an unbiased estimate of β_1, which can essentially to be taken to be the correlation coefficient between a child's income (as an adult) and the income his or her father earned (during the child's adolescence). This correlation is a broad indicator of the degree of equality of opportunity in the labour market, and given recent research would seem to be about half as strong in Canada as in the United States. This indicates a great deal of mobility in the Canadian labour market.[1]

Our empirical analysis seeks to expand the number of explanatory variables in this model and is structured around the following general equation:

$Y^{child}(i,t) = f$ (amount and composition of father's income at t-1, neighbourhood characteristics at t-1,family structure at t-1, other controls at t-1) + $\varepsilon(i)$.

In particular, Y^{child} refers to the adult annual income of the child as indicated on his or her income tax return. For the most part, we use a measure of income defined to be total market income, namely total income from all sources less any income from government transfers (specifically UI benefits and Income Assistance). The variables associated with the father's income are of two types. The first is a series of indicator variables that indicate the presence of a particular type of income. These take the value of 0 if no income is present from a particular source and a value of 1 if at least one dollar of income from that source is indicated in the tax files. (There are six such variables corresponding to each type of income we recognize: earnings, self-employment income, asset income, UI benefits, Family Allowance, and Other Income.) The second set of variables associated with the father's income is simply the amount of income from each of these sources.

Our motivation for using this formulation, and in particular for distinguishing "first dollar" from "additional dollar" effects, comes from the discussion in Hill and Duncan (1987). They point out that economic explanations of intergenerational income mobility tend to view income as a resource that can be used for investment in the human capital of children, while non-economic explanations recognize that parental income may be a signal of other characteristics (such as attitudes and aspirations) that are important in the outcomes of children.

Hill and Duncan suggest that Becker's theory of intergenerational dynamics implies that income is perfectly fungible. In particular, Becker (1991) argues that changes in the level of transfer income to the family will lead to offsetting reallocations of familial resources so that the impact on the human capital investments in the children is unchanged. In Hill and Duncan's view, this implies that different sources of family income should have the same effect on the human capital obtained by the child. That is, the

coefficients associated with the amount of each type of income in a model such as that described above should be the same. This is to be contrasted with socialization theory, which focuses on the role models that parents offer their children. Hill and Duncan suggest that the amount of parental labour income from a particular source may indicate labour market success, and in this way may offer a model for the child and influence the child's labour market outcomes. In particular, this channel should be stronger between fathers and sons, than between fathers and daughters. The implication from this perspective is that the coefficients estimated on the various components of income should differ. Mayer (1997) uses a similar argument to suggest that if different sources of income have different influences then more than money matters for the outcomes of the child.

One variant of this perspective is the impact of government transfers. Just as labour market success may serve as a positive role model encouraging the child's attainment, so it is argued that reliance on transfers is seen to have the opposite effect. This "welfare culture" argument has often raised in the United States (Gottschalk 1990; Levine and Zimmerman 1996). To follow up on this notion, we draw a distinction between market based income sources and non-market sources (particularly UI and Family Allowance benefits). We would expect, for example, to see a different coefficient value associated with the amount of UI income earned by the father as compared to the values associated with market based sources of income (particularly earnings and self-employment income).

If hypotheses of this sort are to be examined, it is important to control for all other characteristics of the father that may influence his child's future labour market outcomes. If this is not the case, it is very likely that the measures of income will be correlated with the unmeasured characteristics of the father associated with the productive characteristics of the son. Hill and Duncan suggest that this is likely with income from uninherited assets or Income Assistance. If so, we would expect to observe significant first dollar effects of asset income and transfer income; the first being positive, the latter possibly negative. This is the major motivation for including the first dollar effects in our regression models.

The second set of variables we use are also motivated by demonstration, or role model, effects. These are often considered to operate not only within the family but also in the community or neighbourhood, and may be especially important for young adolescents (as opposed to primary age children).[2] One indicator of this may be the overall economic status of a neighbourhood, as measured by the average or median income. The level of community income may of course directly affect the eventual labour market outcomes of children through the nature and quality of the schools and other infrastructure in the community. It is also possible that there are peer and network effects that encourage school attainment and labour market success. The tendency to drop out of high school is often looked at in these terms. Further, neighbourhoods characterized by a greater dispersion in the level and composition of income may indicate a wide range of peer effects that may be either positive or negative. Accordingly, our neighbourhood variables include, in addition to the median income, the standard deviation of income in the community, the fraction of tax filers in the neighbourhood receiving UI, and the fraction receiving income from self-employment.

Associated with this group of variables is a measure of what Coleman (1988) has referred to as "social capital," but which might more generally be considered as an aspect of network or peer group effects. He considers social capital to have three dimensions: the set of expectations and obligations (essentially reputations) that develop in a community, the set of information channels, and the set of norms or sanctions that exist at the community level. While all three are important in the intergenerational mobility of children, he focuses on the conditions that allow the latter to arise. A well-established set of norms or sanctions can serve to reinforce parental human capital investment in children. In particular, he suggests that this will be strongest when the relationship between children, say in the context of a school, is mirrored at the level of the parents so that the parents' friends are also the parents of their children's friends. While he does not offer a direct measure of this "intergenerational closure" he suggests that an appropriate proxy is the number of times the child has changed schools as this indicates a lack of continuity and hence the breaking up of networks.[3]

For example, Coleman finds that in his US data set the probability of dropping out of high school is about 50% higher for those individuals who moved at least once (16.7% versus 11.8%), and about double for those who moved twice (23.1% versus 11.8%). However, the interpretation of this as a direct effect related to "social

capital" is difficult to make if the number of moves is associated with unobserved parental characteristics that are also important in determining intergenerational mobility (Aaronson, 1996). Even so, Coleman's discussion is suggestive of a potentially important variable not often considered in studies of intergenerational income mobility.

Our final set of variables is related to family structure. These include indicators of whether the father was married, single, or living in a common-law relationship, as well as the number of siblings in the household. Being raised by an intact family is often considered to be advantageous for children (Le Bourdais and Marcil-Gratton, chapter 6; Dooley et al., chapter 7; Manski et al., 1992; McLanahan and Sandefur, 1994). We also use information on the labour market activities of other family members: whether the spouse worked or not, and the amount of income earned. This information provides a control not only for the total economic resources available to the household, but also more information on the possibility and strength of role model influences. For example, the labour market activity of the mother and the income she earns may have more of an influence on the labour market outcomes of daughters than of sons.

2. A Descriptive Analysis

Our study is based upon income tax information on a cohort of young men and women in 1994 and upon similar information on their fathers during the late 1970s and early 1980s. Briefly, we select a sample of individuals aged 16 to 19 years in 1982, who filed an income tax return in that year (while still living with their parent), who had a father present during that year, and who are therefore 28 to 31 years of age in 1994. Our sample is very large, numbering about 400,000 father-child pairs, and not subject to problems of attrition or reporting errors that are endemic to survey data. In addition very detailed information on the composition of income is available, permitting a distinction between: employment earnings, self-employment income, asset income, UI benefits, Family Allowance benefits, and "other" income.[4] We use the father's 1982 income (and its components) in our regression analysis. (The appendix contains a detailed discussion of the data.)

Country-wide income tax files are used to derive the characteristics of the neighbourhood in which the father-child pair lived. A "neighbourhood" is defined for present purposes as the first three digits of the postal code, the Forward Sortation Area (FSA), for 1982. Our measure of whether the social capital of the child was intact is the number of moves the father made between 1978 and 1982. This information is derived from the postal codes on the father's income tax returns over these years. A move is defined as a change in the postal code between any two sequential years.

The other variables we are able to derive include: the province of residence, the income earned by other family members, the number of children in the family, and the official language in which the income tax return was filed (French or English). We also have information on the structure of the family: married couple, only the father being an income tax filer; married couple, both filers; single father; father in a common-law relationship.

In addition to having certain advantages over survey data, the use of administrative data entail certain disadvantages. We lack, for example, information on some common correlates of intergenerational income mobility, namely the education levels of the parents, as well as their occupations and wage rates. Another potential disadvantage concerns the possibility of having chosen a non-random population. In particular, in order for the children to be matched with the father we require their SINs, and this implies that they must have been active in the labour market to the point of having filed an income tax return. Individuals who are working may be a self-selected group who are more motivated than the average, and who will ultimately have more work experience by the time they are adults. Indeed, the need for a SIN is one of the reasons that we restrict our analysis to those individuals who are at least 16 years of age. In Corak and Heisz (1998) we examine the possible selection bias that may intrude upon a model of the correlation between father and son's income, and find that while our sample is in fact non-random this does not influence the results.

Finally, we are not examining households headed by single mothers, a group that is often cited as important in discussions of child poverty. Our choice of individuals who had a father present is intended as a first step in a fuller analysis, and our original concern was to choose a sample similar to that used in much of the existing literature dealing with intergenerational

income mobility. The use of administrative data in such studies is novel, and we have chosen the sample in order to provide a basis for comparing our results with the existing work that relies almost exclusively on survey data. As such, our findings should be interpreted as a "best" case scenario.

Table 5.1 presents the average market income of the sons and daughters in our sample cross-classified according to the most pertinent discrete variables in our analysis. (A complete set of descriptive statistics is presented as Tables 5A.1 and 5A.2 in the appendix.) Most of the averages for the characteristics within a grouping are statistically different according to t or F tests, the exceptions being the majority language indicator for sons, and the employment income and Family Allowance indicators for daughters. The largest differences relate to the presence of asset income. Sons whose fathers reported having asset income averaged more than $5,000 in earnings than sons whose father reported no asset income. For daughters, the difference between these two groups is, at about $4,100, also large. It is also notable that men whose fathers received UI earn on average $3,760 less than their counterparts, and women in a similar position earn about $2,700 less. Individuals whose parent did not change residence during their early teen years earned about $800 more than those who moved once, and almost $4,000 more than those whose parent moved three or more times in a five year period. Finally, it should be noted that individuals from husband-wife families earned about $3,500 to $4,500 more than individuals from other family types. In fact, daughters from families in which both parents filed income tax returns (that is in which both were actively engaged in the labour market) earned slightly more on average than daughters from families in which only the father filed. (The t-statistic for a test of the null hypothesis that the two means are the same is 3.4.) The opposite is the case for the sons, but the observed difference between the two means is not statistically significant (t = 1.5).

Table 5.2 presents univariate regression results of the continuous variables in our analysis against the market incomes of sons and daughters. The numbers in this table should be interpreted as the change in the dependent variable (the income of sons or daughters expressed in dollars) for each thousand-dollar change in the independent variable. There is a positive association between the adult incomes of the children and the market based incomes (earnings, self-employment income, asset income) of fathers, but a negative association with the non-market sources (UI and Family Allowance). In addition, the association seems to be stronger for sons than for daughters. The negative association between the amount of Family Allowance income and the child's adult market earnings may seem puzzling. As the multivariate analysis in the following section reveals, this is because Family Allowance is correlated with the province of residence and the number of children. Since the amount of Family Allowance income is not measured on a per child basis the univariate results are revealing a negative sibling effect. It is also interesting to note that daughter's adult income is much more strongly related to the income of other family members (essentially the mother but also siblings) than it is to the father's income. For every $1,000 increase in the fathers' income the income of the average daughter increases by $62; for every $1,000 increase in the income of other family members it goes up almost twice as much, $115. In conjunction with the results in the previous paragraph (dealing with the effect of having a working mother) this hints at the possibility of demonstration or role model effects. Son and daughter incomes are also positively associated with the neighbourhood median income, the standard deviation of income in the neighbourhood, and the fraction of self-employed in the neighbourhood, but are negatively associated with the fraction of UI recipients. With the exception of the fraction of UI recipients, all these coefficients are about the same for both men and women.

Another perspective on the role of some of these variables is possible by examining the rank of the children (as adults) in the income distribution according to the rank their fathers occupied. Accordingly, in what follows we examine the transition matrices relating the father's income decile to the child's income decile. Given the concern with the long-term consequences of low-income during childhood we focus on the children of the lowest income fathers, those in the bottom decile. (The complete matrices for both sons and daughters are presented in the appendix.)

If there were no association between father and child incomes the chances of attaining any decile would be the same, namely 10%. Statistically significant deviations from 10% indicate less than complete intergenerational income mobility. Figure 5.1 reveals that 14.5% of the sons of bottom decile fathers had income that placed

Table 5.1
Background Characteristics and the Market Incomes of Sons and Daughters

Variable	Sons			Daughters		
	Number of Observations	Average Market Income	p-value	Number of Observations	Average Market Income	p-value
First Dollar Effects						
No Earnings	15,526	24,860		12,910	17,857	
Some Earnings	143,035	26,818	0.00	113,863	17,856	0.99
No Self-Employment Income	135,845	26,443		107,960	17,652	
Some Self-Employment Income	22,716	27,719	0.00	18,813	19,028	0.00
No Asset Income	41,042	22,851		30,985	14,712	
Some Asset Income	117,519	27,945	0.00	95,788	18,873	0.00
No Unemployment Insurance	133,644	27,217		107,835	18,259	
Some Unemployment Insurance	24,917	23,457	0.00	18,938	15,565	0.00
No Family Allowance	40,392	27,048		31,062	17,754	
Some Family Allowance	118,169	26,482	0.00	95,711	17,890	0.22
No Other Income	108,063	26,329		85,990	17,666	
Some Other Income	50,498	27,262	0.00	40,783	18,257	0.00
Number of Residential Moves						
No Moves	124,529	26,864		100,589	18,101	
One Move	26,260	26,096		20,197	17,268	
Two Moves	6,447	24,954		5,011	15,975	
Three or More Moves	1,325	22,906	0.00	976	14,427	0.00
Individual/Family Characteristics						
Did Not Use Majority Language	5,989	26,406		4,819	18,411	
Used Majority Language	152,572	26,635	0.51	121,954	17,834	0.02
Married, Wife did Not Work	20,005	27,048		15,224	17,519	
Married, Wife Worked	132,017	26,753		107,035	18,022	
Single	4,757	22,887		3,146	15,293	
Common-Law	1,782	22,488	0.00	1,368	14,568	0.00

Note: p-value refers to the marginal significance level for a t or F test of the null hypothesis that the within groups averages are equal.

them in bottom 10% (as adults) of their cohort. For daughters the comparable proportion is 13.6%.[5] In general, sons raised by low-income fathers are less likely to move into the upper half of the income distribution, more likely to remain in the bottom half, and most likely to occupy the same position as their fathers. Daughters are also most likely to remain in the bottom of the income distribution, and certainly less likely to reach the top 20%, but are about equally as likely to be anywhere else in the income distribution.

Figure 5.2 presents similar information according to the composition of the father's income: whether or not the father reported any income from self-employment, assets, or UI. In other words, in conjunction with Figure 5.1 these figures offer (for children from low-income fathers) a descriptive look at the relationship between what we have referred to as the "first dollar effects" of these components of income and the relative position of the children in the income distribution. Once again, the role of asset income is the most notable. Individuals whose fathers did not report having asset income (either positive or negative) were much more likely to be in the bottom decile and much less likely to be in the top decile of their cohort as young adults. The probability that these sons were in the bottom decile is 17.1%, versus 12.4% for those with fathers reporting asset income. For daughters the difference is slightly greater (17.1% versus

Table 5.2

Correlations between Parental Income, Neighbourhood and Familial Variables, and the Market Incomes of Sons and Daughters

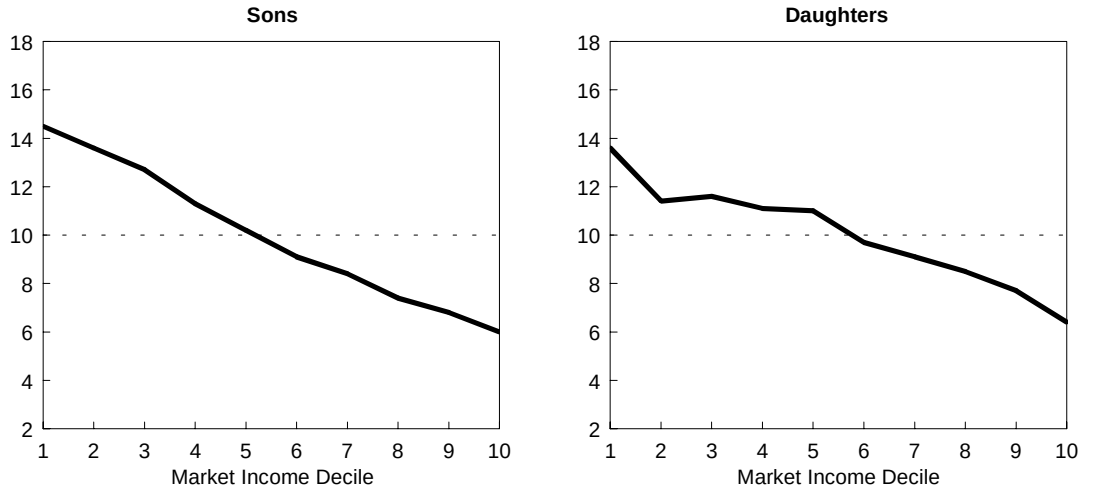
	Sons		Daughters	
Variable	Coefficient	p-value	Coefficient	p-value
Additional Dollar Effects	($ per thousand dollar change)			
Earnings	116	0.00	62	0.00
Self-Employment Income	76	0.00	66	0.00
Asset Income	82	0.00	58	0.00
Unemployment Insurance	-830	0.00	-568	0.00
Family Allowance	-1,233	0.00	-929	0.00
Other Income	112	0.00	104	0.00
Neighbourhood Effects				
Median Income (thousands)	459	0.00	475	0.00
Standard Deviation	52	0.00	43	0.00
Proportion of Self-Employed	-256	0.00	-251	0.00
Proportion of UI Recipients	332	0.00	146	0.00
Individual and Family Characteristics				
Rest-of-Family Income	138	0.00	115	0.00
Number of Children	53	0.43	-17	0.65
Number of Observations	158,561		126,773	

Note: All regressions were performed using least squares with the market income (in dollars) of sons or daughters as the dependent variable.
p-value refers to the marginal significance level of a t test for the null hypothesis that the coefficient is equal to zero.

11.1%). Indeed, daughters with fathers reporting asset income are about equally likely to be at any decile in the income distribution (except possibly the top two).

Figure 5.3 offers a stratification by neighbourhood characteristics. The first panel illustrates the rank (of those with bottom decile fathers) according to the median income of the childhood neighbourhood. A “low-income neighbourhood” is considered to be a neighbourhood with a median income in the bottom quartile of all neighbourhoods; a “high-income neighbourhood” is defined in a similar way (on the basis of the top quartile). Generally, those from low-income neighbourhoods are much less likely to move to the upper half of the income distribution, and are most likely to remain in the bottom decile. This is particularly so for sons. The second panel offers a distinction between those neighbourhoods in which the fraction of UI recipients to the total number of income tax filers is above and below the Canadian average. Sons with bottom decile fathers living in neighbourhoods with an above average proportion of UI recipients are more likely to remain in the bottom half of their cohort, but the differences are not marked (and indeed not even apparent at the bottom decile). On the other hand, daughters living in these neighbourhoods are less likely to leave the bottom decile, much less likely to rise to the top decile, and in general less likely to rise above the fifth decile than their counterparts. This is also the case for the influence of whether the father changed addresses between 1978 and

Figure 5.1
Relative Outcomes of Children of Bottom Decile Fathers



1982. While sons whose fathers moved are more likely to remain in the bottom decile than those whose fathers did not move (16.6% versus 13.7%), there are no appreciable differences between the two groups elsewhere in the income distribution. An adverse impact of moving, however, is a little clearer for daughters.

3. Regression Results

The multivariate regression results for sons are presented in Table 5.3, and for daughters in Table 5.4. Since some individuals have very large incomes, we are somewhat concerned about the sensitivity of least squares to outliers. We do two things to address this. First, as outlined in the appendix, we delete those influential observations with very large negative values for some of the income components. In many cases, these negative values were offset by large positive values for other components, suggesting that tax considerations influenced the way in which income was reported. Second, we also conduct an analysis using quantile regressions at the 50th percentile. Given that these are based on the minimization of absolute deviations about the median they are not as sensitive to outliers as least squares. Tables 5.3 and 5.4 contain the results of least squares estimation, quantile regressions at the median, but also quantile regressions about the 10th decile and 90th decile of the dependent variable. The latter also offer a check on the average/median results by indicating whether individuals at the lower or upper end of the income distribution are more or less sensitive to the influence of a particular variable. (Some of the results in Figures 5.2 and 5.3 are suggestive of this possibility.) Taken together they also offer an indication of the influence of a variable on the spread of the income distribution. This influence is given by an estimate of the difference between the 90th and 10th deciles in the last column of tables 5.3 and 5.4.

The coefficients in these tables should be interpreted as the dollar change in the income of sons or daughters for a unit change in the independent variable. Boldfaced values represent a marginal significance level of 0.05 or less, while those boldfaced and shaded have a level of 0.01 or less.[6] Almost all of the first dollar effects are large and statistically significant. As the discussion in the previous section suggests, the first dollar effect associated with asset income is striking, amounting on average to over $3,000 for men and almost $2,700 for women. (The estimates at the median are lower.) For men there is no significant difference between the coefficient estimates at the 10th and 90th percentiles, implying that this effect is felt throughout the income distribution and is not a result of a large effect for just some individuals. (As Table 5.1 and Tables 5A.1 and 5A.2 in the appendix illustrate, about 75% of the sample report a non-zero amount of asset income. This proportion is so large because

Figure 5.2
The Composition of Father's Income and Child's Outcome (Bottom Decile Fathers)

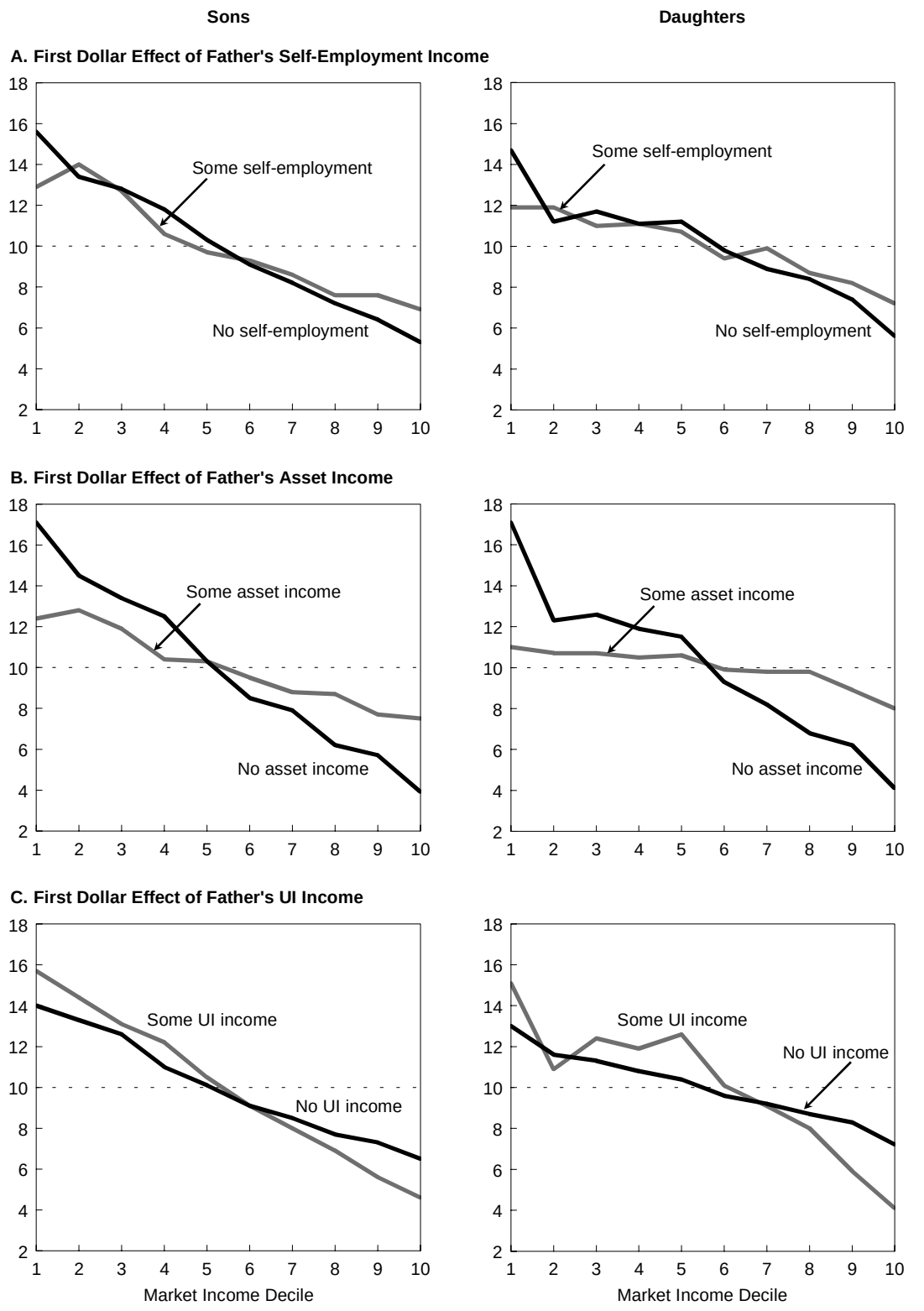


Figure 5.3
Neighbourhood Background and (Bottom Decile Fathers) Child's Outcome

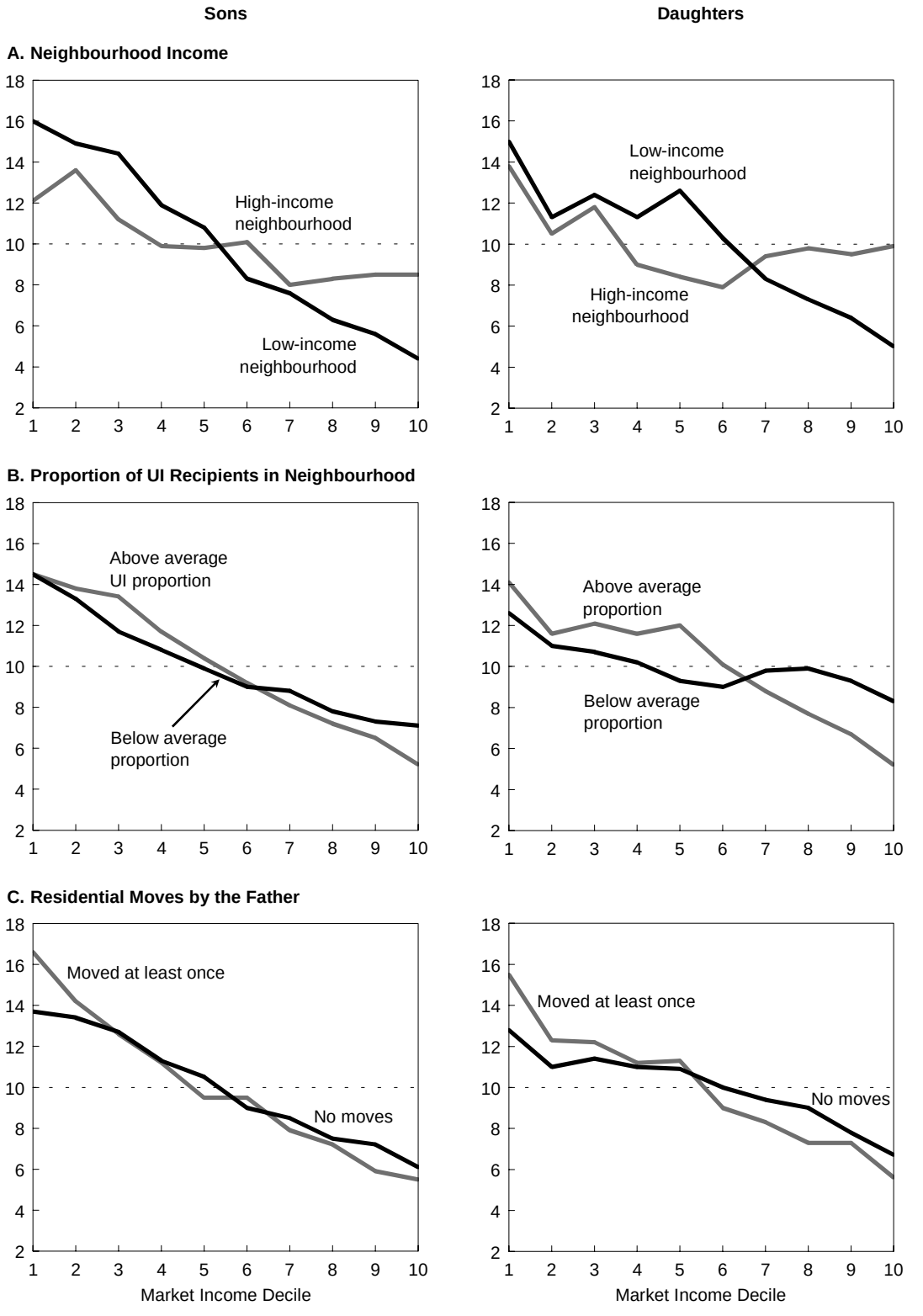


Table 5.3

Multivariate Regression Results: Sons

	Least Squares	Quantile Regressions			
		50th Percentile	10th Percentile	90th Percentile	90th less 10th
First Dollar Effects					
Earnings	1,003.5	**557.1**	**514.0**	**-1,891.4**	**-2,405.4**
	(657.4)	(187.3)	(185.3)	(478.2)	(402.5)
Self-Employment Income	**1,157.2**	153.3	63.7	**2,384.4**	**2,320.7**
	(295.4)	(164.8)	(221.7)	(360.5)	(359.9)
Asset Income	**3,106.9**	**2,254.6**	**1,875.2**	**2,066.0**	190.8
	(177.3)	(94.8)	(107.6)	(150.4)	(186.2)
Unemployment Insurance	**-1,441.9**	**-481.1**	**-469.5**	**-717.1**	-247.6
	(233.6)	(187.3)	(156.4)	(317.4)	(313.7)
Family Allowance	-324.2	42.5	42.1	**-621.5**	**-663.6**
	(225.5)	(116.1)	(136.2)	(254.2)	(215.0)
Other Income	**564.6**	**512.3**	201.6	**571.8**	370.2
	(169.6)	(106.0)	(127.3)	(190.4)	(212.6)
Additional Dollar Effects (per thousand dollars)					
Earnings	**90.7**	**86.6**	**23.3**	**217.0**	**193.7**
	(22.1)	(3.8)	(3.6)	(8.9)	(10.2)
Self-Employment Income	**76.2**	**48.6**	8.2	**145.3**	**137.0**
	(17.0)	(6.3)	(5.7)	(17.6)	(21.5)
Asset Income	**27.7**	**35.3**	4.5	**273.0**	**268.5**
	(12.8)	(7.6)	(5.4)	(23.5)	(16.2)
Unemployment Insurance	-9.7	-81.5	**-111.0**	**236.5**	**347.5**
	(58.3)	(44.7)	(38.0)	(51.0)	(78.4)
Family Allowance	457.3	246.4	**349.6**	**845.4**	495.8
	(315.0)	(176.2)	(138.0)	(295.3)	(305.5)
Other Income	**54.1**	**40.2**	-3.9	**130.5**	**134.5**
	(16.4)	(9.8)	(10.5)	(21.4)	(15.1)
Neighbourhood Effects					
Median Income (thousands)	**367.8**	**366.8**	**175.5**	**416.4**	**240.9**
	(41.2)	(25.3)	(32.0)	(50.4)	(46.8)
Standard Deviation	6.9	**-7.3**	**-11.0**	3.8	**14.8**
	(5.7)	(2.7)	(2.1)	(3.5)	(4.6)
Proportion of Self-Employed	**120.8**	-1.3	**64.2**	**161.5**	**97.3**
	(32.5)	(21.2)	(17.5)	(35.1)	(34.9)
Proportion of UI Recipients	**35.2**	**67.6**	**66.9**	**47.2**	-19.7
	(15.2)	(10.0)	(12.2)	(18.2)	(22.2)
Moved Once	**-544.2**	**-887.0**	**-867.1**	**-434.7**	432.4
	(197.8)	(139.5)	(135.5)	(159.7)	(224.8)
Moved Twice	**-1,058.7**	**-1,488.9**	**-1,448.7**	68.1	**1,516.8**
	(325.6)	(261.6)	(166.7)	(405.4)	(443.0)
Moved Three Times	**-2,134.3**	**-2,281.5**	**-1,475.9**	-384.3	1,091.7
	(583.9)	(286.4)	(406.6)	(691.3)	(738.2)
Individual Characteristics					
Majority Language	-593.0	**711.1**	**556.2**	**-1,014.0**	**-1,570.2**
	(415.7)	(232.1)	(255.5)	(415.9)	(519.2)
Number of Children	**-299.1**	**-408.3**	**-232.7**	**-489.0**	**-256.3**
	(127.8)	(69.8)	(39.5)	(111.9)	(96.5)
Rest-of-Family Income	**89.4**	**48.5**	**35.9**	**115.7**	**79.8**
	(14.0)	(3.7)	(4.4)	(11.4)	(10.6)
Married, Wife Worked	-25.7	181.7	**-296.9**	**731.7**	**1,028.6**
	(372.6)	(129.2)	(122.1)	(276.7)	(343.6)
Single	**-1,600.0**	**-1,930.8**	**-1,646.9**	-110.4	**1,536.5**
	(398.8)	(353.3)	(291.5)	(403.3)	(605.4)

Table 5.3 – Concluded
Multivariate Regression Results: Sons

	Least Squares	Quantile Regressions			
		50th Percentile	10th Percentile	90th Percentile	90th less 10th
Common-Law	**-2,245.5**	**-1,620.3**	**-1,560.4**	**-1,532.0**	28.5
	(630.3)	(510.2)	(413.9)	(774.0)	(842.8)
Constant	**12,915.3**	**13,264.9**	**-2,423.0**	**27,578.9**	**30,001.9**
	(1,045.1)	(692.4)	(719.2)	(1,663.0)	(1,591.4)
Number of Observations	158,561	158,561	158,561	158,561	158,561
Adjusted R^2	0.0421	0.0284	0.0112	0.0546	

Note: The dependent variable is the level of the child's total market income for 1994. Independent variables are for 1982. All income measures are expressed in 1986 constant dollars using the CPI as the deflator. The measures of the father's income, neighbourhood median income, the standard deviation of incomes in the neighbourhood are expressed in thousands of dollars. Controls for province of residence, age and age^2 of both the father and the child are also included in all of the models.

( ) indicates standard error. **Boldface** indicates significance at 0.05, **Boldface** and shading indicates significance at 0.01. For the least squares results the standard errors are robust to heteroscedasticity. For the quantile regressions the standard errors are derived from a bootstrap using 20 replications.

even interest on bank deposits during an inflationary period may generate sufficient income to require reporting.) Having a father who reported self-employment income is also of benefit to the child, but only for those destined, at least in the case of sons, for the top of the income distribution. (For daughters, a positive relationship exists as well at the median.) The opposite pattern prevails if the father reported earnings: those at the 90th percentile are disadvantaged. Finally, parental receipt of UI has a negative association with the child's adult income.

The amount of the father's market based income generally has a positive impact on the child's income. The magnitudes are about the same for all of the income types. The coefficients on the amount of earnings, self-employment income, and asset income are all within two standard errors of each other. (The asset coefficient is, nonetheless, the smallest of the three.) In contrast, the amount of UI income (which might be taken as an indicator of the severity of unemployment as it is related to the duration of unemployment spells) does not, on average, matter for the child's adult income. That being said, all the coefficients are larger for sons than for daughters, with the earnings variable for sons being about twice the size of that for daughters. The exceptions to this are the influences of asset income and other income, which are almost exactly the same for men and women.

With respect to the neighbourhood variables, it is clear that the number of moves is strongly and negatively related to the child's income: a single move being associated with about $540 less income for both sons and daughters; three moves with about $2,100 less. The results for the 50th percentile are all larger in absolute value, suggesting that the average effects given by least squares are probably understatements. The median income of the neighbourhood is a positive correlate of sons' income, every $1,000 increase being related to about a $370 increase in eventual income earned by the son. This would imply that a one standard deviation increase in this variable ($2,852) would be associated with a $1,050 increase in the son's adult income. Median neighbourhood income, while positive and statistically significant, is not on average strongly related to the daughter's income. This masks, however, a stronger positive correlation at the 90th percentile. The fraction of self-employed and the fraction of UI recipients are related to the incomes of both sons and daughters, but in a different way. Each unit increase in these variables is associated with decreases in daughters' income by on average about $90 and $150 respectively, but with increases of the son's income by around $120 and $35.

Table 5.4

Multivariate Regression Results: Daughters

	Least Squares	Quantile Regressions			
		50th Percentile	10th Percentile	90th Percentile	90th less 10th
First Dollar Effects					
Earnings	-137.4	-67.2	-20.3	**-1,757.2**	**-1,736.9**
	(420.9)	(250.2)	(36.2)	(338.7)	(309.4)
Self-Employment Income	**850.0**	**337.2**	61.0	**1,642.3**	**1,581.3**
	(180.4)	(126.6)	(34.7)	(271.0)	(181.0)
Asset Income	**2,698.0**	**2,665.4**	**152.5**	**2,528.5**	**2,376.0**
	(116.2)	(113.6)	(21.1)	(183.8)	(108.4)
Unemployment Insurance	**-865.4**	**-457.8**	-30.2	**-1,112.7**	**-1,082.5**
	(175.7)	(212.9)	(23.8)	(167.9)	(286.0)
Family Allowance	**507.9**	**690.9**	**63.5**	**568.8**	**505.4**
	(149.4)	(150.9)	(25.5)	(214.8)	(180.5)
Other Income	195.2	205.0	38.8	-68.8	-107.7
	(120.9)	(143.5)	(22.3)	(176.0)	(151.1)
Additional Dollar Effects (per thousand dollars)					
Earnings	**47.2**	**52.2**	**7.9**	**137.1**	**129.2**
	(11.7)	(5.3)	(1.4)	(8.9)	(8.0)
Self-Employment Income	**49.7**	**52.7**	**13.0**	**87.0**	**73.9**
	(7.9)	(4.2)	(3.2)	(6.7)	(6.5)
Asset Income	**28.0**	**18.8**	**7.3**	**173.4**	**166.1**
	(11.8)	(5.7)	(3.5)	(18.1)	(25.0)
Unemployment Insurance	-22.8	-64.3	**14.3**	**197.6**	**183.3**
	(41.3)	(49.7)	(5.6)	(54.4)	(71.8)
Family Allowance	336.2	-126.3	-0.3	417.3	**417.6**
	(187.5)	(145.3)	(21.4)	(225.5)	(191.8)
Other Income	**55.3**	**26.3**	**9.6**	**104.3**	**94.7**
	(17.1)	(13.2)	(4.6)	(26.7)	(23.4)
Neighbourhood Effects					
Median Income (thousands)	**71.5**	4.0	-0.1	**147.2**	**147.4**
	(27.0)	(29.5)	(3.6)	(41.7)	(32.2)
Standard Deviation	**12.7**	**7.0**	2.3	**9.0**	**6.7**
	(2.6)	(1.7)	(1.3)	(2.7)	(2.5)
Proportion of Self-Employed	**-87.8**	**-252.6**	**-10.6**	-37.5	-26.8
	(20.3)	(21.1)	(2.3)	(26.6)	(32.4)
Proportion of UI Recipients	**-151.7**	**-204.9**	**-6.1**	**-130.0**	**-123.9**
	(10.4)	(13.5)	(1.7)	(11.5)	(12.2)
Moved Once	**-553.5**	**-686.7**	**-59.3**	**-411.3**	**-352.0**
	(129.6)	(116.6)	(17.6)	(181.9)	(179.9)
Moved Twice	**-1,282.3**	**-1,957.9**	**-109.4**	**-975.5**	**-866.2**
	(239.0)	(356.7)	(24.2)	(401.0)	(349.3)
Moved Three Times	**-1,818.8**	**-2,328.7**	**-84.7**	-1,555.0	**-1,470.3**
	(433.7)	(662.5)	(34.9)	(848.6)	(637.9)
Individual Characteristics					
Majority Language	**-511.3**	**-1,095.4**	31.5	**-1,581.7**	**-1,613.2**
	(255.8)	(384.8)	(47.2)	(288.7)	(357.6)
Number of Children	**-353.0**	**-278.4**	**-42.2**	**-433.9**	**-391.7**
	(68.3)	(56.8)	(9.2)	(62.1)	(85.2)
Rest-of-Family Income	**81.5**	**58.4**	**10.9**	**95.4**	**84.5**
	(7.9)	(5.3)	(1.4)	(4.7)	(7.4)
Married, Wife Worked	233.6	292.5	**43.6**	**581.4**	**537.8**
	(201.2)	(159.8)	(16.2)	(250.0)	(218.3)
Single	-544.1	**-1,213.0**	30.1	-474.5	-504.5
	(306.8)	(328.4)	(25.2)	(487.9)	(429.8)

Table 5.4 – Concluded
Multivariate Regression Results: Daughters

	Least Squares	Quantile Regressions			
		50th Percentile	10th Percentile	90th Percentile	90th less 10th
Common-Law	**-915.4**	**-1,361.2**	22.6	-253.1	-275.8
	(416.1)	(549.9)	(73.4)	(510.8)	(589.5)
Constant	**16,583.4**	**20,505.0**	-30.6	**29,773.8**	**29,804.4**
	(733.4)	(1,078.8)	(112.7)	(1,163.0)	(960.5)
Number of Observations	126,773	126,773	126,773	126,773	126,773
R^2	0.0533	0.0275	0.0034	0.0526	

Note: The dependent variable is the level of the child's total market income for 1994. Independent variables are for 1982. All income measures are expressed in 1986 constant dollars using the CPI as the deflator. The measures of the father's income, neighbourhood median income, the standard deviation of incomes in the neighbourhood are expressed in thousands of dollars. Controls for province of residence, age and age^2 of both the father and the child are also included in all of the models.

( ) indicates standard error. **Boldface** indicates significance at 0.05, **Boldface** and shading indicates significance at 0.01. For the least squares results the standard errors are robust to heteroscedasticity. For the quantile regressions the standard errors are derived from a bootstrap using 20 replications.

The structure of the family is an important correlate of the adult incomes of both men and women. First, there is no statistically significant impact on the adult incomes of these adolescent children of whether the mother worked or not. These averages, however, mask a positive influence for men at the 90th percentile that is countered by a negative influence at the 10th, while for women both of these percentiles are positively associated with the presence of a tax-filing mother (even though the median is not statistically different from zero).[7] At the same time, it should be noted that income from other family members, which in the strong majority of cases refers to income from the mother, is positively associated with the adult incomes of the children. The effect, at about $82 to $90 for every $1,000 earned is about the same for both sons and daughters. At the same time, this value is more than 70% higher than the coefficient relating the fathers' earnings to the daughters': in other words daughters' outcomes seem more strongly correlated with the labour market income of their mothers and siblings than to their fathers'.

Second, the contemporaneous number of children in the family is negatively associated with adult outcomes: for every sibling still living at home the adult income of the sample members is lower by about $300 to $400.

Third, fathers raising their children without a partner or with a common-law partner had children that ultimately received much lower incomes as adults than fathers who were married: for sons the common-law effect is probably about -$1,500, and for daughters probably a little less (at least at the median). The magnitude of these effects is striking given that only about one percent of our sample falls into this category. It should be noted that the declaration of marital status on the 1982 T1 form did not contain a separate category for living common-law. As a result we suspect, firstly, that some individuals living common-law and raising a family together probably indicated that they were married, even though this category was meant to refer to only those legally married when tax exemptions were being claimed. Second, those considered common-law in our data are in fact a residual group. They are those individuals not offering any marital information on their income tax returns but who were identified in the processing of the T1 data by Statistics Canada as living at the same address as a women with children.[8] In our view, it is possible that these individuals joined lone parent families at some point after the child's birth, in this sense the estimate is picking up the influence of family disruption earlier in the child's life. As such it is less of an indicator of the impact of common-law relationships than of family disruption and single motherhood. The correct interpretation of this variable is open to question. More specifically we do not wish to interpret it as a "common-law" effect in spite of the name given to it.

4. Issues of Interpretation

There are two recurring themes in the empirical literature dealing with the attainments of children: the influence of unobserved factors, and the difficulty in establishing causal patterns. Haveman and Wolfe (1995), for example, offer an extensive review of the US literature and conclude by stressing these issues, which relate to omitted variables bias and endogeneity. The interpretation of our findings should, therefore, address questions about what variables are excluded from the regression models, and about what variables are included.

The influence of "first dollar" effects underscores the importance of omitted factors. These variables are collectively very important additions to the regression models discussed in Tables 5.3 and 5.4. They are not only statistically significant but also large in magnitude.[9]

In addition, these variables play an important role in determining the magnitudes and signs of some of the coefficients associated with the additional dollar effects. The coefficient estimates on parental income will be biased upward if other influences determining child outcomes are positively correlated with income and omitted from the model. In contrast to Hill and Duncan (1987), we find that different sources of the parental income have different influences on the adult incomes of children. For example, we can reject the restriction that the six sources of the father's income have the same coefficient.[10] This suggests that more than money matters in determining the adult incomes of children, and might be interpreted as suggesting that the role models offered by parents are important.

This conclusion, however, is valid if the estimates are unbiased. The potential for an omitted variable bias is illustrated in Table 5.5. This table offers the coefficient estimates on the various income sources for a variety of model specifications. The least squares results from Tables 5.3 and 5.4 are presented in the last column of this table. Column [1] represents the simplest model, the only regressors in addition to the amount of income from the seven possible sources (six from the father plus the rest of family income) are the ages and ages squared of the father and child. The remaining columns are based on more complete models, adding successively controls for province of residence, neighbourhood characteristics (including the number of moves and the majority language), and finally family structure. Column [4] therefore includes all of the regressors except the first dollar effects.

Consider the coefficients associated with the sources of income other than government transfers: namely earnings, self-employment income, asset income, other income, and rest-of-family income. While the simpler models in column [1] through [4] overstate the magnitude of these coefficients in comparison with column [5], and while the first dollar effects play an important role in this (particularly for self-employment income and other income), the results are robust. All of the coefficients in column [5] are within one standard error of those in column [1]. In fact, the major impact of the specification of the model has to do with the role of UI, the principal non-market source of income. Without the controls for first dollar effects the amount of UI benefits received by the father has a large negative influence on the market incomes of children: every $1,000 increase in UI being associated with more than $200 to almost $300 decline in the child's adult income. In contrast, the effect of UI income is not statistically different from zero when the first dollar effects are included in the model. The Family Allowance variable is not for the most part statistically significant from zero, but it is large in magnitude and changes a great deal as controls for the province of residence and number of siblings are added. Once these controls are introduced the first dollar effects increase the family allowance coefficient for sons (although it remains statistically insignificant), and decrease it for daughters.

How should the influence of first dollar effects be interpreted? It is difficult to suggest a causal mechanism at work in these patterns. While each income source may signal the effect of unobserved characteristics of the father that are passed on to the child, it is not clear what these are or how they operate. For example, it has been suggested that the self-employed may be more motivated and active in the market place, and it is this motivation that is either genetically or otherwise passed on to the children and determines their labour market success (Dunn and Holtz-Eakin, 1996). Similarly, those parents with assets might be viewed as having more foresight, or more ability to plan for the future, and these characteristics are important for labour market success. Further, while it may be argued that the intergenerational transmission of UI status is associated with characteristics that are detrimental to labour market success, the most likely

Table 5.5

Model Specification and the Sensitivity of the Relationship between Father and Child Incomes

	[1]	[2]	[3]	[4]	[5]
Sons					
Additional Dollar Effects (per thousand dollars)					
Earnings	**103.5**	**101.3**	**95.9**	**95.0**	**90.7**
Self-Employment Income	**93.3**	**92.7**	**85.3**	**85.6**	**76.2**
Asset Income	**30.4**	**30.9**	**31.1**	**29.5**	**27.7**
Unemployment Insurance	**-372.3**	**-351.1**	**-298.9**	**-287.8**	-9.7
Family Allowance	-367	-90.8	-126.0	335.6	457.3
Other Income	**74.7**	**74.0**	**67.1**	**66.4**	**54.1**
Rest-of-Family Income	**91.5**	**89.1**	**86.2**	**91.6**	**89.4**
R^2 Adjusted	0.0330	0.0368	0.0385	0.0389	0.0418
Daughters					
Additional Dollar Effects (per thousand dollars)					
Earnings	**55.0**	**55.0**	**49.6**	**49.0**	**47.2**
Self-Employment Income	**69.5**	**69.1**	**64.0**	**64.2**	**49.7**
Asset Income	**31.5**	**31.3**	**31.4**	**30.1**	**28.0**
Unemployment Insurance	**-301.2**	**-298.6**	**-217.6**	**-211.0**	-22.8
Family Allowance	-214.2	-31.9	11.5	**581.0**	336.2
Other Income	**69.5**	**71.6**	**64.7**	**64.5**	**55.3**
Rest-of-Family Income	**79.1**	**79.7**	**75.3**	**82.3**	**81.5**
R^2 Adjusted	0.0377	0.0422	0.0471	0.0478	0.0530
Other Variables Included in the Model					
First Dollar Effects	no	no	no	no	yes
Age and Age Squared	yes	yes	yes	yes	yes
Province of Residence	no	yes	yes	yes	yes
Neighbourhood Characteristics	no	no	yes	yes	yes
Family Structure	no	no	no	yes	yes

Note: Table entries report the least squares regression coefficients using the income levels of sons and daughters (expressed in constant 1986 dollars) as the dependent variable. Results in column [5] are taken from tables 5.3 and 5.4.
Boldface indicates significance at 0.05, **Boldface** and shading indicates significance at 0.01. The underlying standard errors are derived using White's heteroscedastic consistent covariance matrix estimator.

interpretation of the UI coefficients is that the first dollar effects capture the intergenerational transmission of occupations.

Mayer (1997) argues that the role of income in determining the outcomes of children has been overstated, and that more than money matters. Summarizing the thesis of her book she states:

> In most cases, additional parental income does improve children's chances for success. But parental income is not as important to children's outcomes as many social scientists have thought. This is because the parental characteristics that employers value and are willing to pay for, such as skills, diligence, honesty, good health, and reliability, also improve children's life chances, independent of their effect on parents' income. Children of parents with these attributes do well even when their parents do not have much income. (Mayer 1997, p.2).

She goes on to argue that some sources of income are less strongly correlated with unobserved parental characteristics than others, and the coefficient estimates on these offer a less biased estimate of the influence of income. In particular, she suggests that "other" income—

meaning all non-labour market income net of government transfers—may be interpreted in this way. Her definition of other income is closest to the combination of what we have called asset income, Family Allowance, and other income. (Family Allowance is included in this list because, in spite of it being a government transfer, it was a universal program and therefore not related to unobserved individual characteristics in the way that Income Assistance or UI may be.) In fact, our results reveal that asset and other income have the weakest correlations with the dependent variables. This would suggest, if Mayer's argument is correct and if our use of first-dollar effects is an imperfect control for unobservables, that the influence of earnings and self-employment income on the son's earnings is overstated in the least squares regression by a factor of two to three.[11] Furthermore, if we interpret the difference in the coefficients between sons and daughters as being due to role model influences (an important unobservable), then the father-daughter relationship is more likely to lead to less biased estimates. These arguments would imply that the most accurate estimate of the influence of parental income on childhood attainment is about a $30 to $50 increase in the child's income for every $1,000 increase in the father's.

At the same time, however, it should be noted that our results may be biased in the opposite direction (that is they may be an understatement) because we measure parental income in a single year as opposed to averaging over several years. Transitory income fluctuations imply that single year measures are more likely to be imperfect measures of permanent income and to therefore understate the correlation between parent-child incomes. Our decision to use single year data from 1982 was based upon the fact that this was the earliest year in which some family characteristics were available. In particular, the number of siblings is not available before this year and the absence of this variable leads (as Table 5.5 illustrates) to a severe bias in the coefficient associated with income from Family Allowance. In order to examine the extent of the bias associated with this kind of measurement error, we re-estimated our models using averages of the father's income and its components between 1978 to 1982.[12] For sons the coefficients associated with earnings and self-employment are respectively about 70% and 63% higher; for daughters they are about 90% and 45% higher. However, the coefficient associated with asset income is only 9.7% higher for sons and actually 13% lower for daughters. Basing our conclusions on the coefficients on asset income in the original models is not, therefore, totally inappropriate.

The implication is that first dollar effects are much more influential than additional dollar effects. For example, suppose that $50 per $1,000 of father's income is the correct estimate, then on average (that is using the least squares findings) a father's income would have to be $23,144 higher to compensate his son for the fact that he (the father) was not self-employed, $28,838 higher to compensate for the fact that he collected UI, and $62,138 higher to compensate for the fact that he reported no asset income. The corresponding figures for daughters are $17,000, $17,008, and $53,960. The underlying characteristics associated with these first dollar effects, whatever they may be, are major influences on the attainments of children. Even if we assumed that the true value was as high as $100 per $1,000 this general conclusion would be the same

The results associated with neighbourhood characteristics and family structure raise a related issue associated with the variables that should be included in our models. It is difficult to establish the causal mechanisms at work with the models we have estimated because some of the regressors may in fact be inter-related. The clearest examples of this are the neighbourhood characteristics. They are treated as exogenous in our model, but may well reflect choices by the parents: choices that are in turn based upon their incomes, their motivation, or their ability or desire to invest in the future prospects of their children. The interpretation of the controls for the number of moves is, as mentioned in Section 5.1, also subject to this limitation. Coleman's use of the concept of social capital certainly offers a theory for the interpretation of these effects, but it is possible that this variable is not exogenous, and is not accurately modelled in the single equation framework we have assumed. To cite one of several possibilities, lower income individuals may, for example, be those renting their homes, and renters may move more often. (Similar types of arguments can be made with respect to family structure. For example, see Manski et al., 1992.) However, the exclusion of neighbourhood and family structure variables from the estimating equation does not change the estimates obtained for the first dollar effects nor the additional dollar effects.[13]

5. Conclusion

The process determining the ultimate labour market success of children is complex and multi-faceted and no doubt involves the family, the community, and the state. Certainly money matters for a child's prospects. Children from higher income households tend to do better as adults — sometimes much better—than children from lower income households. At the same time, however, factors other than money are also most surely at work. Indeed, it is easy to overstate the influence of money because a lot of other influences determine both the prospects of children and the income their parents earn. Parental income may reflect these other factors rather than play an independent causal role.

This, in fact, is the major theme of our research. One way to develop a sense of the independent role of money in determining the adult prospects of children is to examine the composition of income. If only money matters then a dollar from earnings, a dollar from self-employment, a dollar from assets, a dollar from government transfers, or a dollar from any other sources should all have the same impact on the ultimate labour market success of children. We find that this is not so. Our major result is that factors associated with the type of income fathers report—factors unobservable to us as analysts but presumably of value in the labour market—are major influences on the market income prospects of children. In particular, we find that the presence (as opposed to the amount) of asset income is very strongly correlated with the market incomes children will eventually earn as young adults. We also find that the presence of certain government transfers has a negative or neutral correlation with the adult earnings of children.

In general, our best estimate of the independent effect of money income suggests that for every $1,000 increase in the father's income a child's income as an adult will be $50 higher. This implies that someone raised by a father whose income was at the top 10% of the income distribution (about $62,000 using constant 1986 dollars) would earn $2,350 more than someone raised by a father whose income was at the bottom 10% of the income distribution (about $15,000). In comparison, having a father who reported asset income is equivalent, all other things equal, to $50,000 to $60,000 more in earnings. But parents influence the prospects of their children not just by virtue of the money they earn; they also act as role models. We find that the role model effect is about as large as the pure income effect. For example, following the existing literature we hypothesize that parents of the same gender as the child will be stronger role models: fathers having a greater influence on sons, and mothers a greater influence on daughters. We find that for every $1,000 increase in a father's income the income of his daughter rises by about $50, but for every $1,000 increase in the income of other family members (the mother and any siblings) the daughter's income will be about $80 higher. The case for sons, however, is not as clear: income from the father and from other family members has about the same impact on their adult income.

The future prospects of children, however, also have a community dimension. Teenagers raised in higher income neighbourhoods tend to be more successful, and teenagers whose father did not move also tend to have a signifcant advantage over those whose father moved more than once. This being said it is, nonetheless, difficult to establish an accurate estimate of the influence of neighbourhoods on children. Neighbourhood and mobility decisions may be influenced by unobserved characteristics that are also important influences for the prospects of children, and residential choices may be a reflection of these underlying causal factors, rather than independent influences.

This, however, returns us to our principal theme and underscores the complex nature of the process determining the ultimate labour market experiences of children. If a policy geared toward transferring more income to children is to be evaluated in terms of its long-term impact on their self-sufficiency in the labour market, then it should be understood that this process is complex and that while it is influenced by the economic resources available to the parents, other factors play a role—quite possibly a central role.

Appendix

We link the income tax records of fathers and their children by using the T1 Family File (T1FF), a dataset of T1 records that has been processed by Statistics Canada in a way that matches members of each tax filer's family. (T1 forms are the main annual tax returns filed by individuals in Canada, and the T1FF incorporates the universe of tax filers.) A variety of matching strategies is employed to identify family members, and imputation processes are used to add non-tax filing members of the family and to complete missing information. Couples (including spouses and

common-law couples) are linked using SIN codes and spousal SIN codes when indicated on the T1, as well as name and address information. Children are matched to their parents using name and address fields. Harris and Lucaciu (1994) offer more detail on the construction of the T1FF.

Father-child pairs are drawn from the T1FF for 1982. Only non-imputed fathers and children are retained. (The father may not be the biological father, but rather should be thought of as the male household head.) Children are restricted to having been born between 1963 and 1966. Three classes of children are excluded: [1] those children not filing an income tax return while still at home; [2] those who filed a tax return and were linked to a family that had no father; and [3] those who filed a tax return but were not linked to a family. Using these father-child pairs of SINs we obtain income information from the fathers' 1982 T1 forms, and the children's 1994 T1.

Since data collected for taxation purposes changes from year to year with tax law and administrative need, it is necessary to deal with those changes that may affect the comparability of father and child incomes over the period we are studying. The most important of these involves the fact that fathers were able to take advantage of Employment Expense Deductions that were not available to their adult children a decade or so later. We correct fathers' income for this. Other changes influenced the comparability of capital gains and dividend income. A capital gain or loss occurs when there is a dispensation of capital property. A fraction of capital gains is taxed as income. In 1982, one-half of net capital gains was taxable, while in 1994 three-quarters were taxable. The taxable portion of capital gains appears on the T1 file. We re-adjust these figures to reflect the full net capital gain. Finally, dividends from some Canadian corporations are subject to a "gross up" factor. In 1982, dividends received from Canadian corporations dealt with at arms length were multiplied by a factor of 1.5 (a 50% gross up factor) to obtain the taxable amount of the dividend. On the T1 file, the amount of dividends subject to this gross up factor is not separable from the rest of Canadian dividends. By 1994, dividends from all Canadian corporations were taxable subject to a gross up factor of 25%. Since we cannot treat this variable consistently over time we do not attempt to "gross down" dividends.

Two measures of income are created. The first is before tax "Total Market Income." This includes Income from Earnings, Allowable Expenses from Earnings, Income from Self-Employment, Income from Assets, and Other Income. The second measure is "Total Income," defined as Total Market Income plus any taxable government transfers. One major drawback of this measure, however, is the absence of information on Income Assistance for the fathers, which is non-taxable and hence not reported. Worker's compensation payments also fall into this category. Income Assistance is, however, available for the sons in 1994. The introduction of the Goods and Services Tax (GST) credits in 1992 raised the likelihood that an income tax return would be filed by low income individuals, and as a part of this Income Assistance benefits began to be captured in a significant way. (Applicants for the GST credit are required to claim Income Assistance benefits.) The other source of income from government transfers is Family Allowance. This was a universal program run by the federal government that provided monthly financial assistance to parents or guardians of dependent children. A parent or guardian who wholly or substantially maintained a dependent child (one with no taxable income) under the age of 18 received Family Allowance benefits. Provinces were permitted to vary the amount of benefits based on the age and or number of children in the family as long as the minimum payment was not less than 60% of regular benefits and the average payment was equal to the federal payment. In 1982, Family Allowance benefits had to be reported as income by the person who claimed a personal exemption for the child, usually the individual with higher income. If no personal exemption was claimed, then payments were judged to be the income of the cheque recipient, usually the mother. Optionally, income from family allowance could be split between two spouses.

All income information is measured in 1986 dollars, using the country wide Consumer Price Index as the deflator. In the regression analysis the father's income components are measured in thousands of dollars, and the ages of fathers and children are measured in years as deviations from sample means.

A "neighbourhood" is defined on the basis of the Forward Sortation Area (FSA), the first three digits of the Postal Code. (An alternative would be to draw this sort of information from the Census of Population for 1981 and link it to our sample. This is an avenue for our future work because of the need to associate Census Tract information to postal codes or some derivative of them.) We use all the income tax records filed

by Canadians in 1982 to derive a host of neighbourhood characteristics. This is the first year in which the appearance of postal codes on the income tax forms becomes almost universal: between 1978 and 1981 about 10% of income tax returns did not have a postal code; in 1982 this fell to only 1%. We did derive neighbourhood information averaged over the 1978-82 period, and in fact this was not much different (globally) than the version relying solely on 1982 data. As such the neighbourhood characteristics ascribed to the father-son pair in our sample are those for 1982. The neighbourhood variables we derive are the median income in the FSA, the standard deviation of the income, the fraction of income tax filers receiving self-employment income, and the fraction reporting UI benefits. We also derived and experimented with the following variables: the fraction of filers with income below 50 percent of the median Canadian income; the fraction with income above 50 percent of the Canadian median; and total UI benefits as a fraction of total earnings in the FSA.

As mentioned in the text, we derive a measure of "Social Capital" by relying on Coleman's idea that it can be proxied (inversely) by the number of moves the child has experienced. The number of moves the father made between 1978 and 1982 is determined by comparing postal codes on successive income tax returns filed between these years. In the event that the postal code was missing for one or more years between 1978 and 1982 we assumed that no move took place in that year. As such only observed moves are counted. It is possible that this slightly understates the number of individuals moving more than once. This affected about 13% of our sample, that is to say 87% had complete postal code information.

We use the language in which the income tax return was filed to derive an indicator of whether the return was filed in the majority language in the province of residence or not. Obviously many individuals speak neither official language and may have their income tax return completed for them by someone else. This variable, therefore, should not be interpreted as the language spoken in the home. The T1FF also contains an indicator of the number of children in the household and the total family income. One might think it possible to derive a measure of the number of years of post-secondary education undertaken by the child from information on the tuition deduction. In fact, it is very difficult to do this reliably and ascribe it to a particular individual because the father (or for that matter the mother, spouse, spouse's father, spouse's mother, and even the grandparents) may claim these deductions, and he may do so for any one of his children attending a post-secondary institution. Further, such deductions are permitted for a wide variety of training/educational institutions, not just community colleges or universities.

The sample was restricted in two ways for the purpose of the regression analysis. First, we consider only those individuals whose father lived in an "urban" community in 1982. Urban is defined on the basis of the second digit of the FSA. When zero this relates to a rural area that is often very broad geographically. While an analysis of these areas is important, it is unlikely that they correspond to what we might call for analytical purposes a "neighbourhood." We also deleted all communities with less than 25 tax filers, so that the neighbourhoods captured in our sample vary in size from 25 filers to 33,026. (We did perform our regressions using the "rural" data set and a data set containing both urban and rural. These "rural" neighbourhoods vary in size from 155 to 74,972. We also excluded the observations in our sample from the H0M Forward Sortation Area (St. Regis), because of concerns over some of the income information. The complete results are available from the authors.)

Second, in preliminary analyses we noticed that some individuals reported very large negative values for asset and self-employment income. These were often offset by very large positive values of another income source, suggesting that the composition of income was being influenced by tax concerns. We remove only influential observations with negative self-employment or asset income. Following Belsley, Kuhn, and Welsch (1980), if $\mathbf{X}$ is the matrix containing all observations on the regressors, we compute a leverage value $h_{ii}=\mathbf{x}_i'(\mathbf{X}'\mathbf{X})\mathbf{x}_i$ for each observation and define an influential observation as one for which $h_{ii} > 2K/N$, where K is the number of regressors and N is the sample size. This has the indirect effect of removing a number of observations with large positive amounts of other income sources. In the case of sons 1,435 observations were deleted from 159,996; for daughters 1,117 from 127,890. The results associated with the full sample are available from the authors.

The complete sets of descriptive statistics associated with the variables used in the multivariate regression analysis are presented in Table 5A.1 for sons, and in Table 5A.2 for daughters. The decile transition matrices relating the sons'

Table 5A.1
Descriptive Statistics: Sons

	Average	Standard Deviation	Minimum	Percentile 10th	25th	50th	75th	90th	Maximum
			Number of Observations = 158,561						
Child's Total Income (1994)	27,416	26,303	-361,424	6,842	15,995	25,611	34,920	44,509	2,805,413
Child's Total Market Income (1994)	26,626	26,640	-361,424	4,926	14,234	25,094	34,724	44,402	2,805,413
First Dollar Effects									
Earnings	0.90								
Self-Employment Income	0.14								
Asset Income	0.74								
Unemployment Insurance	0.16								
Family Allowance	0.75								
Other Income	0.32								
Additional Dollar Effects									
Father's Total Income (1982)	39,273	47,641	-103,617	15,123	24,424	33,807	45,429	61,521	6,255,197
Earnings	30,999	30,890	0	1	18,495	29,723	40,300	52,839	4,491,201
Self-Employment Income	1,866	11,892	-72,114	0	0	0	0	124	730,464
Asset Income	3,932	29,823	-138,690	0	0	416	1,882	7,037	5,094,263
Unemployment Insurance	492	1,549	0	0	0	0	0	1,421	12,056
Family Allowance	461	482	0	0	0	385	771	1,145	3,153
Other Income	1,524	7,740	-27,373	0	0	0	459	3,239	960,416
Neighbourhood Effects									
Median Income	18,908	2,866	9,887	15,308	16,912	18,816	20,588	22,460	42,939
Standard Deviation	25,011	23,349	9,761	14,151	16,315	19,469	25,565	36,411	479,435
Fraction of Self-Employed	7.77	3.08	0	5	6	7	9	11	33
Fraction of UI Recipients	20.10	6.73	4	12	15	20	25	29	47
Moved Once	0.17								
Moved Twice	0.04								
Moved Three Times	0.01								
Province									
Newfoundland	0.01								
Nova Scotia	0.03								
Prince Edward Island	0.00								
New Brunswick	0.02								
Quebec	0.22								
Ontario	0.42								
Manitoba	0.05								
Saskatchewan	0.04								
Alberta	0.10								
British Columbia	0.11								
Yukon and Northwest Territories	0.00								
Individual/Family Characteristics									
Majority Language	0.96								
Number of Children	2.66	1	1	1	2	2	3	4	14
Rest-of-Family Income	18,334	22,797	-86,267	0	5,075	14,800	25,917	39,272	3,263,450
Married, Wife Worked	0.83								
Single	0.03								
Common-Law	0.01								
Father's Age	47	6.34	28	39	42	46	51	55	72
Child's Age	30	0.94	28	29	29	30	31	31	31

Table 5A.2
Descriptive Statistics: Daughters

	Average	Standard Deviation	Minimum	Percentile 10th	25th	50th	75th	90th	Maximum
			Number of Observations = 126,773						
Child's Total Income (1994)	18,861	16,690	-79,825	567	7,930	18,016	26,501	34,754	875,209
Child's Total Market Income in 1994	17,856	16,882	-79,825	154	6,091	16,660	25,784	34,392	875,209
First Dollar Effects									
Earnings	0.90								
Self-Employment Income	0.15								
Asset Income	0.76								
Unemployment Insurance	0.15								
Family Allowance	0.75								
Other Income	0.32								
Additional Dollar Effects									
Father's Total Income (1982)	39,597	46,711	-106,405	15,334	24,763	34,191	45,921	62,275	5,029,906
Earnings	31,057	30,452	0	0	18,524	30,029	40,628	53,315	3,887,265
Self-Employment Income	2,050	12,892	-141,826	0	0	0	0	427	600,085
Asset Income	3,998	30,498	-220,820	0	0	467	1,981	7,066	4,808,750
Unemployment Insurance	466	1,515	0	0	0	0	0	1,254	12,194
Family Allowance	453	479	0	0	1	385	771	1,124	3,153
Other Income	1,573	7,290	-289	0	0	0	466	3,441	604,142
Neighbourhood Effects									
Median Income	18,962	2,852	9,884	15,460	16,977	18,856	20,692	22,464	42,939
Standard Deviation	25,252	22,863	9,423	14,165	16,405	19,698	25,960	36,704	479,435
Fraction of Self-Employed	7.77	3.05	1	5	6	7	9	11	33
Fraction of UI Recipients	19.78	6.64	4	12	15	19	24	28	47
Moved Once	0.16								
Moved Twice	0.04								
Moved Three Times	0.01								
Province									
Newfoundland	0.01								
Nova Scotia	0.03								
Prince Edward Island	0.00								
New Brunswick	0.02								
Quebec	0.20								
Ontario	0.43								
Manitoba	0.05								
Saskatchewan	0.04								
Alberta	0.10								
British Columbia	0.11								
Yukon and Northwest Territories	0.00								
Individual/Family Characteristics									
Majority Language	0.96								
Number of Children	2.69	1.26	1	1	2	3	3	4	15
Rest-of-Family Income	19,063	20,264	-59,423	0	6,068	15,717	26,841	40,389	1,536,952
Married, Wife Worked	0.84								
Single	0.02								
Common-Law	0.01								
Father's Age	47	6.35	28	39	42	46	51	56	72
Child's Age	30	0.92	28	29	30	30	31	31	31

Table 5A.3
Decile Transition Matrices for Sons and Daughters

		Son's Total Market Income Decile									
		Bottom	2	3	4	5	6	7	8	9	Top
	Bottom	14.5	13.6	12.7	11.3	10.2	9.1	8.4	7.4	6.8	6.0
	2	12.4	12.3	11.9	12.3	11.0	9.9	8.7	8.6	7.0	5.9
	3	11.4	11.2	11.3	11.5	11.1	10.4	9.5	8.7	8.3	6.7
Father's	4	10.7	10.1	10.5	10.9	11.0	10.9	10.6	9.7	8.4	7.2
Total	5	9.8	9.5	10.1	10.5	11.0	11.1	10.6	10.0	9.5	7.8
Income	6	9.3	9.7	9.9	9.5	10.0	10.5	11.1	10.4	10.5	9.0
Decile	7	9.0	8.9	9.1	9.8	9.8	10.3	10.8	11.2	11.5	9.6
	8	8.4	8.3	8.6	8.5	9.5	10.4	10.5	11.5	12.8	11.5
	9	7.7	8.6	8.2	8.4	8.8	9.2	10.3	11.8	12.8	14.2
	Top	6.9	7.8	7.5	7.4	7.4	8.1	9.5	10.7	12.5	22.1

		Daughter's Total Market Income Decile									
		Bottom	2	3	4	5	6	7	8	9	Top
	Bottom	13.6	11.4	11.6	11.1	11.0	9.7	9.1	8.5	7.7	6.4
	2	12.1	10.9	10.6	10.9	10.7	11.3	10.2	8.7	8.5	6.2
	3	11.6	10.4	10.7	10.8	10.8	10.8	10.4	9.6	8.3	6.7
Father's	4	10.6	10.3	10.0	10.7	10.8	10.8	10.0	10.4	9.0	7.4
Total	5	10.5	10.2	10.4	9.9	10.3	10.3	10.7	10.4	9.5	7.6
Income	6	9.7	9.7	10.3	10.2	10.0	10.1	10.5	10.7	10.3	8.5
Decile	7	9.5	10.2	9.8	10.0	9.8	9.6	10.0	10.8	10.2	10.1
	8	8.7	9.7	9.6	9.2	9.1	9.9	9.9	10.7	11.7	11.5
	9	7.4	8.9	8.8	9.0	9.4	9.5	9.8	10.2	12.4	14.5
	Top	6.2	8.3	8.2	8.4	8.0	8.0	9.3	10.0	12.5	21.1

Note: Incomes have been age adjusted as described in the appendix.
Source: Calculations by authors from Canadian administrative data, Statistics Canada.

market income to the fathers' total income are presented in Table 5A.3. The data used in these tables are corrected for age differences between the fathers and the children by using the residuals from the regression $Y_i = \gamma_0 + \gamma_1 Age_i + \gamma_2 Age_i^2$, where i represents either a father or a child, and where Y is the 1994 level of total market income for the child, and the 1982 level of total income for the father. All income measures are expressed in 1986 dollars.

Notes

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[1] Measuring Y as the natural logarithm of income Corak and Heisz (1995, 1998) and Fortin and Lefebvre (chapter 4) obtain a correlation of 0.2. Solon (1992) and Zimmerman (1992) suggest that this correlation could be as high as 0.4 or even 0.5 in the United States, although this has come under some question. See Shea (1996), and Couch and Dunne (1997).

[2] Brooks-Gunn, Duncan, Kato Klebanov, and Sealand (1993), Corcoran, Gordon, Laren and Solon (1992), Cooper, Durlauf, Johnson (1993) and Wilson (1996, 1987) are only a few examples of a long literature in the United States.

[3] Coleman also suggests that the number of siblings is an indication of the amount of social capital available to a child within the family. Here he is referring essentially to the amount of time parents have to spend with a child. In a

similar vein a household in which both parents work or which is headed by a single parent will be characterized by less social capital. This suggests that the labour market outcomes of children will be negatively associated with the number of children, and with single parenthood or a dual-earner household. These predictions, however, are also consistent with Becker's model.

[4] The Family Allowance was a universal demogrant based upon the number of children. It was paid to the mother, but had to be reported for income tax purposes by the individual in the family with the highest income. During our period of analysis the Family Allowance amounted to about $300 per year per child (in 1986 dollars). It was replaced by the Child Tax Credit in 1993. "Other income" is a catch all that includes, among other things, private pension income, alimony payments, RRSP income, income from a limited partnership or any other type of taxable income not reported elsewhere.

[5] These data are adjusted for age differences between the child and parent, and are based upon the total market income of the child and the total income of the father. See the appendix for more details.

[6] The standard errors associated with the least squares results are robust to heteroscedasticity, being based on White's heteroscedastic covariance matrix estimator. The standard errors of the quantile regressions are obtained by a bootstrap using 20 replications, the 10th and 90th quantiles being estimated jointly.

[7] It should be underscored that what is being measured by this indicator variable is whether or not the mother filed an income tax return, not simply whether or not she worked, and certainly not the amount of income she contributed to the family. (This latter influence would be captured by the family income variable.) That being said it should also be noted that the mothers likely file if their income is above the taxable threshold. As such this variable indicates more than just a passing attachment to the labour market.

[8] To be classified as "common-law" the individual could not have had the same last name as the women, and must have been within 15 years of her age (Harris and Lucaciu 1994).

[9] For example, a test of the null hypothesis that they be excluded from the least squares models can be strongly rejected: F(6, 158521)=82 for men, and F(6, 126743)=118 for women.

[10] The F-statistics for sons and daughters are, respectively F(5, 158521)=57.7 and F(5, 126733)=16.1, the critical value at 0.01 is 3.02.

[11] Recall, however, that in Table 5.3 the coefficient estimate for self-employment income from quantile regression at the median is 48.6, substantially below the least squares result.

[12] The indicators for the first dollar effects were defined as taking a value of one if income from a particular source was received in any one year between 1978 and 1982. We estimated each of the models in Table 5.5. When used the number of siblings was set to the 1982 value.

[13] These results are available from the authors. The sole exception is the impact of the number of siblings on the Family Allowance variable. As mentioned, this is due to the fact that the Family Allowance was not measured on a per child basis.

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Chapter 6

The Impact of Family Disruption in Childhood on Demographic Outcomes in Young Adulthood

Céline Le Bourdais and Nicole Marcil-Gratton

"Intergenerational Equity" has at its core the notion of an equilibrium in the economic contributions made by a given generation to preceding or subsequent generations. However, the transmission of economic well-being may well be mediated by the transfer of social characteristics and behaviour from one generation to the next. Family life trajectories clearly fall into this pattern, and the way in which the cycle of poverty is reproduced in adult life is an important example. The reproduction of poverty may very well result from the social behaviour of children as they attain adulthood and become parents. Consequently, we focus in this chapter on the impact that family life disruption has on the transition to family life in adulthood for the first generations of Canadian children experiencing parental divorce in significant proportions.

Divorce, particularly since the legislative changes introduced in 1968, has become a fact of life for a growing number of Canadian families. In fact, if today's conditions were to persist, about 40% of all marriages will end in divorce (Dumas and Péron 1992). Marriage seems in itself to have become less popular. The majority of young Canadians now start their conjugal life by cohabitation (Le Bourdais and Marcil-Gratton 1996). Cohabitation remains a less stable environment than marriage, and studies have shown that children born to cohabiting parents are more likely to experience parental disruption during their childhood (Marcil-Gratton 1993). Is cohabitation likely to remain primarily a form of trial marriage, one in which young people test their compatibility before entering into a long-term commitment? Or is it becoming a more permanent choice for couples to start a family? The answer differs from one corner of the country to the other. For example, in Quebec statistics for 1994 show that almost half (48.5%) of all births are to unwed mothers (Duchesne 1996). In the vast majority of cases these babies are in fact born to cohabiting couples. Thus, the frequency of divorce may not give a complete picture of the impact of family disruption among the generations of children born in the 1990's; their story is still to be told.

Examining the trajectories of the first generations of children who have experienced parental divorce or separation during childhood may nonetheless shed some light on their future. We find that family instability during childhood appears to be associated with the way in which children start their life as couples and parents. More precisely, parental separation or divorce tends to be positively related to the likelihood that offspring will experience cohabitation while decreasing the chances of directly marrying. It also tends to be related to early, pre-union or premarital childbearing among young women, and to increases in the risk of union dissolution, at least for married men.

1. Emerging Issues

Now that the "children of divorce" are reaching the age of forming couples and having children, do their conjugal and parental lives differ from those of children whose family environment has remained stable throughout their childhood and adolescence? Without necessarily establishing a direct causal link between family disruption in childhood and attitudes and behaviour towards family life, can we at least observe significant associations between these two sets of variables?

For quite a long time, these questions have been at the core of many studies conducted in the field of psychology and behavioral sciences (Wallerstein 1991). These studies, which were mostly based upon clinical observations, aimed first at measuring immediate consequences of instability on child development (such as the

impact of family disruption on self-esteem, or on social adjustment and educational attainment), but as time passed their focus shifted towards longer-term effects.

In the social sciences, and particularly in demography, the interest in studying the impact of parental separation on children is far more recent. Except perhaps for British researchers, who began exploring this question with the 1958 cohort longitudinal follow-up surveys known as the National Child Development Study, it was not until the beginnings of the 1980s before sociologists and demographers started analyzing this process among representative samples of children.

Blau and Duncan (1967) introduced the notion of the transmission of social characteristics across generations by showing how children whose parents had a low score on a socio-economic scale tended to reproduce the same pattern of achievement and to attain a similar status level. Following the same kind of approach, McLanahan (1985) showed that the reproduction of poverty across generations could clearly be associated with the experience of children living in a single-parent family headed by the mother. In so doing she was one of the first researchers to directly link socio-economic attainment with family life indicators.

During the mid-1980s new demographic variables were introduced into the analysis, particularly in the United States where richer data were available. McLanahan and Bumpass (1988) and Thornton (1991) studied the links between the family life courses of parents and the way in which their children started their own life as couples and parents.

Research bloomed during the 1990s. Furstenberg, Hoffman and Shresta (1995), Cherlin, Kiernan and Chase-Landale (1995), Axinn and Thornton (1996), and more specifically Amato (1996) all developed ingenuous ways of extending the analysis. Although adequate data is still lacking in quite a few instances, there is now mounting evidence that parental divorce (or separation) is associated not only with an increased risk of offspring divorce, but also with several other types of behaviour.

More specifically, recent research shows that children who have experienced parental separation/divorce:

[1] tend to leave home earlier and to do so for more negative reasons, such as conflict and friction, than do those whose parents have stayed together (Goldscheider and Goldscheider 1989, Kiernan 1992, Cherlin et al. 1995, Mitchell et al. 1989, Young 1987)

[2] engage in earlier and more frequent premarital sexual activity (Thornton and Camburn 1987, McLanahan and Bumpass 1988, Gabardi and Rosén 1992)

[3] are more likely to first cohabit rather than marry (Kiernan 1992, Cherlin et al. 1995, Thornton 1991, Furstenberg and Teitler 1994)

[4] if they do marry, girls with separated/divorced parents tend to do so earlier than others (Mueller and Pope 1977, Glenn and Kramer 1987), and early marriage also appears to be associated with the remarriage of the girl's parents (Goldscheider and Goldscheider 1989, Kiernan 1992, Thornton 1991, Keith and Findlay 1988) and has been shown to be linked to mothers marrying young and being pregnant at marriage

[5] whether or not girls replicate their own mother's behaviour, they tend to have their first child earlier and more often out-of-wedlock than those whose parents stayed together

[6] finally, youth with divorced/separated parents eventually face greater risks of conjugal break-up than those from stable families, and experience a shorter union duration (Gee 1992, McLanahan and Bumpass 1988, Keith and Findlay 1988, Webster et al. 1995).

Various explanations have been advanced to account for the way in which the intergenerational transfer of conjugal and parental behaviour operates, one of them focusing upon a socio-economic perspective. Most observers agree that socio-economic attainment has an overall effect on the transmission of family behaviour. For example, since single mothers and their children often experience economic hardship, offspring from divorced families may well achieve less education, earn lower income and hold lower status jobs. As such, low-economic status will further be associated with marital conflict and a greater risk of divorce, even though it is not always clear whether family history or low socio-economic status is the determining factor.

Obviously, all these effects are not independent of one another: early age at marriage is often in itself a good predictor of marital dissolution, whether or not family disruption was part of the environment of the child. Several authors have

thus recognized the need to introduce intermediate variables to account for the transmission of divorce across generations. In particular, Amato (1993) discusses the potential impact of interparental conflict upon children's attitudes towards marriage and divorce, which will in turn influence their family related behaviour. Amato (1996) also identifies the ability to develop quality intimate relationships, which may depend to a great extent on the quality of the parents' relationship and the model that was offered to their offspring while they were growing up. Amato does, however, recommend caution towards analyses that would single out only one factor as being responsible for the negative outcomes observed in children. He suggests developing a more general model, one that incorporates several variables that can be conceived as resources or stressors, minimizing or exacerbating the potential effects of parental divorce on child outcomes.

Relatively few analyses of the intergenerational impact of parental divorce have been conducted in Canada in large part due to a lack of appropriate data, at least before the General Social Survey (GSS) conducted in 1990. Mitchell, Wister and Burch (1989) and Gee (1992) have done some pioneering work in the field, with the former analyzing the conditions and timing of the process of leaving home for children according to their parents' conjugal history, and the latter studying the impact childhood family structure exerts on various offspring outcomes, such as religious observance, educational attainment, and socio-economic status.

2. The Available Data

To address the intergenerational transmission of family behaviour, one has to rely on survey data. Longitudinal surveys following children from birth to adulthood and taking into account all the events or the qualitative variables that modify their family environment as they grow older are the ideal source. These types of surveys allow an assessment of the influence that each of the factors being considered has on child behaviour when leaving home, starting conjugal life, and becoming parents. As mentioned the British National Child Development Study has adopted a longitudinal prospective, and the Canadian National Longitudinal Survey of Children and Youth is now pursuing a similar path.

Longitudinal panel data, however, present one great disadvantage: they are very time consuming to develop. Children must reach the age of leaving home and starting their own autonomous family before analysis can begin. Such an approach presents the risk that the data will reflect the time-specific conditions in which the children grew up and might be out of date by the time the data are available for analysis. The British Study more or less faces this problem with the 1958 cohort, for which family disruption often meant the death of one's parent rather than divorce.

More frequently, longitudinal data are collected retrospectively, as in the case of Statistics Canada's General Social Surveys. These data have certain limits, mainly due to the fact that the focus is inevitably on only one generation of family members. The first decision researchers must make is whether the respondent is to be considered as belonging to the parental generation or to the offspring generation. Both the 1984 Family History Survey (FHS) and the 1990 General Social Survey (GSS) provide the respondent's complete marital and parental histories. Since the 1984 FHS contains no information on the marital situation of the parents of respondents, the latter had to be considered as belonging to the parental generation. As no data were collected on the family trajectory of respondents' children once they left home, analysts can only examine the impact of parental disruption on children's age at leaving home (Mitchell et al. 1989).[1]

While the 1986 GSS cycle did not focus on family issues, it did collect information on whether or not the parents of respondents were separated when they were 15 years old. However, no information was gathered on respondents' marital behaviour other than their status at time of survey. Gee (1992) thus proceeded to analyze the impact that parental separation exerts on respondents' education, income, religious observance, socio-economic status, and "satisfaction with several life domains." The most serious draw-back of her study is that the time lag between the respondents' 15th birthday and the survey varies greatly among respondents; the "outcome" variables, which all measured current status at the time of the survey, might thus differ greatly from those observed when the respondents were 15. For example, being "currently married" does not reveal whether the respondent was in the midst of a first marriage or a remarriage; nor does it indicate the age at which the marriage occurred. Finally, the family status at age 15, no matter how close it was to the child's experience, does not reflect the family transitions

that the respondent might have experienced as a youngster.

The 1990 GSS, the basis for our analysis, does not provide any better information than the earlier surveys as far as the family experience of the respondent as a child is concerned. But it constitutes a definite improvement in that the respondent's own marital history is available, and that links can be established with the marital status of the respondent's parents. However, the information concerning the parents' family situation is fragile and very fragmentary: all we know for sure is whether or not the respondent's parents are still living together at the time of the survey.

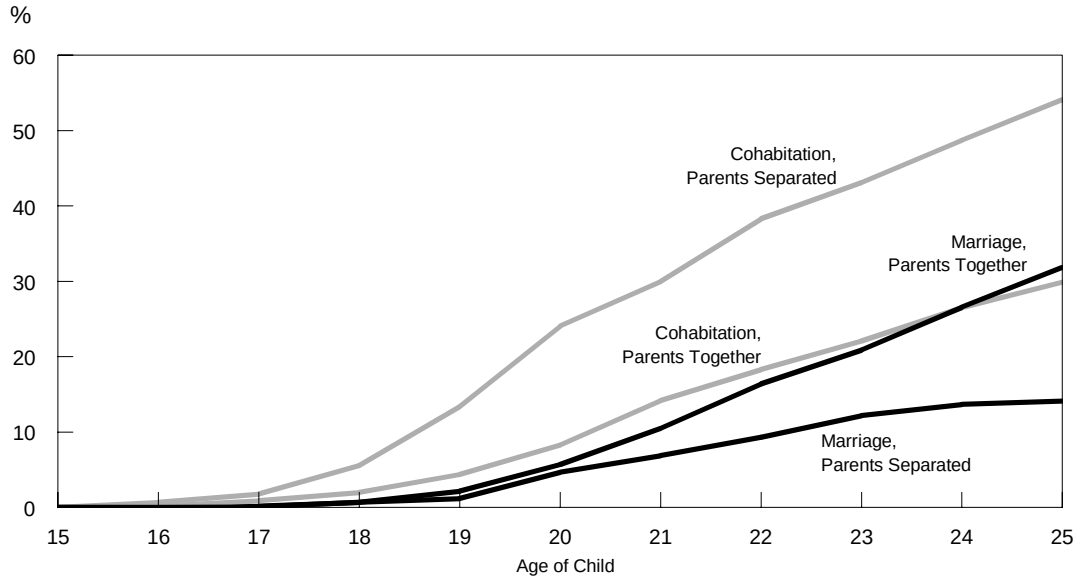
Since we have no information on the "timing" of the parental break-up we take several precautions to ensure the validity of our analysis. First, we restrict the sample to young respondents: men and women aged 15 to 34 years at the time of survey. These respondents are part of the generations who were most at risk of experiencing a parental divorce. They were born between 1956 and 1974, the eldest being at the threshold of adolescence when the 1968 Divorce law was passed. Further, since we cannot establish the exact timing of the parental break-up, we consider it safer to retain only younger generations for whom the parental separation happened when they were still at home or not very long after; the derived variable is thus only a "proxy" of the timing of parental breakdown. Second, we take great care in trying to establish as accurately as possible if the respondents' parents had truly experienced a separation and/or a divorce. For 5,618 respondents aged less than 35 at the time of survey: 888 cases where at least one parent was dead, and 32 cases where the information was not sufficient to classify the parents as "living together" are rejected; 3,823 cases of parents "still living together," including 13 cases where one parent was institutionalized and the other was not living with another partner, are retained; and 875 cases are classified as "separated parents," because the two were still alive but not living together, neither of them being institutionalized (in 59% of cases a new partner was mentioned).[2] Further reassurance on the validity of our measure of parents' separation was taken from the fact that the younger respondents in our sample (aged 15 to 24) are the ones experiencing parental disruption in greater proportions. For them, parental break-up occurred in large measure before adulthood.

3. Methodology

We use a series of life tables, cross-classified by parental marital status, to examine the timing and propensities of the offspring to start their life as couples, as parents, and to experience a marital dissolution. The life table method consists of calculating, for each possible parental situation, the probabilities of individuals experiencing a given family transition by age. For example, for respondents whose parents separated, the probability of starting conjugal life by marriage at each age interval between ages 15 to 25 is established by dividing the number of young individuals who marry during the age interval considered by the number of those who are still at risk, that is those who have not yet married or started cohabiting and who are still under observation. In this case, cohabitation and marriage are treated as competing risks, that is as alternative ways of forming a couple. In other words, those cohabiting are treated as censored cases in the analysis of marriage and they are removed from the group at risk from the moment they start living with a partner. The life table events established at each age interval are then cumulated to provide the overall probabilities of entering into a first union through marriage or cohabitation from age 15 to 25, according to the parental situation of respondents.

Life tables are calculated separately for men and women, and for each of the three transitions studied: forming a first union, giving birth to a child, experiencing a union dissolution. As an example, Figure 6.1 presents the cumulated probabilities of marrying or cohabiting for young women who were aged between 15 to 34 at time of survey. A look at this figure shows that: [1] young women with separated parents tend to form a union earlier than those whose parents are still together at time of survey (by age 20, 14% of young women from stable homes had started living with a partner through marriage or cohabitation versus 29% of young women whose parents were separated); [2] young women with parents still living together chose about equally to marry or to cohabit (roughly 30%), whereas those with separated parents had overwhelmingly chosen cohabitation over marriage as a way to start their conjugal life (at age 25, 54% of the latter had started living with a partner through cohabitation and only 14% through marriage). In data not shown, our analysis also reveals that young women with separated parents have a higher propensity to give birth at an early age

Figure 6.1
Cumulated Probabilities of Marriage or Cohabitation Before the Age of Twenty-Five According to Parental Separation/Divorce (Women)



than those whose parents were still together (14% of the former had borne a child before reaching age 20, compared to 9% of the latter).

One limitation of the life table approach is that it does not allow us to assess the extent to which the effect of parental separation on child behaviour is associated with or mediated through a series of intermediate variables. In order to do so, we turn to "event history analysis." This method examines the timing of events (such as marriage) in relation to covariates which might vary according to time. An "event" is defined as a "shift from a mutually exclusive state to another, and occurring at a specific and known point in time." (Luke 1993: p. 205).

Event history analysis combines two types of methods: [1] the life table approach, which measures the probabilities and timing of events; and [2] regression analysis, which aims at disentangling the net effects of covariates on a dependent variable. In event history analysis, the "hazard" rate, or the instantaneous rate of experiencing a transition from one state to another (for example, from living as a single to marrying) is being modeled. We use proportional hazards models to study the effect of parental separation on children's adult outcomes. In these models, the instantaneous rate of transition is represented as a function of two components that can be expressed as $h(t) = h_0(t)\exp\{\beta X\}$. The first component, $h_0(t)$, represents the underlying baseline hazard function, which varies over time but whose form is left unspecified; the second component contains the parameters (β_i) to be estimated and that measures the effects on the baseline hazard of a set of individual characteristics (x_i), some of which may change over time (Cox, 1972).

The characteristics we use as independent variables are all entered into the models as dummy variables. The independent variables include, in addition to the covariate measuring whether or not the parents of the respondents have separated, the age cohort of respondents (15 to 24 and 25 to 34), the level of education completed (less than high-school diploma, high-school diploma, some post-secondary education, some college education), the region of residence (province of Quebec versus the rest of Canada), and religion (practicing Catholic, non-practicing Catholic, practicing Protestant, non-practicing Protestant, other religion, no religion). All these characteristics are measured at the time of survey. They might thus differ from the respondents' attributes when they are at risk of entering a union or giving birth to a child. Some individuals might, for instance, have pursued further education or have migrated from one province to another. Having no retrospective information on these respondents' attributes, we are forced to use those measured at the time of survey.[3]

As mentioned, the 1990 GSS does not provide any information concerning the family environment in which the child grew up. As one might expect these variables (family income, and

educational levels of parents, among others) influence both the likelihood of parents separating and the behaviour of children in young adulthood. Their omission from the model could lead to a biased estimate of the parental separation parameter. Our results should thus be interpreted with this caution in mind, and further research, based on new data, will be needed to evaluate them.

We examine different models for each outcome studied, first by looking only at the effect of the parental separation variable, and then adding one covariate at a time, in order to assess the way in which each of these characteristics affects the propensities of individuals to experience a given transition. Only two models are reported in this chapter. The first (referred to as the restricted model) presents the gross effect of parental separation on children's experiences, and the second (the full model) gives the net effects of all covariates included in the analysis. The parameter estimates included in the tables are presented in their exponential form (exp{β}) and thus express the risk of a specific group as a proportion of the baseline risk. A coefficient of 1 indicates that the characteristic analyzed has no effect, while a coefficient of 2.095, as depicted for example in the first column of Table 6.1, indicates that experiencing parental separation more than doubles the chances of a young woman cohabiting.

4. Results

Union formation before the age of 25

The process of union formation is examined separately for men and women because of differences in behaviour and timing that have been observed between gender. First-unions formed through cohabitation are distinguished from those formed directly through marriage because, as we have shown in Figure 6.1, parents' separation seems to exert an opposite effect upon the likelihood of their children marrying or cohabiting. (Recall that when studying cohabitation, marriage is treated as a competing risk; in that case, individuals who marry are no longer considered at risk of starting their conjugal life through cohabitation from the moment marriage occurs.) The separation or divorce of parents is associated with a doubling of the risk that children will experience cohabitation before reaching the age of 25 when no other covariates are taken into account (see Panel A of Table 6.1). This relationship is more or less the same for both men and women. The association of parental separation/divorce with the probability children will start their conjugal life through cohabitation remains important even when other variables are taken into account. For example, the coefficients presented in Panel B of Table 6.1 show that after controlling for their personal attributes women whose parents separated or divorced still have a 75% greater chance of cohabiting than those whose parents remained together.

These results also reveal that the risk of cohabitation decreases as education increases. Compared to women who did not finish high-school (the reference category), those who received a high-school diploma are about 30% less likely to start cohabiting before age 25, and those who completed some university education are around 60% less likely to do so.[4] These results are consistent with those obtained in previous research.

The chances of women cohabiting also appear to be related to age cohort. Women who were aged between 15 to 24 at the time of survey are more likely to first experience cohabitation than those aged 25 to 34, irrespective of their other characteristics. The same effect is observed for men, though the coefficient is not significant at the 0.05 level. Living in Quebec also tends to significantly increase the probability of cohabitation among young individuals, by 50% for women, and almost double for men. These results are related to the increase of common-law unions among younger cohorts, especially in the province of Quebec.

Not surprisingly, the likelihood of cohabitation is influenced by religion. Among women, Catholics or Protestants who reported attending services or meetings on a regular basis have about half the chances of first experiencing cohabitation than those who did not; the latter do not, however, seem less at risk of starting their conjugal life with a common-law partner than those declaring no religion. Women who mentioned a religion other than Catholicism or Protestantism have the lowest propensity to cohabit, with only 27% the chances of those declaring no religion. Finally, religion plays a similar role in affecting men's probabilities of cohabiting, with the sole difference that non-practicing Catholics are less at risk of living with a common-law partner than those mentioning no religion.

It is also shown in Table 6.1 that parental separation or divorce exerts an opposite effect on the likelihood of marriage and cohabitation: it is associated with about a 40% reduction in the

Table 6.1

The Impact of Parental Separation/Divorce on the Propensity of Young Adults to Cohabit or Marry before the Age of Twenty-Five

	Cohabitation		Marriage	
	Women	Men	Women	Men
A. Restricted Model				
Parental Separation/Divorce	2.095***	2.000***	0.557***	0.820
B. Full Model				
Parental Separation/Divorce	1.756***	1.716***	0.584***	0.869
High-School Diploma	0.713**	0.716*	1.078	1.192
Post-Secondary Education	0.635***	0.685***	0.501***	0.828
College Education	0.385***	0.403***	0.302***	0.400***
(No High-School Diploma)				
15 to 24 Years of Age (25 to 34 Years)	1.196*	1.113	0.406***	0.397***
Quebec (Rest of Canada)	1.533***	1.958***	0.719**	0.589**
Practicing Catholic[1]	0.572***	0.429***	1.642**	1.684*
Non-Practicing Catholic	0.943	0.651*	1.104	1.133
Practicing Protestant	0.540***	0.473***	1.791***	2.324***
Non-Practicing Protestant	1.076	0.765	1.460	1.521
Other Religion	0.268***	0.215**	2.133**	1.611
(No Religion Indicated)				

Source : Calculations by the authors using Statistics Canada, General Social Survey, 1990.
Note : The reported coefficients are from a Cox regression model.The analysis is based on a sample of 2,283 women and 2,294 men aged 15 to 34 at the time of the survey. Weighted data are used throughout, and the reference category is indicated in parentheses.
* Indicates significant at 0.05
** Indicates significant at 0.01
*** Indicates significant at 0.001
[1] Practicing individuals are those having attended services or meetings connected with their religion (excluding special occasions, such as weddings, funerals or baptisms) in the last 12 months.

chances of women starting to live with a partner through marriage while more than doubling their chances of doing so through cohabitation. Parental separation also diminishes the chances of marriage among men, but to a lower extent and the coefficient does not appear to be significant at the 0.05 level; this result could be due to the fact that men tend to marry later than women and that the sample on which the analysis is based is quite small. The introduction of other covariates into the analysis does not significantly alter the effect of parental separation on the likelihood of marriage, as a comparison of the coefficients presented in Panels A and B of the table shows.

Apart from the conjugal situation of parents, three sets of characteristics exert an effect on the risk of marrying directly that runs counter to that observed for those who started their conjugal life through cohabitation. The younger age cohort has about 40% the chance of the older cohort to first marry before reaching the age of 25. Respondents living in Quebec have lower chances of marrying directly than those living in the rest of Canada (72% for women and 59% for men). Practicing a religion on a regular basis tends to significantly increase the likelihood of choosing marriage to start living with a partner. On the one hand, practicing Catholic and Protestant women have between 1.6 and 1.8 times more chances of marrying directly before reaching the age of 25 than those mentioning no religion, while on the other hand, those reporting another religion have more than twice the

chances of doing so. The effects of these variables on the propensity of men to marry are similar to those noted for women, although the coefficient associated with "other" religion, although quite large, does not appear to be significant.

Education does, however, have a similar association with both young adults' propensity to first marry or cohabit.[5] In both cases, increasing levels of education are associated with reduced risks of entering a union at young ages, but the level at which this variable starts operating differs for marriage and cohabitation; hence, only at the post-secondary level for women and at the college level for men is education significantly related to lower chances of young adults marrying. However, the impact on the likelihood of cohabitation occurs as soon as high-school is completed.

Giving birth to a child before age 20

Parental separation has been shown in the literature to be related to early or premarital childbearing. We restrict the analysis of the timing of first birth in relation to the family environment in childhood to female respondents. Two reasons motivate this choice. First, previous studies have shown that retrospective data on reproductive histories are more reliable for women than for men (Furstenberg 1988). Second, since births to young mothers might occur outside of a union, it is likely that some of the fathers involved will not be recognized as such or even be informed of their paternity.

The impact of different variables on the propensities of women to give birth to a child before reaching the age of 20 is presented in Table 6.2. The first column of this table presents the chances of a women giving birth to a child, irrespective of her marital status, while the second and third columns deal with the chances of having a child outside of a union or before marrying. Most variables exert a similar impact on the chances of women giving birth, regardless of their marital status, but this effect is generally stronger for births occurring outside of a union or outside of a marriage.

Women who experienced their parents' separation or divorce appear to be far more likely to give birth to a child before their 20th birthday than those who grew up in a stable family environment: irrespective of marital situation, the former are 1.68 times more likely than the latter to experience such an event before age 20; they are 1.89 times more likely to bear a child outside of a union, and 1.82 times more likely to do so before marrying.

The effect of parental separation remains important even after other characteristics are entered into the model; hence, women who saw their parents part still face about 1.5 more chances than those growing up in a stable family of bearing a child before reaching the age of 20, irrespective of their marital situation. It is interesting to note that the introduction of the other covariates contributes to more significant reduction of the coefficient associated with parental separation in the model focusing only on births occurring outside of a union or of marriage than in the model including all births. This result seems to suggest that in these cases the intergenerational transmission of family behaviour is mediated through intervening processes: parental separation influences offspring's educational achievement, which in turn directly affects the likelihood of women giving birth to a child outside of a union or marriage at an early age.[6]

Indeed, the level of education completed appears generally to be strongly associated with the propensity of women to give birth at an early age, and even more so for those having a child without living with a partner: compared with women who did not complete high-school, those who obtained a high-school diploma have (depending upon their marital status) between 30% to 46% the chances of having a child before reaching their 20th birthday; those who pursued some post-secondary education have around 20% of the likelihood, and those with some college education, less than 5%.

When considering all births, irrespective of the marital status of women, those who were aged 15 to 24 at the time of the survey appear to be less likely (with a third of the probability) to give birth to a child in their teens than do those who were aged 25 to 34. This result is, at first, surprising in light of the slightly increasing proportion of women giving birth to a child while in their early teens recently observed in Canada (Statistics Canada 1991). Our finding is, however, quite different when the analysis is restricted to births occurring outside of a union; in that case, the younger cohort appears to be slightly more likely to give birth to a child while in their teens than the older cohort, although this coefficient is not significant at the 0.05 level.

Irrespective of the marital status of women, those living in Quebec appear to have a lower propensity to give birth to a child before their 20th

Table 6.2

The Impact of Parental Separation/Divorce on the Propensity of Young Women to Give Birth before the Age of Twenty

	All First Births	Births Outside of a Union	Premarital Births
A. Restricted Model			
Parental Separation/Divorce	1.682***	1.890**	1.815**
B. Full Model			
Parental Separation/Divorce	1.445*	1.469	1.373
High-School Diploma	0.463***	0.362***	0.304***
Post-Secondary Education	0.198***	0.216***	0.197***
College Education	0.034***	0.020***	0.014***
(No High-School Diploma)			
15 to 24 Years of Age (25 to 34 Years)	0.646**	1.017	0.880
Quebec (Rest of Canada)	0.692	0.760	0.794
Practicing Catholic[1]	0.882	0.783	0.769
Non-Practicing Catholic	1.963*	1.659	2.089*
Practicing Protestant	1.381	0.697	0.756
Non-Practicing Protestant	1.412	1.284	1.233
Other Religion	1.749	1.059	1.203
(No Religion Indicated)			

Source : Calculations by the authors using Statistics Canada, General Social Survey, 1990.
Note : The analysis is based on a sample of 2,311 women aged 15 to 34 years at the time of the survey. Weighted data are used throughout, and the reference category is indicated in parentheses.
* Indicates significant at 0.05
** Indicates significant at 0.01
*** Indicates significant at 0.001
[1] Practicing individuals are those having attended services or meetings connected with their religion (excluding special occasions, such as weddings, funerals or baptisms) in the last 12 months.

birthday than their counterparts living in the rest of Canada, when controlling for their other personal attributes. This finding is consistent with the results obtained in other studies investigating teenage fertility in Canada (Guilbert and Forget, 1991). Religion also seems to be related to the likelihood of women giving birth, although most coefficients do not turn out to be significant. Only non-practicing Catholics, however, differ significantly from those declaring no religion; they have almost twice the chances of bearing a child in their teens than those without a religious affiliation (except for births occurring outside of a union where the effect of religion is less pronounced). Practicing Catholics appear less likely than most of those declaring another religion or no religion to give birth to a child before age 20, although the coefficient does not turn out to significantly differ from the latter. The lower propensities of practicing Catholic women to bear a child while in their teens (and of practicing Protestant women to give birth outside of a union or before marrying) could be related to less open attitudes toward pre-union or premarital sexual activity. The effect of religion on the likelihood of women to giving birth at an early age remains, however, difficult to interpret with the present data; in part, this is probably due to the small size of the samples involved, and to the fact that the level of religious observance declared by women at the time of the survey might be different from the one they experienced while in their teens.

Union dissolution

Parental separation or divorce has been shown to influence not only the process of family formation among offspring but to also affect their own chances of experiencing a separation or divorce (Amato 1996). To explore this issue further we examine the likelihood of union dissolution between the ages of 15 to 34, but only for respondents who were aged 25 to 34 at the time of the survey. Those aged 15 to 24 were excluded in order not to over-represent an age cohort that is still in an early stage in its conjugal history, namely those who were very young when they married or started living with a partner and who are therefore more at risk of experiencing a union dissolution early in their life.

Apart from the variables included in the analysis of family formation, we also include the age of respondents at the beginning of the first union. Given the differences in timing that separate men and women the age categories retained for the analysis differ by gender. Common-law unions leading to a marriage are considered as only one union whose form changed over time; a time-varying covariate that takes the marriage into consideration from the moment it occurs within the respondents' lives has been added to the model. (The marriage dummy variable takes the value of 1 from the moment that the common-law partners marry. Otherwise it is set to zero.)

As can be seen in Table 6.3, parental separation or divorce appears to be weakly related to offspring's chances of experiencing a common-law break-up: it increases slightly the chances that both men and women who are cohabiting will separate, but the coefficients are not significant at the 0.05 level. Parental separation does, however, multiply the chances of married women experiencing a union dissolution by 1.7. The risk triples for married men. However, because of the sample sizes only this last coefficient is significant at the 0.05 level. Having parents part seems to affect the chances of separation for both men and women in a similar way when both common-law unions and marriages are grouped into a single category. Compared to those cohabiting or to those married who grew up in a stable family environment, those who saw their parents separate are about 1.7 times more likely to also go through a separation or divorce.

Part of the "intergenerational transmission of divorce" appears to be mediated through intervening variables, such as age at marriage or cohabitation (Amato 1996). Hence, when other covariates are entered into the model, all the coefficients associated with parental separation are reduced quite significantly for women (compare the coefficients in Panels A and B of Table 6.3). This corroborates Amato's mediating process hypothesis. For men, however, the coefficients associated with parental separation are left almost unchanged by the inclusion of other covariates in the analysis. This would suggest that the intergenerational transmission of divorce is operating directly for them.

Age of respondents at union formation appears to be closely linked to the propensity of women to go through a divorce or a separation, but it does not seem to be significantly associated with the chances of men doing so. Women who married or started cohabiting when they were older tend to face lower chances of experiencing a separation than those who were young at the beginning of the union. For instance, women who were 23 years or older when they started living with a common-law partner have only 60% the chance of experiencing a separation than those who did so before reaching the age of 21; women who married between ages 20 to 22 have 70% less chances of separating than those who did so before 20; and those who married at age 23 have even lower chances of parting from their husband.

Marrying one's common-law partner significantly reduces the risk of separation among those who started their conjugal life through cohabitation. From the moment they marry, the risk of separation for men who are cohabiting is cut four-fold compared to those who maintain a common-law relationship. The comparable risk for women is reduced by 60%.

Few of the other variables included in the analysis have a high and consistent association across gender and type of union with the chances of young adults separating. The province of residence appears to significantly affect the chances of cohabiting females separating: women living in a common-law union in Quebec have about 40% less chance of parting from their partner than those living somewhere else in Canada. (See also Le Bourdais and Marcil-Gratton 1996.) On the other hand, the level of education completed appears to be related to the propensity of married women separating: when controlling for other individual characteristics, chances of marital breakdown increase with years of schooling. This effect could be linked to the greater economic autonomy of more educated women, for which separation or divorce might constitute a more

Table 6.3

The Impact of Parental Separation/Divorce on the Propensity of Young Adults to Experience a Separation or Divorce

	Cohabitation		Marriage		All Unions	
	Women	Men	Women	Men	Women	Men
A. Restricted Model						
Parental Separation/Divorce	1.159	1.117	1.752	3.102*	1.702***	1.671**
B. Full Model						
Parental Separation/Divorce	1.019	1.182	1.028	2.783*	1.167	1.348
High-School Diploma	0.835	0.934	1.473	0.400	1.005	0.833
Post-Secondary Education	1.214	0.921	2.758**	0.955	1.548*	0.916
College Education	0.980	1.011	4.113***	0.852	1.494	0.967
(No High School Diploma)						
Quebec (Rest of Canada)	0.570**	0.839	0.722	0.811	0.644*	0.928
Practicing Catholic[1]	0.862	1.017	1.144	0.310	0.756	0.829
Non-Practicing Catholic	0.965	0.812	4.479**	1.333	1.197	0.818
Practicing Protestant	0.756	1.416	0.850	0.508	0.634*	1.069
Non-Practicing Protestant	0.803	0.944	2.965*	1.174	1.068	1.043
Other Religion	2.060	4.395**	1.049	0.391	0.860	2.468*
(No Religion Indicated)						
Age at First Union	(under 18)	(under 20)	(under 20)	(under 22)	(under 18)	(under 20)
Women 18 to 19 years	0.857				0.946	
20 to 22 years	0.921		0.306***		0.659*	
23 years and +	0.588*		0.207***		0.473***	
Men 20 to 21 years		1.067				1.061
22 to 24 years		0.812		2.458		0.863
25 years and +		1.021		2.400		1.050
Married[2]	0.390***	0.258***			0.263***	0.127***

Source: Calculations by the authors using Statistics Canada, General Social Survey, 1990.
Note: The analysis is based on a sample of 970 women (462 whose first union was cohabitation, and 508 whose first union was marriage), and 849 men (431 cohabitations and 418 marriages). Weighted data are used throughout, and the reference categories are indicated in parentheses.

* Indicates significant at 0.05
** Indicates significant at 0.01
*** Indicates significant at 0.001

[1] Practicing individuals are those having attended services or meetings connected with their religion (excluding special occasions such as weddings, funerals, or baptisms) in the last 12 months.

[2] Defined as a time-varying covariate as described in the text.

plausible option. Finally, non practicing Catholic and Protestant females show higher propensities of experiencing a marriage dissolution than do women declaring no religion, while men reporting another religion are more at risk of parting from their common-law partner.

5. Conclusion

The data we used in this study are not without shortcomings. Nonetheless, with all the precautions taken to ensure the validity of our analysis, we are convinced of its relevance for a study of the transmission of family disruption across generations. Recent studies all point to the fact that

family transformations are on the rise in Canada, and that changes in the family environments of children as they grow up are to be expected for an increasing proportion of Canadians. Of course, the long-term impacts of parental separation and family reconstitution upon children are numerous and they go far beyond the scope of the socio-demographic effects analyzed here. However, any research that provides some quantitative measures of how these phenomena are likely to affect the way in which future generations will start their life as couples and as parents is important in understanding intergenerational dynamics.

Several of our findings concur with the results obtained in earlier research. Parental separation or divorce appears to be associated with the way in which children start their conjugal life: hence, it tends to significantly increase the likelihood of offspring first experiencing cohabitation while decreasing (at least for women) their chances of directly marrying. Parental separation has also been shown to be related to early, pre-union or premarital childbearing among young women, and with higher risks of union dissolution, for married men at least. For most outcomes studied, parental separation has both a direct effect of its own (that remains important even after controlling for other covariates), and an indirect effect mediated through intervening variables, such as the level of education achieved by offspring. Hence, the "intergenerational transmission of divorce" seems to be operating directly in influencing the chances of young men (who started their conjugal life through marriage) separating. In contrast, when we examine the risk of women giving birth to a child before reaching the age of 20 part of the intergenerational transmission of family behaviour appears to operate indirectly by influencing, first, the educational achievement of daughters which in turn influences their propensity to bear a child outside of a union or of marriage.

These results reinforce the idea that family instability experienced during childhood is associated with the behaviour of young adults as they start their life as couples and parents. Within an intergenerational perspective, family instability in childhood has also often been identified as a key factor that contributes to the economic hardship experienced by young individuals as they move into adulthood.

Our understanding of the intergenerational transmission of divorce is likely to be enriched by the use of more qualitative variables and of intermediate factors, such as those used in the developmental sciences. As an example, we could probably better understand the impact of family disruption in childhood on young adults' conjugal and parental behaviour if we were able to take into account the effects that family disruption first exerted on their attitudes towards gender roles and family life. Data from the 1995 GSS, which were released in February 1997, will allow the development of a far more comprehensive and satisfactory model, both because they provide more precise information on the circumstances of the parental separation and because they include more qualitative information.

Intergenerational equity most commonly refers to economic transfers from one generation to the next. Obviously, even in such a narrowly defined framework, researchers have rapidly come to the conclusion that economic well-being and economic redistribution among generations cannot be fully understood without including social variables into the analysis.

The most commonly mentioned impact of family instability in childhood on young adults' outcomes has been the reproduction of poverty. Children who have experienced living with a single mother also often experienced economic deprivation during this family episode. Further, economic deprivation in childhood has been shown to be associated with low socio-economic attainment in young adulthood, and with early age at giving birth to a child or at entering a union.

No matter how the reproduction of poverty and the transmission of family behaviour interact with each other, the way in which the future generations of Canadians will start their own family life will probably be closely related to the diverse familial living arrangements that they are now experiencing. More detailed analysis is required in order to monitor the impact that changes in the family environments of children exert first upon their cognitive and social development, and second upon their attitudes and behaviour as couples and parents. We may well find that the way in which parental separation was experienced by children is a much more relevant factor in explaining the intergenerational transmission of divorce than economic characteristics per se.

Notes

[1] Zhao et al. (1994) used a similar strategy with the 1990 GSS. Although they had very detailed information on the children's family life histories while they were growing up, they could study the impact of parental disruption only for the process of leaving home.

[2] In 259 cases, the father mentioned living with a new partner; in 105 cases, the mother did so; and in 152 cases, both parents declared a new partner in their life.

[3] Since schooling is generally not completed by age 15, we did try to adjust retrospectively for the level of education attained according to age. In other words, for a respondent aged 25 who declared, for example, having received a post-secondary diploma, we assumed that he had completed his high-school at age 17 and his post-secondary education by age 19. We thus created a time-varying covariate whose values change over time; for instance, the "without high-school diploma" dummy variable takes the value of 1 at age 15 and 16 and the value of 0 later on; the "high-school diploma" dummy variable takes the value of 1 at age 17 and 18 and the value of 0 before that age and later; and so on for the other categories of the education variable. This variable is not itself without problems: because of the wide variations in the school systems across Canada, we had difficulties in assigning ages to education levels; we also had to assume that respondents completed their schooling without interruptions. Using this time-varying covariate in our models did not change the results much. We thus retained the level of education completed at time of survey for the final analysis.

[4] As pointed out by one anonymous referee, one could argue that "education" cannot be considered simply as an exogenous variable since educational attainment, marriage and first conception have been shown to be closely linked decisions in the economic literature (Lillard and Brien, 1994). Having no retrospective information on educational attainment, we are, however, in no position to ascertain the way in which the process of union formation is mediated through education. Since our main interest lies in evaluating the direct effect of parental separation on union formation, rather than modelling the intertwined processes of educational attainment and union formation, we redid the analysis by omitting the education variable from the equation. The exclusion of this variable had almost no impact on the coefficients of the remaining variables, including that of the parental separation/divorce variable.

[5] As it was the case for cohabitation, the exclusion of the education variable left almost unchanged the coefficients of the remaining variables.

[6] As pointed out in note 4, these processes are not independent of one another and the decision to remain in school, for example, may also involve that of not giving birth. In order to ascertain the direct effect of parental separation on the propensity of young women to give birth, we redid the analysis by omitting the education variable. The exclusion of this variable slightly increased the coefficient associated with parental separation and those of non-practicing catholics and protestants. Clearly, these results point to the need for additional information on the family environment in which children grew up and on the timing of educational achievement in order to bettter understand the way in which these operate.

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Chapter 7

Child Psychiatric Disorders, Poor School Performance and Social Problems: The Roles of Family Structure and Low-Income

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The primary goal of this chapter is to improve our understanding of the roles that family structure and low-income play in the determination of psychiatric disorders, poor school performance, and social problems among Canadian children. While there is broad agreement that environmental factors have an impact on these outcomes, until recently there has been little or no Canadian data with which to assess the importance of socio-economic factors in determining the incidence and severity of such problems.

The National Longitudinal Survey of Children and Youth (NLSCY) promises a major improvement in this situation, and our analysis represents an essential, early step in using the first wave of this survey. We have two major objectives. First, we assess the association between, on the one hand, a variety of psychiatric, academic, and social difficulties, and on the other, a range of socio-economic variables, principally lone-parenthood and low parental income, but also a host of other demographic characteristics. Second, we compare findings from the NLSCY to those from what previously was Canada's best survey of child health and development conducted a decade earlier, the Ontario Child Health Study (OCHS).

Briefly, our multivariate estimates reveal that being the child of a lone mother is strongly associated with virtually all of the child difficulties under study. This finding is quite robust, but its interpretation is far from obvious when only a single cross-section of data is available. In contrast, the estimated link between various child problems and the low-income status of the family is not robust, but rather depends importantly on the income measure and estimation method used. This raises the need to examine the matter with more detailed income data that is not publicly available. Our comparison of the OCHS and the NLSCY indicate that psychiatric disorders have become more common, and repeating a grade less common, in Ontario between 1983 and 1993. Furthermore, the data suggest that the changes that took place over this decade may have been less favourable to the children of lone mothers than to the children of two-parent families.

1. Review of the Literature

The Ontario Child Health Study was carried out in 1983 with a follow-up in 1987 (Boyle, Offord, Hoffman 1987, Offord, Boyle, Racine, et al. 1992). Data were collected on child psychiatric disorders, social and educational functioning, physical health and a variety of socio-demographic variables. Several studies have used the OCHS data to examine the relationship between family economic disadvantage and child morbidity. Cadman et al. (1986) demonstrated high rates of chronic physical health problems among children in low-income families. Studies of emotional and behavioural problems have also demonstrated a consistent and significant association between economic disadvantage (low-income or welfare participation) and psychiatric disorder (Lipman, Offord and Boyle 1994, Lipman and Offord 1997, Offord, Boyle and Jones 1987). Among 4 to 11 year-old children, the odds of one or more psychiatric disorders (attention deficit hyperactivity disorder, conduct disorder or emotional disorder) for a poor child were more than three times that for a non-poor child (Lipman et al. 1994). Similarly, the odds for a boy aged 6 to 11 whose family received welfare income were four times that of a boy from a family with no welfare income (Offord, Boyle and Jones, 1987).

Studies of social and educational functioning have demonstrated similarly significant associations between poverty and morbidity (Lipman et al. 1994). Furthermore, the significant association between poverty and a variety of morbidities are not limited to childhood. For

example, at least one-third of children with conduct disorder continue to experience serious psychosocial difficulties into adulthood (Offord and Bennett, 1994).

Four papers have examined the association between family structure[1] and child psychosocial morbidity using the OCHS data. Munroe Blum, Boyle and Offord (1988), using the 1983 cross-section, found that children in lone parent families were at a significantly increased risk of a variety of psychiatric and academic morbidities. Lone parent family status did not, however, continue to have a significant relationship with morbidity when welfare income was controlled in the analysis. Dooley and Lipman (1996) and Curtis et al. (1996) also used data from the 1983 cross-section to examine the statistical relationships among family status, income and various measures of child psychosocial and physical health. Both papers found instances of significant associations between lone-mother status and child problems. However, the estimated impact of low-income was found to be much more robust.

Only two studies have used the longitudinal OCHS data to examine the issues of concern in this chapter, in part due to the small number of lone mothers for whom data is available in both 1983 and 1987. Lipman and Offord (1997) found that both family status and poverty indicators had significant independent relationships with poor child outcome. Curtis et al. (1996) found, as in their work with the 1983 cross-section, that the data are more consistently supportive of a role for low-income than for family status *per se.*

Data from other sources have found both poverty and single-parent family status to be associated with increased rates of child psychosocial morbidity (Duncan and Brooks-Gunn, 1997). Lipman, Offord and Dooley (1996) examined preliminary data from the NLSCY and found that almost one-third (30.4%) of 4 to 11 year-old children from lone-mother families have a psychiatric disorder, significantly greater than the rate among children from two-parent families (18.8%). They note, however, that the majority of children from lone-mother families do not have these problems and most children with these problems come from two-parent families. They also find that both single mother family status and low-income significantly and independently influence child well-being, but their multivariate analysis was limited to these two independent variables. Offord and Lipman (1996) also examined the frequency of emotional and behavioural problems using the early NLSCY data and generally find that problem levels decrease as family income rises.

2. Canada Wide Results

The NLSCY is designed to measure child development and well-being over time. The first cycle in 1994-1995 collected information on 22,831 children who were newborn to eleven years of age, the long term goal being to follow these children into adulthood. The sample excluded children who lived in institutions for more than six months and Aboriginal children living on-reserve. (Information was collected in the Yukon and Northwest Territories but was not included in the first data release available to us.) The primary respondent in the NLSCY is the household member most knowledgeable about the child, usually the parent but more strictly referred to as the PMK (person most knowledgeable). Our analysis is based on 12,735 children aged 4 to 11. These data are described in the appendix in more detail.

The percentages of children with psychiatric, schooling or social problems by family and low-income status are presented in Table 7.1. Consider the three psychiatric disorders: hyperactivity, conduct disorder, and emotional disorder. (The symptoms associated with these are listed in Table 7A.1 of the Appendix.) The most notable feature is that the children of lone mothers always have a higher incidence than do the children of two parents **conditional on income class** (comparing column [1] with [3] and column [2] with [4]). For example, the smallest such conditional difference is three percentage points (9% - 6%) and occurs in the case of conduct disorder between the children of lone mothers and couples who are, in both cases, above the low-income cut-off. The largest such differences are those between the children of low-income lone mothers and low-income couples for conduct disorder and emotional disorder. These are both eight percentage points (15% - 7% and 18% - 10%). Note also that the percentage of each disorder among the children of lone mothers exceeds the incidence among the children of low-income couples.

The differences by low-income status, conditional on family-status class are smaller (column [1] versus [2], and column [3] versus [4]). For example, the prevalence of hyperactivity is the same among the children of low-income lone mothers and their more well to do counterparts

Table 7.1
Percentage of Children With Psychiatric Disorders, Schooling Problems and Social Problems

	[1] Low-Income Lone Mothers (Below Low-Income Cut-off)	[2] Lone Mothers Above Low-Income Cut-off	[3] Low-Income Couples (Below Low-Income Cut-off)	[4] Couples Above Low-Income Cut-off	[5] Total
			(Percent of Sample)		
Hyperactivity	9	9	4	4	5
Conduct Disorder	15	9	7	6	7
Emotional Disorder	18	14	10	8	10
One or More Psychiatric Disorders	29	22	16	14	16
Repeated a Grade	13	9	8	4	5
Poor School Performance	7	3	4	2	3
Frequent Social Problems	9	4	5	2	3
One or More of Any Problems	43	32	24	20	23

Notes: Columns [2] and [4] refer to families above the Low-Income Cut-offs. Number of Observations: 12,735 children (aged 4 to 11) for psychiatric disorders and 9,283 children (aged 6 to 11) for schooling and social problems. OCHS thresholds used.
Source: Calculations by authors from Statistics Canada, National Longitudinal Survey of Children and Youth.

(9%), and among the children of low-income couples and their counterparts (4%). In the cases of conduct and emotional disorders, the differences between the children living below and above the Low-Income Cut-off (LICO) are negligible, but are six and four percentage points respectively among the children of lone mothers. In sum, family status appears to matter more than does low-income status when it comes to differences in the prevalence of these three psychiatric disorders. In results not shown here, this same qualitative conclusion emerges if we use different thresholds for low-income status or for each disorder.

Only 5% of children have ever repeated a grade, reflecting the fact that the oldest children are only eleven years old. Unlike the case of psychiatric problems, the conditional differences by low-income status are similar in magnitude to the conditional differences by family status. The difference between children below and above the LICO is four percentage points for both lone mothers (13% - 9%) and couples (8% - 4%). The difference between the children of lone mothers and couples is five percentage points for both those below the LICO (13% - 8%) and above (9% - 4%). Only 3% of the PMK's report that the child is doing "poorly" or "very poorly" in school.[2] The children of lone mothers below the LICO have the highest percentage with this problem but even this figure is only 7%.[3]

PMKs also report only 3% of children as having "frequent" or "constant" problems in getting along with parents, peers or teachers.[4] As with "doing poorly in school," the children of poor lone mothers stand out from the other groups with a prevalence rate of 9%. If one uses the "very low-income" (income less than three-quarters of the 1992 LICO) measure, however, differences of 4 and 5 percentage points also emerge between the children of poor and non-poor couples in the case of poor school performance and social problems respectively.

The final row of Table 7.1 presents the percentages of children, aged 6 to11, with one or more of any of the problems. The differences by family status are large: 19 percentage points (43% - 24%) in the case of low-income children and 12 points (32% - 20%) in the case of those

above the low-income cut-off. Among the children of lone mothers, the difference by low-income status is also sizeable at 11 percentage points (43% - 32%) but among children with two parents this same difference is small at 4 points (24% - 20%). The general picture is that family status matters regardless of low-income status, and that low-income status matters but particularly among lone-mother families.

The socio-economic characteristics of the children and their families in our sample are presented in Table 7.2. Fourteen percent are from lone-mother families. Two-thirds of the children of lone-mothers live in low-income families and one-half in very low-income families, which clearly dwarfs the corresponding low-income rates among the children of couples. The PMKs who are lone mothers are more likely to lack a high school degree and less likely to have a diploma or degree from college or university. They are also younger and have fewer children than do the married PMKs. The age distribution of the children differs little by family status.

Table 7.2 demonstrates that families headed by lone mothers and married couples differ in a number of ways. Furthermore, the research cited in the previous section has usually found child psychiatric, schooling and social problems to be associated with more than one of the variables in Table 7.2. Hence, we turn to multivariate analysis in order to assess the partial association between various child outcomes and these socio-economic characteristics. We have chosen to use the logit model which assumes that the probability of an outcome is

$$\text{Prob}(Y=1 \mid X) = e^{X'\beta}/(1 + e^{X'\beta}) = 1/(1 + e^{-X'\beta})$$

where Y is a dichotomous dependent variable, X is a vector of independent variables, β is the estimated logit coefficients and e = 2.718.[5] Our selection of independent variables was guided by the availability of data in the NLSCY, and by the literature on the determinants of health (Evans and Stoddart 1990, Grossman 1972, Grossman and Joyce 1989).

A number of methodological issues merit attention. The first concerns missing values. As we describe in the appendix, 1,103 observations are omitted because of missing values for a dependent variable. We are not aware of an obvious solution for this problem. However, we did examine the data to see if observations with and without missing values for the dependent variables differed in terms of the unconditional means of the independent variables. Using 5% level of significance, children with missing values for an outcome variable were more likely to be female, aged 8 to 11, and to have a lone mother, low-income and an above average number of siblings.[6] The only independent variables with missing values are those for the age and education of the parents. There were 164 such observations and these are not included in the estimation samples. As a check, we re-estimated each logit model including these 164 observations and a dummy variable equal to one if there was a missing value for any independent variable.[7] The coefficient for the missing value dummy is never significant at even a 20% level of significance.

Second, we represent the sex of the child as a simple dummy variable, that is, it just shifts the intercept in our logit models. It is plausible, however, that the impact of other independent variables depends on whether the child is a girl or a boy. Therefore, we estimated each logit model with an interaction term between the sex of the child and each other independent variable. We were never able to reject the hypothesis that the coefficients were individually or jointly equal to zero. The lowest p-value from these tests was 0.19. Hence, the data support our assumption that the sex of the child is a shift factor.

Third, the 11,833 children in our sample come from only 5,052 different families. In order to adjust for this fact and to arrive at standard error estimates which are generally more robust than the conventional ones, we employed a method developed by White (1980). This adjustment typically did not make a large difference.

Fourth, one variable of interest is the market work patterns of the parents. Parental market work may affect child health and development in a variety of ways (some negative and some positive) and this may well be true even in the presence of controls for family income. A negative impact might reflect the absence of high quality, affordable substitutes for parental care. A positive impact might arise for at least two reasons. Greater parental market work may contribute to higher parental self-esteem and thereby help the parent to pay more and better attention to the child's needs. In addition, greater market work specifically by a married mother may provide her with more control over family expenditures. The "good mother" hypothesis asserts that the average mother has greater concern for her children's welfare than does the average father. If true, then greater maternal economic control should result in a greater proportion of family

Table 7.2
Characteristics of Families in the NLSCY: Sample Distribution

	Lone Mothers	Couples	Total
		(%)	
Lone Mother			14
Very Low-Income[a]	50	7	14
Low-Income[b]	66	15	22
Mother did not have High School Degree	22	15	16
Mother had High School Degree	16	19	19
Mother had Some Postsecondary	35	28	29
Mother had College or University Diploma or Degree	27	38	36
Mother Older than 34 Years	47	60	58
Children 8 to11 Years	49	51	51
Mean Number of Children Per Family	2.0	2.4	2.3
Unweighted Number of Families with Children 4 to 11 Years	872	5,567	6,439
Unweighted Number of Families with Children 6 to 11 Years	807	5,489	6,296

[a] Family income is below 75% of the 1992 Low-Income Cut-off.
[b] Family income is below the 1992 Low-Income Cut-off.
Source: Calculations by authors from Statistics Canada, National Longitudinal Survey of Children and Youth.

income being directed to the children's interests including health care (Schultz 1990, Thomas 1990, Phipps and Burton 1992, and Browning et al. 1994).

We estimated all of the models with a dummy variable for whether or not the PMK worked "full-year, full-time" in the market, and a second dummy variable for whether or not the PMK worked "part-year or part-time" in the market. We were consistently unable to reject the hypothesis that either of these coefficients is zero.[8] Hence, we do not include these estimates in the tables presented below. However, we have only begun to examine this issue with the NLSCY and further study is merited.

Finally, we had to decide whether or not to use the sample weights in our multivariate analyses. In the economics literature, this issue receives relatively little attention because it is commonly found, or at least assumed, that weighting makes little difference. We adapted a test suggested by DuMouchel and Duncan (1983) in the context of linear regression. Each logit model was estimated including an interaction between each independent variable and the sample weight. We then tested the hypothesis that the interaction terms were jointly equal to zero. We were able to reject the hypothesis with a p-value of at least 0.05 in the cases of conduct disorder, emotional disorder and social problems. The same hypothesis could not be rejected in the cases of hyperactivity, repeated grade and school problems. Hence, we estimated our logistic regressions using both weighted and unweighted data. The weights affect not only the standards errors but also some point estimates. This was especially true for low-income coefficients in the psychiatric disorder regressions.

Table 7.3 presents the estimates of our logit models for the three psychiatric disorders.[9] All of the independent variables are dummies except for the number of children. (The constant corresponds to a child who is a male, 4 to 7 years of age, from a non-poor, two-parent family in which the mother is under age 35 and has a high school degree.) Consider first, the estimates for hyperactivity. Lone-mother status is associated with a significantly higher probability of this disorder but low-income is not.[10] We included an interaction term for these two variables because of an expectation that low-income might have a different effect among lone mothers than among couples given that low-income spells tend to be longer among the former. The interaction coefficient is negative but not significantly different from zero. The lowest and highest categories for the mother's schooling have coefficients of the expected sign but only the latter has a p-value less than 0.05. The probability of hyperactivity is significantly less among girls and there is weak evidence (p-value less than 0.10) that it is more likely among older children and those from smaller families.

We wish to illustrate the quantitative impact of these coefficients, particularly those for family status and low-income. This impact is non-linear so we first enter the predicted probability for a "base case" in the row after the constant. The "base case" has the characteristics of the constant except for the fact that we assume that there are two children in the family. The row after the "base case" shows the effect of changing the value of the lone mother variable from zero to one. This increases the predicted probability of hyperactivity by 7 percentage points from 6% to 13%. The next row shows the effect of the income coefficient which in this case is virtually zero. The interaction term is almost always not significant and hence we do not show a separate income effect for a lone mother.[11]

The coefficients for conduct disorder and emotional disorder are similar to those for hyperactivity in several respects. The coefficient for lone-mother status is both large and statistically significant. A change in this variable increases the predicted probability of a conduct disorder from 8% to 14% and of an emotional disorder from 6% to 10%. Neither the low-income coefficient nor the interaction term are significant for either of these disorders. The absence of a high school degree for the PMK is associated with a significantly higher likelihood of a conduct disorder. The children of older mothers are less likely to have either a conduct disorder or an emotional disorder. Girls are less likely to have a conduct disorder and older children are more likely to have an emotional disorder. The number of children in the family is positively associated with the presence of a conduct disorder.

The final column of Table 7.3 indicates that one or more of the three psychiatric disorders is more likely if the child is a boy or is aged 8 to 11, or if the child has a lone mother, a mother with less than a high school degree or a mother under age 35. The lone-mother coefficient raises the predicted probability of a disorder by 10 percentage points from 15% to 25%.

Table 7.4 presents the estimates of our logit models for schooling problems, social problems and one or more of any of the problems presented either in this table or Table 7.3. In each case, the coefficient for lone-mother status is statistically significant and increases the predicted probability by 2 to 4 percentage points, quite a large increase relative to the base probability. Unlike psychiatric disorders, the low-income coefficients for both repeated grade and frequent social problems are also statistically significant and have the impacts on the predicted probability of 1 and 2 percentage points respectively. The interaction coefficients are all small and nonsignificant.

Mother's education generally has the expected sign but the only significant coefficient is the impact of "no high school degree" on "repeated grade." Mother's age is significant only for grade repetition. Boys and older children are more likely to have each of the problems in Table 7.4. The number of children in the family has a weak positive association with "doing poorly in school" and a weak negative association with social problems.[12]

The last column of Table 7.4 presents the logit estimates for our most comprehensive summary measure. As mentioned the value of this variable is one if the child has one or more of any of our psychiatric, schooling or social problems. The estimates indicate that the likelihood of one or more problems is greater if the child is a boy or is aged 8 to 11, or if the child has a lone-mother, a mother with less than a high school degree or a mother under age 35. Once again, the quantitative impact of the lone-mother coefficient is substantial and raises the predicted probability of a disorder by 14 percentage points from 20% to 34%.[13]

Table 7.3
Logit Estimates for Psychiatric Disorders

	Hyperactivity	Conduct Disorder	Emotional Disorder	One or More Psychiatric Disorders
Lone Mother	0.87	0.64	0.55	0.63
	(3.6)	(2.6)	(2.8)	(3.6)
Low-Income	-0.01	-0.08	0.22	0.10
	(0.06)	(0.51)	(1.4)	(0.79)
Lone Mother and Low-Income	-0.21	0.35	0.14	0.12
	(0.62)	(1.1)	(0.53)	(0.51)
Mother did not have High School Degree	0.30	0.49	0.14	0.24
	(1.5)	(2.9)	(0.83)	(1.8)
Mother had Some Postsecondary	0.01	0.15	-0.01	0.02
	(0.06)	(1.0)	(0.09)	(0.14)
Mother had College or University Diploma or Degree	-0.38	0.12	0.05	0.007
	(2.1)	(0.81)	(0.30)	(0.06)
Mother Older than 34 Years	-0.17	-0.48	-0.25	-0.34
	(1.2)	(4.3)	(2.4)	(4.1)
Female Child	-0.80	-0.57	0.03	-0.32
	(5.9)	(5.3)	(0.28)	(4.1)
Child 8 to 11 Years	0.21	0.14	0.81	0.47
	(1.6)	(1.4)	(8.4)	(6.1)
Number of Children	-0.12	0.21	-0.03	0.02
	(1.8)	(3.7)	(0.50)	(0.59)
Constant	-2.5	-3.0	-2.7	-1.8
	(10.6)	(14.0)	(13.8)	(11.9)
Probability of Outcome (Base Case)[a]	0.058	0.08	0.06	0.15
Effect of Lone Mother Coefficient[b]	+0.07	+0.06	+0.04	+0.10
Effect of Low-Income for Couples[b]	-0.0006	-0.006	+0.01	+0.01

Note: T-ratios in parentheses. Weighted data with OCHS thresholds. Number of Observations: 12,735 children, 4 to 11 years.
[a] Predicted probability corresponding to the constant (a boy, aged 4 to 7, from a non-poor, two-parent family with mother under 35 with a high school degree) and a total of two children.
[b] Change in the predicted probability for the base case when the dummy variable changes from zero to one.

The most surprising feature of our results thus far is the weak association between (current) low-income status and any of the three psychiatric disorders or poor school performance. We undertook the following steps to assess the robustness of this finding. We estimated each of the logit models in Table 7.3 and 7.4 with the following variations undertaken one at a time: [1] "very low-income" (income less than three-quarters of the 1992 LICO) was used in place of "low-income" (income less than the 1992 LICO); [2] the 10% thresholds were used in place of the OCHS thresholds; [3] unweighted data were used in place of weighted; and [4] a dummy variable equal to one if total household income was less than $20,000 was used in place of "low-income."

Alternatives [1] and [2] produce coefficient estimates for low-income and the interaction term (and other variables) that are quite similar to those in Tables 7.3 and 7.4. This was not true of alternatives [3] and [4]. The left side of Table 7.5 contains the coefficients for lone-mother, low-income and their interaction from test [3] above. The only noticeable change for the lone-mother variable is the drop in the coefficient for repeated a grade but this still remains highly significant. The low-income coefficients for conduct disorder, emotional disorder, one or more psychiatric

Table 7.4
Logit Estimates for School Problems, Social Problems, and One or More of Any of Psychiatric, Schooling or Social Problems

	Repeated Grade	Poor School Performance	Frequent Social Problems	One or More of Any Problems
Lone Mother	1.04	0.58	0.67	0.74
	(3.5)	(1.9)	(2.0)	(4.0)
Low-Income	0.44	0.19	0.86	0.13
	(2.3)	(0.70)	(3.2)	(1.0)
Lone Mother and Low-Income	-0.35	0.24	-0.03	0.13
	(0.93)	(0.54)	(0.06)	(0.52)
Mother did not have High School Degree	0.59	0.36	0.24	0.35
	(3.1)	(1.4)	(0.82)	(2.6)
Mother had Some Postsecondary	-0.13	-0.04	-0.16	0.01
	(0.65)	(0.13)	(0.60)	(0.12)
Mother had College or University Diploma or Degree	-0.07	-0.39	-0.06	-0.02
	(0.34)	(1.5)	(0.22)	(0.15)
Mother Older than 34 Years	-0.29	-0.10	-0.22	-0.31
	(2.1)	(0.49)	(1.1)	(3.6)
Female Child	-0.48	-0.76	-0.39	-0.35
	(3.5)	(3.8)	(2.0)	(4.4)
Child 8 to 11 Years	1.12	0.53	0.58	0.44
	(6.0)	(2.7)	(2.5)	(5.0)
Number of Children	0.07	0.18	-0.15	0.02
	(0.92)	(1.7)	(1.7)	(0.43)
Constant	-3.9	-4.1	-3.6	-1.4
	(13.2)	(9.7)	(9.2)	(9.0)
Probability of Outcome (Base Case)[a]	0.02	0.03	0.02	0.20
Effect of Lone Mother Coefficient[b]	+0.04	+0.02	+0.02	+0.14
Effect of Low-Income for Couples[b]	+0.01	+0.005	+0.02	+0.02

Note: T-ratios in parentheses. Weighted data with OCHS thresholds. Number of Observations: 9,283 children aged 6 to 11.
[a] Predicted probability corresponding to the constant (a boy, aged 4 to 7, from a non-poor, two-parent family with mother under 35 with a high school degree) and a total of two children.
[b] Change in the predicted probability for the base case when the dummy variable changes from zero to one.

problems, and one more of any problem are all now statistically significant. (Repeated a grade and social problems already had significant coefficients in Table 7.4.) The magnitude of each of these four coefficients, however, is only about one-third to one-half that of the corresponding lone-mother coefficients. The interaction coefficients are all non-significant. The other coefficient estimates (not shown here) are quite similar to those in Table 7.3 and 7.4.

The right side of Table 7.5 contains the coefficients which result from test [4] above. In this case, we used a dummy variable equal to one if total household income was less than $20,000 as the measure of low-income.[14] We initially experimented with dummy variables for a larger set of the income categories that are available for both lone-mothers and couples in the public use file, specifically, $20,000 to $29,999, $30,000 to $39,999 and $40,000 and above. However, very few of the dummy variable coefficients for these other categories were significant. For the estimates on the right side of Table 7.5, we used weighted data and substituted the number of persons in the household for the number of

Table 7.5

Selected Logit Estimates Using Unweighted Data and an Alternative Low-Income Measure

	Unweighted Data Household Income less than 1992 LICO			Alternative Low-Income (Weighted) Household Income less than $20,000		
	Lone Mother Income	Low-Income	Lone Mother and Low-Income	Lone Mother	Income less than $20,000	Lone Mother and Income less than $20,000
Hyperactive	0.77	0.17	-0.15	0.68	0.35	-0.44
	(4.2)	(1.3)	(0.63)	(3.2)	(1.3)	(1.2)
Conduct Disorder	0.64	0.31	0.05	0.99	0.37	-0.35
	(4.1)	(2.8)	(0.24)	(4.8)	(1.8)	(1.1)
Emotional Disorder	0.67	0.24	-0.09	0.72	0.65	-0.47
	(4.9)	(2.5)	(0.52)	(3.8)	(3.3)	(1.7)
One or More Psychiatric Disorders	0.66	0.22	-0.04	0.71	0.51	-0.33
	(5.8)	(2.7)	(0.23)	(4.4)	(3.2)	(1.4)
Repeated Grade	0.63	0.50	-0.08	1.2	0.70	-0.68
	(3.0)	(3.8)	(0.30)	(4.3)	(2.9)	(1.8)
Poor School Performance	0.76	0.13	0.0007	0.78	0.99	-0.33
	(3.0)	(0.71)	(0.002)	(2.7)	(2.9)	(0.71)
Frequent Social Problems	0.68	0.56	0.05	0.69	1.4	-0.63
	(2.6)	(3.1)	(0.16)	(2.3)	(4.3)	(1.3)
One or More of any Problems	0.65	0.27	0.06	0.82	0.57	-0.30
	(5.5)	(3.4)	(0.41)	(4.8)	(3.3)	(1.2)

Note: T-ratios in parentheses. Number of Observations: 12,735 children, aged 4 to 11 for psychiatric disorders and 9,283 children aged 6 to 11 for schooling and social problems. Models included all regressors from Tables 7.3 and 7.4 which are education and age of PMK, age and sex of child, and number of children in family.

children. Neither of these changes, however, had major effects on the estimates. The lone-mother coefficients remain highly significant and are all somewhat larger in size than in Tables 7.3 and 7.4. Most of the low-income coefficients are significant. Conduct disorder has a p-value of 0.08, and only hyperactivity lacks a strong association with low-income. The income coefficients are smaller than the lone-mother coefficient in the case of psychiatric disorders, but not in the case of poor school performance and frequent social problems. The interaction terms never have a p-value less than 0.05, however, the point estimates are consistently negative and large in absolute size indicating that this particular "income measure" may discriminate better in the case of couples than in the case of lone mothers.

What are the main conclusions to be drawn from our results? One conclusion is that our estimates of the effect of current low-income are not robust. The most conventional approaches (Tables 7.3 and 7.4) indicate that low-income matters for grade repetition and frequent social problems, but not for psychiatric disorders or poor school performance. The use of either unweighted data or of a dummy variable for family under $20,000, however, yields a strong association between low-income and every problem except hyperactivity. A major goal of the NLSCY is to assess the statistical association between child health and family income. The nonrobust nature of the estimates of this relationship highlight the need to conduct the analysis with more detailed income data. The aggregated measures available to us simply do

not offer a clear answer to this key policy question.

A second conclusion is that lone-mother status is the variable most consistently and significantly associated with our psychiatric, schooling and social outcomes. The coefficient estimates for this variable are quite robust, but there are many questions concerning their proper interpretation. To what extent does this finding represent the fact that Canadian lone-mother families have longer spells of low-income than two-parent families? If there is a lone-mother "effect" not due solely to economic resources, what does this represent? Is it the limited time resources ("time poverty") of the typical lone mother or might it be the health problems of the lone mothers themselves? Would the lone-mother coefficient be as large were we using a different, and perhaps more appropriate, comparison group (for example, comparing lone-mother families to those two-parent families with a high risk of dissolution as opposed to a random sample of all two-parent families)? In the 1994 Violence Against Women Survey, 16% of all currently married women reported that they have been physically abused by their current partner. However, 60% of previously married women reported that they were physically abused by their ex-partner (Kingston-Riechers 1997). This implies that, in at least some cases, the problems of the children of lone mothers may reflect primarily the abusive nature of the union into which the children were born. For such children, marital dissolution may represent a distinct improvement in their home environment which we are missing by comparing them to a random sample of children from two-parent families. Our ability in future NLSCY cycles to follow the same children into and out of families with different structures and constraints will represent a major improvement in this regard.

As for the other independent variables, we commonly (though not always) estimated a lower likelihood of problems among the children of women over age 34. This result, like that of the lone-mother coefficient, admits a variety of interpretations. One is that the mother's age may be a proxy for the long run income of the parents if, as seems likely, higher levels of earnings are positively associated with delayed fertility. Other possibilities are that older mothers may be more mature, have greater time resources or have more widely spaced children. All of these deserve further scrutiny in future studies.

We typically found a lower incidence of problems among girls. This has some support in the earlier literature especially in the case of hyperactivity and conduct disorder (Offord et al. 1987). Among the dummy variables for the PMK's education, only the coefficient for "no high school degree" always had the expected sign and even this estimate was significant in only 2 out of 6 problems. This was somewhat surprising given our expectation that this variable might reflect a variety of influences on child health and development including a permanent income effect.

3. Developments in Ontario

In this section, we compare estimates from the Ontario Child Health Study and the Ontario subsample of the NLSCY (henceforth NLSCY-Ontario) with the intention of examining changes over the decade 1983-1993. The survey methods and instrumentation of the OCHS are described in detail elsewhere (Boyle et al. 1987). The target population included all children born between January 1, 1966 and January 1, 1979 whose usual place of residence was a household in Ontario. Statistics Canada surveyed a total of 1,869 families and 3,294 children in 1983. The interviewers collected information from a parent (usually the mother), from a teacher for the 4 to 11 year olds, and from the youths themselves in the case of 12 to 16 year olds. There was also a follow-up survey in 1987. We use only parental reports in 1983 for children aged 4 to 11.[15]

The OCHS and the NLSCY differ in a number of respects other than provincial scope. First, the proportion of children with a lone mother is 9% in the OCHS sample but 15% among children from Ontario in the NLSCY. This increase is consistent with the growth in the proportion of families with young children which are headed by lone mothers between 1983 and 1994 and does not, we believe, primarily reflect differences in the methods used to identify lone-mother and two-parent families in the two samples (Dooley 1995). Second, the low-income status variable in the OCHS is a close, though not exact, approximation to whether or not the family's income is above or below the 1969 Statistics Canada LICO. The 1992 LICOs used in the NLSCY are substantially higher (in real dollars) than the 1969 LICOs. As discussed in the Appendix, the best approximation we have for OCHS low-income variable in the NLSCY data is whether or not the family has income below

75% of the 1992 LICO ("very low-income"). Third, the sample sizes differ. There are 1,315 children, aged 4 to 11, and 1,084 children, aged 6 to 11, in the OCHS sample. In particular, the small number of children of lone mothers in the OCHS sample (110 aged 4 to 11 and 99 aged 6 to 11) should be kept in mind when assessing our results. In contrast, there are 3,105 children, aged 4 to 11, and 2,273 children, aged 6 to 11, from Ontario in the NLSCY sample. Finally, the number of questions asked to assess psychiatric disorders differed slightly between the two surveys (see Appendix).

Table 7.6 presents the proportion of children in each survey with each of three problems: one or more psychiatric disorders (hyperactivity, conduct disorder or emotional disorder); ever repeated a grade; frequent problems in getting along with peers, parents or teachers. The figures for Ontario children in the NLSCY are similar to those for the national NLSCY sample in Table 7.1 with the following two exceptions: 5% of the NLSCY children of lone mothers above the low-income cut-off in Ontario have repeated a grade as opposed to 9% in the national sample; and 9% of the NLSCY children of low-income couples in Ontario have frequent social problems as opposed to 5% in the national sample.

The next to bottom row of Table 7.6 shows that the percentage of children with a psychiatric disorder increased from 11% in the OCHS to 16% in the NLSCY-Ontario. This increase in the incidence of a psychiatric disorder between the two surveys is also true of each family status and low-income status, except in the case of the children of poor couples using the 1992 LICO. The increases are larger for the children of lone mothers than for the children of couples. As noted above, however, there is a difference in the number of questions used to measure psychiatric disorders. The differences may, therefore, reflect measurement differences.

The percentage of children who have ever repeated a grade declined from 9% in 1983 to 4% in 1993. This question is identical on the two surveys. We suspect that the downward trend may reflect a change in the propensity of school teachers and administrators to make students repeat a grade as much as it does a change in actual school performance.[16] However, we have no obvious explanation for why the decline in this percentage should be greater among the children of low-income lone mothers and higher income couples. The questions used to assess a "social problem" are identical on the two surveys as are the overall percentages of children with this type of problem (4%). Furthermore, there do not appear to be major differences between the surveys in the incidence of social problems by family status or low income status.

The results of logit models for each of the three dependent variables (using the same set of independent variables as in Tables 7.3 and 7.4) are presented in Table 7.7, which contains the coefficients for lone-mother status, low-income status and the interaction between these two variables. We report NLSCY-Ontario estimates obtained with three different income measures. The very low-income measure was used because this best approximates the only low-income measure available in the OCHS data. Income under $20,000 was used because of the impact this had with the national NLSCY data.

Consider first the estimates for the presence of one or more psychiatric problems in Panel A of Table 7.7. The lone-mother coefficients are all of similar magnitude, but the 1993 estimates have much larger t-ratios possibly reflecting the larger sample size. The 1983 low-income coefficient is large and quite significant. As with the national sample, the low-income coefficients for NLSCY-Ontario are not robust. Only income under $20,000 provides an estimate of a size and significance comparable to the OCHS. In each case, the interaction is not significant although, as with the national NLSCY sample, the estimate in the case of income under $20,000 indicates a possible difference between the children of couples and lone mothers. In other respects, the four sets of logit estimates for psychiatric disorder are quite similar. In each case, the likelihood of a disorder is distinctly lower for a child who is female, under age 8, and whose mother is 35 or over. The impact of mother's education is weak in each case.

The second panel of Table 7.7 presents the estimates for "ever repeated a grade." In the 1983 results, neither lone-mother nor low-income status appear to matter. A decade later, however, both lone-mother and low-income status are strongly associated with the likelihood of repeating a grade in most cases, especially that of income under $20,000. The interaction coefficient implies that this income effect may be true only of two-parent families. In results not shown here, mother's education does have a significant coefficient in the 1983 data along with the gender and age of the child. This was also generally true of the 1993 estimates obtained from the NLSCY.

Table 7.6
Percentage of Children With Psychiatric, Schooling or Social Problems: Ontario, 1983 and 1993

Family Status and Low-Income Status	One or More Psychiatric Disorders			Repeated Grade			Frequent Social Problems		
	1983	1993		1983	1993		1983	1993	
		Very Low-Income	Low-Income		Very Low-Income	Low-Income		Very Low-Income	Low-Income
(Very) Low-Income Lone Mother	24	32	29	22	14	13	11	11	9
Lone Mother	14	22	21	6	7	5	3	4	3
(Very) Low-Income Couple	18	22	16	10	8	8	8	11	9
Couple	9	14	14	8	2	2	3	3	2
Total	11	16		9	4		4	4	
Number of Observations	1,315	3,369		1,084	2,450		1,084	2,450	

Note: Very Low-Income refers to family income below 75% of the 1992 Low-Income Cut-off (LICO). This better approximates the 1969 LICO used in the OCHS.
Low-Income refers to family income below the 1992 LICO.
Sources: 1983 data are from the Ontario Child and Health Study, 1994 data from the National Longitudinal Survey of Children and Youth.

Panel C of Table 7.7 presents the logit estimates for the presence of "frequent or constant" problems in getting along with parents, peers or teachers. Low-income has a large and statistically significant coefficient in all four specifications. Just as consistently and interestingly, none of the lone-mother coefficients have a p-value less than 0.05. This is the only case in which the NLSCY data, from either Ontario or Canada as a whole, did not indicate a strong association between lone-mother status and the likelihood of a problem.[17] In results not reported here, mother's age and the child's age and sex continue to play important roles in the NLSCY estimates but not in the OCHS. Mother's education has weak effects in each case.

What are the principal differences revealed by comparing the OCHS and NLSCY data? The data in Table 7.6 indicate that there may have been an increase in the prevalence of psychiatric disorders and a decrease in the prevalence of grade repetition between 1983 and 1993, at least in Ontario. There is no indication of change in the prevalence of social problems. The multivariate estimates for 1993 in Table 7.7 reveal that being the child of a lone mother was generally associated with a higher likelihood of a psychiatric disorder and of repeating a grade. This partial relationship was not statistically significant in 1983. The same was true of income and grade repetition. Low-income implied a greater likelihood of repeating a grade in 1993 data but not in 1983. Multivariate estimates for social problems were similar in the two years. Do the observed differences in these multivariate results represent a real change in conditional differences between children of varying socio-economic backgrounds in Ontario? One should clearly hesitate to infer too much from these early findings. Differences between estimates from the OCHS and the NLSCY may primarily reflect measurement matters and sample size. These caveats notwithstanding, such results should also prompt further research.

4. Conclusion

The goal of this chapter is to improve our understanding of the roles socio-economic factors play in the determination of psychiatric disorders, poor school performance and social problems among Canadian children. More specifically we use the National Longitudinal Survey of Children and Youth to assess the association between a variety of psychiatric, academic, and social difficulties, and a range of socio-economic variables (including the number, age, income, education and market work of parents, and the sex, number

Table 7.7
Selected Logit Estimates for Ontario, 1983 and 1993

	1983	1993		
		Very Low-Income	Low-Income	Income less than $20,000
A. One or More Psychiatric Disorders				
Lone Mother	0.48	0.55	0.55	0.77
	(1.0)	(2.2)	(1.7)	(2.8)
Very Low-Income	0.74	0.44	0.12	0.67
	(2.2)	(1.6)	(0.6)	(2.5)
Lone Mother and Very Low-Income	-0.27	0.04	0.21	-0.60
	(0.4)	(0.1)	(0.5)	(1.5)
B. Ever Repeated Grade				
Lone Mother	-0.23	1.1	1.1	1.6
	(0.3)	(2.3)	(1.4)	(3.2)
Very Low-Income	-0.14	0.91	1.0	1.2
	(0.7)	(1.7)	(2.9)	(2.2)
Lone Mother and Very Low-Income	1.1	-0.33	-0.43	-1.3
	(1.0)	(0.4)	(0.5)	(1.8)
C. Frequent Social Problems				
Lone Mother	-0.90	0.39	0.35	0.48
	(0.9)	(1.0)	(0.7)	(1.3)
Very Low-Income	1.5	1.6	1.4	1.2
	(2.9)	(3.8)	(4.1)	(3.3)
Lone Mother and Very Low-Income	0.65	-0.49	-0.37	-0.52
	(0.6)	(0.4)	(0.6)	(1.0)

Note: T-ratios in parentheses. Weighted data with OCHS thresholds. Controls for the age and gender of the child, and the age and education of the mother are also included. See Table 7.6 for sample sizes and data sources.

and age of children). We analyse three types of psychiatric disorders: hyperactivity, conduct disorder and emotional disorder. Our two measures of academic performance were whether or not the child had ever repeated a grade and whether or not parents reported the child as doing “poorly” or “very poorly” in school. A social problem was deemed present if the child has “frequent” or “constant” problems in getting along with other children, teachers or parents. The prevalence of any one individual problem among the children in our sample was at most 10%. Twenty-three percent of the children had one (or more) of any of these problems.

Our multivariate estimates provide a number of interesting and not always expected conclusions. First, the estimated effect of low-income was quite sensitive to the income measure used and to the use of sample weights. We started with what we judged to be the most conventional approach, weighted data with a dummy variable for whether or not family income was below the (1992) Low-Income Cut-off. The resulting low-income coefficients were significant only for grade repetition and frequent social problems, and were not significant for any psychiatric disorder or for poor school performance. The use of either unweighted data or a dummy variable for family income under $20,000, however, yields a strong association between low-income and every problem except hyperactivity. Only very limited income measures are offered on the public use file available to us. More detailed income data is needed if we are to shed more light on this key policy issue.

Second, lone-mother status is strongly associated with virtually all of our (poor) outcomes. The coefficient estimates for this variable are both robust with respect to the estimation approach (weighting, disorder thresholds, income

measures) and they imply sizeable quantitative effects on the predicted probability of a disorder or problem. For example, lone motherhood is associated with a 14% higher probability of the child having one or more of the disorders/problems we study. The correct interpretation of this finding, however, is not straightforward. We have followed the standard practice of comparing the children of current lone-mother families to the children of current two-parent families. Is this appropriate? It may not be if many or most of the problems observed in the children of lone mothers have resulted from the dysfunctional nature of the two-parent family in which those children once lived. Exiting from such two-parent families may have had a beneficial impact on the health and development of the children in question rather than the negative effect which might be inferred from a simplistic reading of our estimates based on a single cross-section.

Even if our estimates are assumed to reflect the impact of one or more current differences between lone-mother and two-parent families, which of these differences are most relevant? Is it that low-income spells are longer among lone-mother families? Or is it the lack of non-monetary assistance from family, friends and social service agencies? The availability of data from future NLSCY cycles will enlarge our capacity to sort out the relative importance of the above and other possible interpretations of this very strong and consistent empirical relationship.

We also usually found a lower incidence of problems among girls and commonly, though not always, found the same among the children of women over age 34. We did not find a strong relationship between the individual problems and the parent's level of schooling. Only the coefficient for "no high school degree" always had the expected sign and even this estimate was statistically significant in only about one-half of the cases.

We also experimented with a dummy variable for whether or not the mother worked "full-year, full-time" in the market and a second dummy variable for whether or not the mother worked "part-year or part-time" in the market. We consistently found that the coefficients for both variables were not significantly different from zero. In future work, however, this issue should be pursued further using other measures of market work for both the mother and her spouse. Such work will be most useful once researchers have access to more complete income and earnings data for the family and the individual parents.

Our second objective is to compare the 1993 estimates provided by NLSCY data for Ontario to those from the 1983 Ontario Child Health Study. Our comparison implied that psychiatric disorders may have become more common and repeating a grade less common in Ontario during this decade. There is no indication of a change in the prevalence of social problems. In the multivariate estimates with the 1983 data, there were no significant differences by family status. The 1993 estimates reveal, however, that children of lone-mothers are more likely both to have a psychiatric disorder and to repeat a grade. Furthermore, low-income children are more likely than their counterparts to have repeated a grade in 1993. This is not observed with the 1983 data.

Measurement issues and sample size may account for these different findings, but there are other possibilities. Could changes in the relative income levels of these two types of families have played a role? We know that low-income rates fell little or not at all among lone-mother families over this period, but that was also true of young couples with children (Dooley 1994a). We also know that the population of young (under age 35) lone-mothers became much more likely to be never married and to rely on welfare between these two surveys (Dooley 1996). What role might be played by changes in these and other characteristics of the lone-mother population? Was there any change in the relative access of different types of families to the services needed to deal with various psychiatric disorders or academic difficulties? Might practices governing grade repetition have changed in such a fashion as to have created greater differences by family status or income level? Much additional study with the first and future cycles of the NLSCY and with the OCHS is needed to shed light on these and other questions.

Appendix

Sample Selection

There are 14,226 children aged 4 to 11 in the NLSCY. From this number, we remove the following: eight children who do not live with either parent (biological, step, adopted or foster); 21 children for whom neither parent is the PMK; 195 children who live with a lone father; 1,103 children for whom there were missing values for a dependent (outcome) variable; and 164 children

Table 7A.1

Symptoms of Hyperactivity, Conduct Disorder and Emotional Disorder in the National Longitudinal Survey of Children and Youth

Hyperactivity	Conduct Disorder	Emotional Disorder
Can't sit still, is restless or hyperactive	Destroys his/her own things	Seems to be unhappy, sad or depressed
Fidgets	Gets into many fights	Is not as happy as other children
Is distractible, has trouble sticking to any activity	Destroys things belonging to his/her family or other children	Is too fearful or anxious
Can't concentrate, can't pay attention for long	When another child accidentally hurts him/her (such as bumping into him/her) assumes the child meant to do it, then reacts with anger and fighting	Is worried
Is impulsive, acts without thinking	Physically attacks people	Cries a lot
Has difficulty awaiting turn in games or groups	Threatens people	Is nervous, high-strung or tense
Cannot settle to anything for more than a few moments	Is cruel, bullies or is mean to others	Has trouble enjoying him/herself
Is inattentive	Kicks, bites, hits other children	
	When mad at someone, tries to get others to dislike that person	
	When mad at someone, says bad things behind the other's back	
	When mad at someone, tells the other one's secrets to a third person	
	Steals at home	
	Vandalizes	
	Steals outside the home	

for whom we were missing values for an independent (conditioning) variable. These deletions result in a sample of 12,735 children aged 4 to 11. The school age sample is 9,283 children aged 6 to 11. Children who do not live with either parent or for whom neither parent is the PMK are excluded on the grounds that these may represent quite unusual and/or temporary family structures. The children of lone fathers were excluded because their number is too small for separate analysis and their socio-economic characteristics (especially income levels) are too dissimilar from those of lone mothers to justify a common category of "lone parents." Most (90%) of the missing values concern dependent variables and statistical "solutions" for this problem are not (to our knowledge) readily available.

Child Outcomes

Child outcomes were examined in the areas of psychiatric, academic and social functioning. Selection of these child outcomes and of the methods used to assess the presence of a problem was guided by knowledge of the multiple components of healthy child development, previous research studies examining child psychosocial health, and availability of variables in the NLSCY (Offord et al. 1992, Offord et al. 1987). All of the data come from the parental reports

because the teachers' reports had not been released by Statistics Canada at the time we conducted our research.

Table 7A.1 lists the symptoms used in the NLSCY for each of the psychiatric disorders studied: hyperactivity, conduct disorder and emotional disorder. Briefly, **hyperactivity** is characterized by inattention, impulsivity and motor activity; **conduct disorder** is characterized by either physical violence against persons or property or a severe violation of societal norms; and **emotional disorder** is characterized primarily by feelings of anxiety and depression. We define the variable **one or more psychiatric problems** as one or more of hyperactivity, conduct disorder or emotional disorder.

The PMK was asked if each symptom in Table 7A.1 was "never or not true," "sometimes or somewhat true," or "often or very true" of the child in question. Values of 0, 1 and 2 respectively were assigned to these responses. The values of the responses to each question were then summed to obtain a score for each of the three possible problems. A disorder was deemed to be present if the child's score exceeded a given threshold. We used two sets of thresholds both of which have been used in previous research. The choice of threshold has little impact on the multivariate estimates. Therefore, we present one set of estimates in the tables and comment where relevant on the results yielded by the second set of thresholds. The multivariate results for psychiatric disorders in particular are much more sensitive to sample weights and the low-income measure than to the disorder thresholds.

The estimates presented in the tables of Section 7.2 are derived using thresholds from the Ontario Child Health Study (OCHS). This survey randomly sampled 3,294 children in Ontario in 1983 with a follow-up in 1987. The NLSCY relied heavily upon the OCHS particularly in the area of psychiatric disorders. A random sample of children in the OCHS were also clinically assessed by a child psychiatrist who was blind to the parental and teacher report data. The disorder thresholds were then established for the OCHS by selecting scores that maximized agreement with the child psychiatrists' diagnosis of the same disorders. In other words, the threshold scores in the OCHS were established at the point best discriminating the presence or absence of a disorder as diagnosed by a child psychiatrist. See Boyle et al. (1987) for complete details.

The OCHS and the NLSCY questionnaires are worded similarly. The number of questions asked on the two surveys of parents in the OCHS was similar but not identical. For example, there were 15 conduct disorder questions on the OCHS and, hence, a maximum score of 30 (15 times 2). The OCHS threshold score was nine, 30% of the maximum score of 30. The maximum score on the NLSCY is 28 (14 times 2), 30% of which is 8.4. We performed our NLSCY analyses with conduct disorder thresholds scores of both eight and nine. The resulting multivariate estimates were very similar. Those with a threshold of eight are presented in section 2. We used a similar procedure to establish OCHS-equivalent thresholds for hyperactivity and emotional disorders in the NLSCY data. Using this set of thresholds, 7% of the children in our sample are hyperactive, 5% have a conduct disorder and 10% have an emotional disorder. Sixteen per cent of children have one or more of these three disorders.

Our second set of disorder thresholds was established by selecting the score that separated the top 10% of the scores from the bottom 90% in the sample. Thus by definition 10% of children have each disorder according to this set of thresholds. Twenty one percent of the children have one or more of disorders based on these thresholds. These are the same thresholds as used in Lipman, Offord and Dooley (1996).[18] Thresholds which yield prevalence rates of 5% to 10% are commonly found in the literature. Support for these prevalence rates (and the associated thresholds) can be found in five major studies of child psychiatric epidemiology world-wide including Canada (Costello 1989). Henceforth, we refer to our two sets of thresholds as the OCHS and 10% thresholds respectively.[19]

In the area of academic functioning, **ever repeated a grade** is defined exactly as stated. A child is defined as having a **school problem** if the PMK reports that current overall school performance is poor or very poor. These two indicators of schooling problems variables were available only for children aged 6 to 11. Most children aged 4 and 5 were not attending school.

A child is defined as having a **social problem** if the PMK reports the child as having frequent or constant problems over the last six months in getting along with any one of other children (friends, classmates), teachers or parents. This variable was available for 4 to 11 year-old children but we used it only for 6 to 11 year-olds because of the absence of teacher responses for most 4 and 5 year-olds.

One or more problems is defined as having one or more of the following: one or more psychiatric disorders, ever repeated a grade, school problem, or social problem. This variable was defined only for children aged 6 to 11.

Family Characteristics

We classified a family as a **lone-mother family** if the child was living with a mother who had no spouse or common-law partner living in the household. The comparison group is families in which a child was living with two parents. Parent refers to a biological, step, adoptive or foster parent. As noted above, 98% of Canadian children live in one of these two types of families. We only know the child's current living arrangements. In some cases, this may provide an inaccurate picture of the family structure(s) in which the child has been raised.

Our principal income variable is a conventional measure of low-income. Specifically, we classified a family as **low-income** if the family income level is below the 1992 Statistics Canada Low-Income Cut-off (LICO). We selected this particular measure because the 1992 LICO is the one most commonly used in current analyses of income distribution in Canada. Its value is a function of both family size and the size of the area in which the family resides. The entire set of LICOs is revised periodically to account for changes in proportion of income that the average family spends on necessities. The year of the LICO (1992 in the case of the NLSCY) refers to the reference year for the Survey of Consumer Finances, upon which a particular set of LICOs is based.

We focus on low-income status because many of the studies reviewed in Section 7.1 (particularly those from the OCHS) have found a non-linear relationship between family income and child health. The association is strongest at low levels of income. Another reason for this focus is that much recent discussion concerning child policy has centered on income-targeted proposals, such as an enriched federal child benefit, which have the principal goal of reducing the incidence of low-income among families with children. We wish to explore the possible health consequences of such proposals. The third and most binding reason is that the income data available in the NLSCY public use file are very limited. In particular, the continuous measure of family income, the family LICO, and the ratio of these two figures are all suppressed on the public use file.

One of the income measures available on the public use file divides the ratio of family income to needs (1992 LICO) into six categories, the lowest being 0.75 or less and the highest category 1.25 or more. Our low-income measure is derived from this variable. Also available on the public use file is a categorical variable for family income, the highest of which is $40,000 or more for lone mothers and $60,000 or more for couples. Family size is available on the public use file but city size is not so that the family's LICO cannot be estimated. We also experimented with two other measures of low-income. One alternative classifies a family as **very low-income** if the family income level was below 75% of the 1992 LICO. A second alternative, employed only in our multivariate analyses, uses a dummy variable equal to one if total household income was less than $20,000 while controlling for the number of persons in the household. Our multivariate estimates of the association between low-income and child problems turn out to be quite sensitive to the measure of low-income which, we believe, emphasizes the need to use more finely disaggregated information.

Not only do we have limited income variables, we also as yet have only one year of data. Hence our low-income measures fail to distinguish between short and long spells. These may have quite different consequences for child health and development. The absence of such information may affect the estimated coefficients of variables other than low-income status. In particular, we suspect that at least part of the estimated impact of lone motherhood is really a permanent income effect, that is, it reflects the fact that lone mothers have much longer spells of poverty than do couples (Laroche 1997). The same may be true of other variables in our multivariate analysis such as parental education. More insight into this matter will be provided by future cycles of the NLSCY data.

Several other variables are also used in our multivariate analyses. These include the age and sex of the child, and the age, schooling level and market work of the PMK.

Finally, we implicitly assume in our multivariate analyses that child health and schooling are the outcomes of socio-economic factors such as income and family structure. It is certainly possible, however, that the opposite causal effect may be true in some cases. For example, severe childhood health problems may reduce family income by limiting the paid work of one or both parents. The stress arising from severe

health problems might also influence the likelihood of separation, divorce or remarriage. Unfortunately, there is little that can be done about this problem given the lack of identifying variables for a more complete structural model. Our approach is best viewed as one means of exploring the joint distribution of the variables that we believe to be of relevance to the process which determines child health and development.

Notes

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[1] Our reading of the social science literature is that the use of "family structure" to refer to the number of parents residing with the family is common. This reflects the fact that the number of resident parents is arguably the most important source of variation in family structure among contemporary families with dependent children. We also have yet to find an alternative term which is more specific and equally succinct.

[2] Indeed, only 25% report that the child is doing "average" or worse. We comment on the use of this alternative measure later in the chapter.

[3] The teachers' reports in the NLSCY Cycle One may be different. At least one other study has found that teachers provide lower assessments of student academic progress than do parents. Saigal and Szatmari (1991) examined a control sample of full-term children who were used in a long term, follow-up study of low birth weight children. Parents reported that only 4% of the control sample were doing "poorly" in school. However, teachers reported that 17% of the same children were doing "poorly." The sample size for this study was small (145 children, 8 years of age), but this finding does highlight the need for careful scrutiny of the NLSCY teachers' reports when they are made available.

[4] Twenty-three percent of PMKs report that her child has "occasional," "frequent" or "constant" problems in getting along with parents, peers or teachers. We comment on the use of this alternative measure of social problems later in the chapter.

[5] Economists tend to use the probit conditional probability function and discusses policy implications in terms of differences in predicted probabilities of the dependent variable. Health scientists tend to use the logistic conditional probability function and discusses policy implication in terms of the odds ratios. The compromise of our inter-disciplinary team is to use the logit conditional probability function and discusses policy implications in terms of differences in predicted probabilities of the dependent variable.

[6] As our multivariate estimates will show, children who live in low-income families, aged 8 to 11 and have lone mothers tend to have more problems. Girls, however, tend to have fewer problems. Hence, it is not clear if the absence of these observations tends to raise or lower the overall percentage of children with various difficulties in Table 7.1.

[7] In order to include such observations in the estimation sample, a specific value must be assigned to the "missing value" of the variable in question. We assigned a value of zero.

[8] The same is true if one substitutes the mother's market work variables for the relatively few cases where the father is the PMK.

[9] Tables 7.3 and 7.4 present the estimates with weighted data and our principal low-income variable (income below the 1992 LICO). Table 7.5 illustrates the impact of using unweighted data or a different low-income measure.

[10] Our use of the term statistically significant usually refers to a p-value of 0.05 or less. "Weak significance" usually refers to a p-value less than 0.10 but greater than 0.05.

[11] Due to the large standard error for the interaction term, we also usually cannot reject the hypothesis that the sum of the low-income coefficient and the interaction term is different from zero.

[12] We also estimated logit models with several alternative measures of schooling and social problems. One alternate schooling measure is whether or not the child receives special education because of a "physical, emotional, behavioural or some other problem limits the kind or amount of school work she/he can do." Seven percent of the children receive such education. A second alternate schooling measure is whether or not the parent reports that the child is doing "average" or worse

("poorly" or "very poorly") in school. Twenty-five percent of children meet this criterion. The alternate measure of social problems is whether or not the parent reports that the child has "occasional" or more frequent ("frequent" or "constant") problems in getting along with parents, peers or teachers. Twenty-three percent of children meet this criterion. In each case, the lone-mother coefficients have large marginal effects and t-ratios. Furthermore, the low-income coefficients are not significant ($p<0.05$) and have smaller marginal effects than do the lone-mother coefficients.

[13] We also analysed the predictive power of our estimates. For almost all individual outcomes and observations, our coefficients predict "no problem" in the sense that the individual predicted probability is less than fifty percent. In that limited sense, our models predict "well" because 10% or less of the children in our sample actually have each of the problems. An alternative test is to see if there is a difference in the mean predicted probability of each outcome for [1] children who actually do have a problem and [2] children who do not have the problem. For each outcome, the mean for group [1] is higher (p-value < 0.01) than the mean for group [2].

[14] Thirteen percent of the sample has income below $20,000. As shown in Table 7.2, 14% of the children are "very low-income" and 22% are "low-income." About 80% of those who have income less than $20,000 also have "very low-income" and vice versa. Virtually all of those who have income less than $20,000 also have "low-income," but only 60% of those who have low-income also have income less than $20,000. Of those children with families of income less than $20,000, two-fifths live with two parents and three-fifths live with a lone mother.

[15] Sample attrition between the initial OCHS and the 1987 follow-up survey was substantial. The number of lone mothers appearing in both 1983 and 1987 was less than 100 due to both sample attrition and changes in marital status.

[16] The propensity of teachers and administrators to fail a student of a given achievement level may also vary by province as well, although we note that the incidence of this problem among Ontario children in the NLSCY (4%) is virtually the same as for the national sample (5%).

[17] We also estimated the logits in Table 7.7 using the national NLSCY sample and including a dummy variable equal to one if the child is from Ontario. The coefficient estimates for the Ontario dummy were not significant for psychiatric disorder, significantly negative for repeated grade, and significantly positive for social problems.

[18] The approach of Lipman, Offord and Dooley differed from that taken in this study in a number of ways other than the thresholds used. They excluded all observations in which the PMK was not the mother and the only independent variables used in their multivariate analysis were lone-mother and low-income status.

[19] Note that the prevalence of an emotional disorder in the NLSCY sample is 10% using either of our thresholds. In order to provide a sensitivity test for this outcome, we used a second threshold for emotional disorder that was used in some OCHS studies. Seventeen percent of the NLSCY sample had an emotional disorder using this alternative threshold, but the multivariate estimates were very similar regardless of the threshold used.

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Chapter 8

Intergenerational Aspects of Education and Literacy Skills Acquisition

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Education and skill levels are important dimensions of an individual's ability to integrate with and contribute to society. They not only help determine one's social position, but also impact on the economy by increasing both the size and quality of the labour force. Getting an education, in the broadest sense, is the result of many influences, but the family and the education system carry considerable weight in this process. Indeed, from a public policy perspective, education policy is a powerful instrument with which to influence human capital formation.

In this chapter, we assess the family's role in determining the acquisition of higher education and literacy. More specifically, our objective is to relate individual educational attainment, literacy abilities, and labour market characteristics to parental educational and labour market attributes. We compare different age cohorts and thereby examine relationships between parents and children over more than one generation. In doing so we focus on the following questions:

[1] Do families pass on their intellectual capital to the next generation, and has the pattern of educational mobility changed over time?

[2] Are literacy skills associated with educational attainment, and do they play a role in educational mobility and in gaining access to training opportunities?

[3] Does the labour market experience of parents influence their ability to pass on intellectual capital to their children?

[4] Do literacy skills enhance occupational opportunities?

[5] Do the parents' education levels influence the strategies they use to influence their children's education?

Our analytical starting point is the notion that education and literacy are important in determining how well people integrate with various facets of society, and how likely they are to have successful working lives. We also emphasize that access to training opportunities (to upgrade skills and knowledge) throughout one's lifetime is important to maintain and improve one's socio-economic situation and overall economic well-being. Educational attainment is largely achieved through the working of the education system but also by inherited intellectual capital, which is in large part acquired at home through the interaction of family members. This interaction directly affects one's educational performance by offering a supportive environment for learning. Intellectual capital, forged within families through the generations, also has an indirect influence on educational attainment. Intellectual capital is defined as the experience and knowledge acquired by an individual or a group of individuals (such as the family) during the course of their lives that can be applied in the pursuit of economic and social goals. It may pave the way for better educational attainment and a more fruitful adult life. On the other hand, this would also imply that some children may not be starting school on an equal footing. The role of an efficient education system is to provide children whose parents have relatively lower levels of education, opportunities similar to their counterparts from more educated families.

Our major findings are: [1] there is substantial upward educational mobility, but inherited intellectual capital still makes a significant difference in individuals' ability to access and succeed in post-secondary education; [2] parents' occupational experience, in addition to their education, also influences the educational attainment of their children; and [3] how parents support the education of their children reflects their own educational background, with more educated parents adopting strategies more likely to set their children on a successful path.

1. Overview

Our analysis is based upon the International Adult Literacy Survey (IALS). This survey questioned individuals from a number of advanced industrial countries in 1994 with the following objectives: "[1] to shed light on the relationship between performance, educational attainment, labour market participation and employment for those individuals found to be able to read but not able to do so very well; [2] to compare and contrast the literacy skill profiles for economically important sub-populations across countries and language groups" (Statistics Canada 1996, p.10).

We use the information obtained from a representative sample of 5,660 Canadians, and focus upon two separate age cohorts, those 26 to 35 and those 46 to 55. The 26 to 35 age bracket is used because people from this cohort are at the beginning of their careers but have completed their initial education. The 46 to 55 age cohort are on average 20 years older (but not old enough to represent the parents of the younger cohort), and still in the labour market. The age difference between the two cohorts distinguishes one generation from another. The older cohort went through the education system in the late 1940s and the 1950s, while the younger group was in formal education during the 1970s and the 1980s. In the IALS sample there are 1,010 Canadians 26 to 35 years (representing a population of about 5 million), and 658 who are 46 to 55 (for a population of about 3.3 million).

Intergenerational mobility analyses have very demanding data requirements. Sample size limitations have, for example, forced us to consider four levels of education for the survey respondents (secondary not completed, secondary, post-secondary non-university, university), and three levels for their parents (secondary not completed, secondary, post-secondary). When information is missing on the educational attainment of both parents, the individual is excluded from the analysis.[1]

In our analysis "literacy" relates to only one of the three measures available in IALS: document literacy. This term refers to the ability to use information from documents such as payroll forms, job applications, maps, bus schedules, and graphs. This type of literacy measure can be interpreted as comprising elements of both prose literacy (the ability to use information such as editorials, poems, fiction and news bulletins) and quantitative literacy (the ability to perform arithmetic functions of various sorts), which also appear in the IALS. We often refer to a distinction between a "high literacy" level and a "low literacy" level. Scores have been translated into five levels, and we take high literacy level to be levels three to five. Performing at level three implies an ability to cope with varied tasks of some complexity. (An extensive description of the test material and the definition of the literacy levels is provided in Statistics Canada 1996.)

Much of our analysis deals with the relationship between one's educational attainment (and some of the associated labour market benefits) and inherited intellectual capital, represented by the educational attainment of the respondent's mother or father, and occupational status of the father. The only information available in the IALS data about the mother's labour market activity is whether she ever worked at a job or business. The respondent was asked more questions about the father's activities, specifically occupation and industry.

We are also in a position to examine different parental educational strategies, such as deliberately building on or accumulating greater intellectual capital for children. Those still in school are left out of the analysis because our concern is with the last level of education attained by the respondents.[2]

The major characteristics of the two age groups we study are presented in Table 8.1. Panel A of the table reveals that the younger generation has attained higher levels of education than the older, and that the major difference is in the proportion graduating from high school and from non-university post-secondary education institutions. This is largely because there was a major expansion of the college system during the last twenty years. University attainment is, by comparison, only marginally higher. That being said, it is possible that some 26 to 35 year olds will return to university and achieve a higher level of education (likely a university degree) even though they were not enrolled at the time of the survey.

The percentages in Panel B reveal that about 62% of the younger generation perform at literacy skill Level 3 or higher, as compared to 46% of the older generation. The fact that there are a number of young people with relatively higher literacy skills is only a moderate consolation given that the proportion with weak literacy skills remains high. The lower performance of the older generation may be attributed to either low skills at a young age (and still having low skills), or the depreciation of skills over time.

Table 8.1
Education, Literacy and Occupation by Age

	26 to 35 Years	46 to 55 Years	All Ages
		(Percent)	
A. Educational Attainment			
Secondary Not Completed	22.6	36.8	33.9
Secondary	38.4	32.4	33.5
Post-Secondary, Non-University	22.9	15.2	17.1
University	16.1	15.7	15.5
B. Document Literacy Level			
Level One	13.6	23.0	23.9
Level Two	24.9	31.0	23.9
Level Three	33.9	23.6	29.9
Levels Four and Five	27.6	22.4	22.3
C. Occupation			
Managers	5.8	11.3	7.9
Professionals	21.0	18.2	17.3
Technicians	15.3	11.2	11.6
Clerks	16.1	12.3	14.6
Service	13.4	18.0	15.1
Blue Collar	28.3	29.0	33.5

Source: Authors' calculations from Statistics Canada, International Adult Literacy Survey.

Finally, the information in Panel C shows the distribution by occupation of all the labour force participants in the two age cohorts. There are proportionately more people from the older generation in the managerial occupations, but a greater proportion of people from the younger generation in professional and technician occupations. This reflects the fact that managerial occupations require experience that most young people do not yet have. It also reflects the fact that the rising level of education allows young people to enter the workforce in highly skilled occupations in larger numbers. Clerical occupations remain an entry level occupation for many young people. It is also interesting to note the importance of the blue collar occupations among young workers (this group includes craft and trade workers, skilled agricultural and fishery workers, plant and machine operators and assemblers, armed forces and elementary occupations); this is not what one would suspect to happen in an economy characterized by a decline in the relative number of manufacturing jobs, and rapid growth of the service economy.

2. Intergenerational Education Mobility

One of the factors determining how much education an individual receives is the level of parental education. A highly supportive learning environment at home (proxied by the level of parental education and the occupation of the father) is likely to be reflected in children attaining higher educational levels. A supportive environment manifests itself not only through a financial capacity to support children's higher education, but also through day-to-day interactions of higher "intellectual quality" between parents and children.

To what extent is the education of the respondents in our survey related to that of their parents? In order to address this issue, we derive Spearman rank correlations between respondent education (by gender and age) and the education of fathers and mothers. The results show that there is no significant difference in the relationship between respondent education and that of either of their parents. The correlation coefficients vary between about 0.38 and 0.45, but are always about the same whether the mother's or the father's education level is used. In fact, the correlation is consistently stronger between the level of respondent education and that of the parent with the highest level of education (varying between 0.40 and 0.53). In addition, the correlation between the levels of education of the two parents is always higher than the correlation across generations, attaining values as high as 0.66.

Table 8.2

Percentage of Individuals with More, the Same or Less Education than Their Parents: by Parental Level of Education and Respondent Age

	Secondary Not Completed			Secondary			Post-Secondary			Total		
	More	Same	Less	More	Same	Less	More	Same	Less	More	Same	Less
	(Percent)											
26 to 35 Years	84.1	14.8*	-	40.0*	46.4*	-	-	44.9*	40.4*	50.9	33.5	15.7*
46 to 55 Years	77.0	19.8*	-	41.0*	52.6*	-	-	47.2*	44.6*	57.6	32.2*	-
Total	74.3	23.0	-	41.4	44.1	14.5*	9.1*	37.4	53.5	51.0	31.8	17.2

* High but acceptable coefficients of variation.
\- Coefficient of variation too high for the number to be reliable.

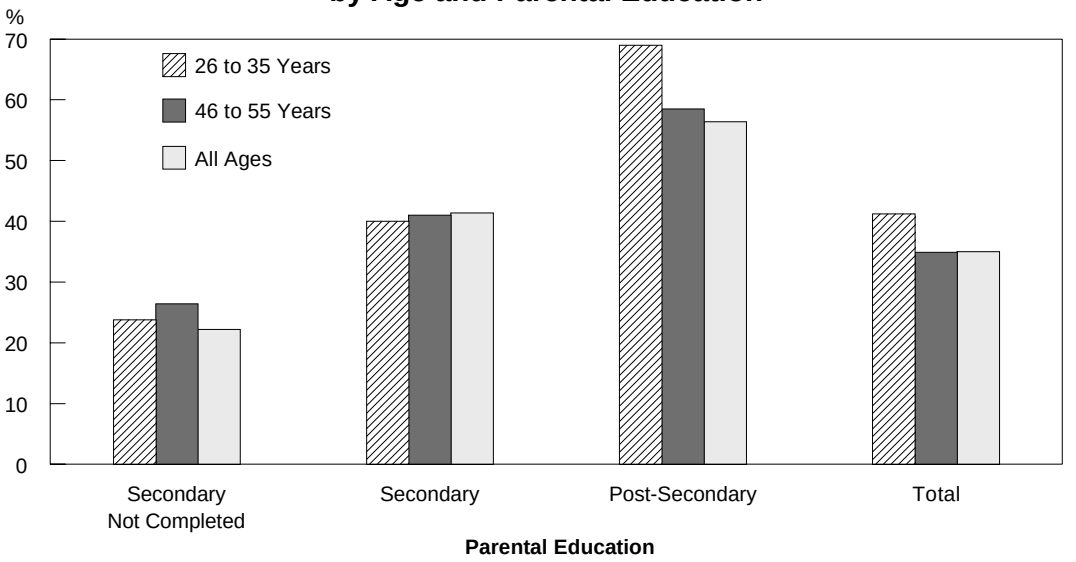
Given these results the education of the parent with the highest level of education is used in the remainder of our analysis. Table 8.2 collects all the main elements of three educational mobility matrices, one for the total population (less the full-time students) and one for each age cohort. Sample size limitations prevent the reporting of population sub-groups. However, the data is sufficiently reliable to provide a picture of intergenerational educational mobility in Canada.[3] Educational mobility, measured as the difference in educational attainment between parents and their children, is important in Canada: more than two-thirds of Canadians have a different level of education than their parents. About 51% have a higher level of education than their parents, while 17% have a lower level. As a result the average level of educational attainment in the population is rising over time. Naturally, the lower the parents' level of education, the higher is the scope for upward mobility, and concomitantly the higher is the rate of upward mobility. Indeed, about three out of four respondents whose parents have not completed secondary school have gone at least a little further in their education. Undoubtedly the establishment of compulsory schooling and the subsequent rise in the age of compulsory school attendance have had a significant influence on this accomplishment. However, only slightly more than 40% of the respondents whose parents have just graduated from high school have achieved a higher level of educational attainment. (Fournier et al. 1995 offer similar results.)

Differences in educational attainment between the two age cohorts are not too pronounced. Upward mobility for respondents whose parents did not complete secondary school is higher among the younger cohort. Overall, however, upward mobility is slightly higher in the older cohort. This is to be expected as more people move towards higher levels of education.[4] Given that the general level of education in the population gradually increases, it becomes more difficult to surpass one's parents' education, even in the context of a more and more accessible educational system.

The probability of obtaining at least a post-secondary education by level of parental education is illustrated in Figure 8.1. The higher the education of the parents, the higher the probability of obtaining post-secondary education credentials. Indeed, people with parents who have a post-secondary certificate or degree are 2.5 times more likely to obtain at least a post-secondary degree, than those whose parents have not completed high school. The younger generation are close to three times more likely to obtain a post-secondary education if their parents had a post-secondary degree compared to those whose parents did not complete high school. For the older generation, this proportion is about 2 to 1.

The data in this figure provide the first hints that the polarization of educational opportunities may be increasing. A comparison of the two cohorts suggests that access to and success in post-secondary education is significantly on the rise for individuals whose parents have themselves attained post-secondary education, while the situation of respondents whose parents' education did not go beyond high school has not improved, and indeed may have deteriorated. The contrast by parental education is even more pronounced if one restricts the comparison to only those attaining a university education. This supports the fact that colleges, as post-secondary education institutions, have helped improve access to post-secondary institutions, especially for those with minimal inherited intellectual capital.

Figure 8.1
Probability of Attaining at Least Post-Secondary Education: by Age and Parental Education



In order to identify those factors that affect the schooling experience of respondents we use an ordinary least square regression and regress the number of years of formal education completed by the respondent on a number of relevant factors. The aim of this analysis is to measure the influence of various factors in a controlled environment, and to explore further the hypothesis of polarization. The variables included are gender (since the propensity to attain certain levels of education may differ by gender), age (to capture the cohort effect), and parental education. We also include the occupation of the father as a proxy for the influence the parents' labour market experience may have on children's educational attainment, over and above the direct effect of their own level of education.

The variable **mother ever worked** is also included. As mentioned, this variable refers to whether or not the mother ever worked at a job or business. We also suspect that educational attainment can in part be explained by whether or not individuals were born in a specific region of Canada or abroad, or lived in a rural setting. Further education may be hampered by distance and isolation of smaller communities. Accordingly controls for the region of birth and urban/rural setting are also used.

The results are depicted in Table 8.3. The most relevant findings are the following:

[1] Parental education makes a difference: individuals whose parents have not completed secondary school have on average 1.5 years of education less than those whose parents graduated from high school. Individuals whose parents obtained a post-secondary diploma or degree have three-quarters of a year more of education.

[2] There may be a case for polarization of educational opportunities. The younger age cohort whose parents have not completed their high school have about the same parameter estimate as the older generation, but those from the younger cohort whose parents obtained a post-secondary education have significantly more education than their older counterparts.

[3] The occupation of the father has a strong influence on the years of schooling. Those with a father who was a professional have up to 3.5 more years of education than those with a father who was a skilled agricultural worker.

[4] One obtains significantly higher education if the mother worked. This does not seem to affect significantly schooling of the older cohort.

[5] The province of birth—and likely the province where most of the education is received—makes a difference: in Quebec, individuals have about one year less education than in Ontario, while the difference is about two-thirds of a year less in the Atlantic provinces and close to half-a-year less in the West.

Table 8.3

Determinants of the Number of Years of Education: Least Squares Regression Results by Age

	Total Population	26 to 35 Years	46 to 55 Years
		(Number of Years of Education)	
Reference Case	11.66*	12.79*	11.90*
Gender (Women)			
Men	0.05	-0.05	0.68**
Age (56 to 45 Years)			
16-25	-0.32**		
26-35	0.06		
46-55	-0.02		
56 +	-1.67*		
Parental Education (Secondary Completed)			
Secondary Not Completed	-1.62*	-0.95*	-1.42*
Post-Secondary	0.65*	1.16*	-0.43
Father's Occupation (Skilled Agricultural Worker)			
Armed Forces	2.50*	4.30*	-1.41
Managers	2.72*	1.31*	3.53*
Professionals	3.59*	1.87*	5.90*
Technicians	1.93*	0.20	3.02*
Clerks	2.10*	1.16**	3.36*
Service Workers	1.79*	-0.06	1.72*
Craft Workers	1.13*	-0.75***	1.33*
Plant and Machine Operators	0.91*	-0.58	0.87**
Elementary Occupations	0.56*	-1.08**	0.72
Never Worked	2.70**	2.96	0.00
Don't Know	-0.16	-1.90**	-0.86
Not Stated	3.13*	-1.19	9.93*
Mother Ever Worked	1.09*	0.89*	-0.52***
Rural	-0.46*	-0.41	-0.36
Region of Birth (Ontario)			
Abroad	-0.28***	-0.89*	0.71
Atlantic	-0.81*	-0.11	-1.49*
Quebec	-1.25*	-0.41	-2.33*
West	-0.42*	-0.49***	0.13
Adjusted R^2	0.3051	0.2478	0.4392
F-statistic	82.7	15.5	23.1
Number of Observations	4,650	924	566

Note: The reference categories are indicated by the parentheses ( ). For the results in the first column the reference category is women, 36 to 45 years of age, whose parent with the higher level of education had completed secondary school, whose father was a skilled agricultural worker, whose mother did not work, living in an urban area, and born in Ontario. The reference case for the results in the remaining columns is women, whose parent with the higher level of education had completed secondary school, whose father was a skilled agricultural worker, whose mother did not work, living in an urban area, and born in Ontario.

* significant at 99% level.
** significant at 95% level.
*** significant at 90% level.

Table 8.4
Literacy, Education, and Adult Training

	26 to 35 Years	46 to 55 Years	All Ages
		(Percent)	
A. Attainment of High Literacy Skills			
Secondary Not Completed	30.1	17.5	19.9
Secondary	54.0	50.1	57.9
Post-Secondary, Non-University	83.0	76.2	74.6
University	92.3	77.0	86.1
B. Variation in Literacy Level*			
Secondary Not Completed	26.3	28.9	33.0
Secondary	17.4	18.3	19.0
Post-Secondary, Non-University	14.3	16.2	17.1
University	15.1	13.3	15.3
C. Participation Rate in Adult Education and Training			
High Literacy Skills	51.6	46.8	50.7
Low Literacy Skills	24.1	21.4	20.6
Total	41.0	33.2	36.3

* Coefficient of variation of literacy levels within groups.

When we compare the two cohorts, a more precise picture emerges: the regional differences are much larger (especially for Quebec and the Atlantic provinces) among the older cohort, and have practically disappeared with the younger age cohort.

In summary, the average level of education in the population has increased: 50% of the respondents had attained a higher level of education than their parents. However, precisely because a growing share of the population attains the highest level (university), the possibility of moving upward is progressively shrinking. This is the main reason why only 51% of the respondents in the younger cohort experienced upward educational mobility, while 58% of people of the older cohort did. Inherited intellectual capital makes a considerable difference in children's achievements. Slightly more than one third of respondents attained a post-secondary level of education, but this population was not equally distributed by the level of parental education. While 56% of those with parents having post-secondary education attained this level of education, this was the case for only 22% of those whose parents did not graduate from high school. Over time, polarization seems to have increased: those who have parents with post-secondary education are in a better position to go on to post-secondary education (their probability rises to 69%, whereas it is only 58.5% for the older cohort). The fate of those with less educated parents remained unchanged.

3. Literacy Skills and Educational Attainment

Literacy skills provide another facet for explaining the relationship between parental education and that of children. It is also a factor likely to play a role in permitting access to further education opportunities in adulthood. In general, literacy levels increase with the level of educational attainment (Table 8.4, Panel A). The fact that the skill levels are generally slightly lower for the older generation than the younger one may be due either to a lower initial level of skills or to a depreciation of skills over time particularly when these skills are not used regularly in day-to-day activities (Statistics Canada 1996: p. 37). The intergenerational differences are more apparent at both extremes of the education spectrum. Low literacy levels among those with lower levels of education compound further their fate. Less than a third of 26 to 35 year olds who left high school without graduating attain literacy at level 3 or higher. This jeopardizes their chances of higher occupational accomplishments and reduces their ability to adjust to the changing socio-economic environment. In contrast, 92% of the young university graduates and 83% of the college graduates benefit of high literacy skills.

The data in Panel B of Table 8.4 demonstrate that, on the whole, people with high levels of education may have low levels of literacy skills and people with low levels of education may have high levels of skill acquisition. However, these

variations are decreasing with higher levels of education, and they are also somewhat higher for the older generation. This seems to confirm the loss of skills by a number of individuals in that age bracket in an environment not prone to maintaining individual skill level. The decline in the coefficient of variation for the younger cohort is less pronounced than for the older generation. This suggests that, over time, the variations in literacy levels are likely to decrease as there is a general increase of educational attainment in the population through better educated young cohorts.

Finally, Panel C of the table measures the additional advantage that a high level of literacy provides in accessing further training opportunities. The rate of participation in adult education and training is more than twice as high as for individuals who had high literacy skills than it was for those with low skills. This pattern is consistent across age groups. This suggests that adult training, by virtue of the working of the labour market, is not—or rarely—an instrument that allows workers with limited initial education and skills to improve substantially their educational situation.

We proceed as in the previous section by analyzing the influence of selected factors on literacy achievement. To do this, we use a least square regression of the document literacy scores (the actual individual literacy scores rather than discrete levels) on a number of relevant factors. These independent variables are the same as in the analysis of the number of years of schooling. The impact of these factors on the literacy scores is depicted in Table 8.5. Overall, men have a marginally higher level of literacy than women; younger people have a markedly higher level than their older counterparts. The education of the parents also makes a sizeable difference on literacy scores of respondents, particularly if parents had not completed high school. In comparison with skilled agricultural workers, literacy scores are affected positively for almost all other occupations. These can be grouped into two clusters: the professional occupations (managers, professionals, technicians, clerks) leading to the highest positive difference with a 40 to 50 point advantage and the service and blue collar occupations with an advantage of about 25 points. The fact that the respondent's mother works appears positively associated with higher literacy scores. In terms of the regional differences, literacy scores appear to be slightly higher in Ontario and Western Canada than in Quebec and the Atlantic provinces. This is consistent with the distribution of educational attainment observed in the previous section.

The results confirm that, other things being equal, young people achieve higher literacy scores. The literacy score is higher by about 50 points on a scale that goes from 0 to 500. This is a substantial increase and implies that individuals are moving from level 2 to level 3 in the literacy classification. Men of the older generation had a literacy advantage over women, but this disappears in the younger generation. The influence of the father's occupation also diminishes significantly from the older generation to the younger.

Undoubtedly, literacy skills are linked to educational attainment. As one might expect, the higher the educational attainment, the higher the average level of literacy. However, there is a fairly wide dispersion of literacy skills around the average at all levels of education. Such variations tend to be wider for older cohorts. This supports the notion that literacy skills may depreciate when such skills are not used in daily activities. Literacy skills are also a strong co-determinant of access to further training opportunities. At any given level of education, individuals with higher literacy skills also have a higher probability of participating in adult education and training courses.

4. Socio-Economic Background

Taking stock of the main findings of the previous two sections, we look at the relationships between labour market experience, education and literacy skills, adding the intergenerational dimension by measuring the influence of the father's occupation.

A variable that represents socio-economic scores of occupations (SES) is used to measure labour market outcomes. This allows us to minimize problems associated with high sampling variability in some occupations. To do so we rely on an often used measure of the relative "importance" of an occupation.[5] The scale varies from a low of about 25 to a high of about 62, which is equivalent to a difference of 37 points between the occupations scoring the lowest and the highest.

The data in Panel A of Table 8.6 shows that socio-economic occupational status increases significantly by level of education. The marginal benefits of education seems to rise as the level of education increases (as measured by the

Table 8.5

The Determinants of Document Literacy Scores: Least Squares Regression Results by Age

	Total Population	26 to 35 Years	46 to 55 Years
Reference Category	247.2*	308.5*	260.2*
Gender (Women)			
Men	4.8**	-7.0	18.0*
Age (36 to 45 Years)			
16-25	12.2*		
26-35	12.8*		
46-55	7.1**		
56 +	-19.4*		
Parental Education (Secondary Completed)			
Secondary Not Completed	-28.9*	-27.2*	-20.8*
Post-Secondary	2.3	2.5	-28.3*
Father's Occupation (Skilled Agricultural)			
Armed Forces	67.1*	104.1*	-15.3
Managers	44.2*	19.8**	25.2**
Professionals	50.6*	38.0*	47.6*
Technicians	43.6*	11.8	31.7***
Clerks	41.6*	25.2**	46.7**
Service Workers	24.8*	1.1	3.5
Craft Workers	23.4*	-13.1	2.3
Plant and Machine Operators	25.3*	-9.4	8.2
Elementary Occupations	4.3	-23.7**	-3.3
Never Worked	22.3	15.1	0.0
Don't Know	-16.5*	-52.2*	-63.3*
Not Stated	30.0**	-35.72	-6.62
Mother Ever worked	27.8*	11.3**	13.1**
Rural	4.7**	-3.4	-0.3
Region of Birth (Ontario)			
Abroad	-26.9*	-33.9*	4.7
Atlantic	-10.4*	-13.9***	-8.3
Quebec	-12.1*	-12.6**	-11.9
West	1.8	-9.9	13.9
Adjusted R^2	0.266	0.196	0.138
F statistics	68.3	11.7	5.51
Number of Observations	4,650	924	566

Note: The reference categories are indicated by the parentheses ( ). For the results in the first column the reference category is women, 36 to 45 years of age, whose parent with the higher level of education had completed secondary school, whose father was a skilled agricultural worker, whose mother did not work, living in an urban area, and born in Ontario. The reference case for the results in the remaining columns is women, whose parent with the higher level of education had completed secondary school, whose father was a skilled agricultural worker, whose mother did not work, living in an urban area, and born in Ontario.

* significant at 99% level.
** significant at 95% level.
*** significant at 90% level.

Table 8.6
Socio-Economic Occupational Score

	26 to 35 Years	46 to 55 Years	All Ages
		(Socio-Economic Score)	
A. Education Level			
Secondary Not Completed	34.1	33.9	33.0
Secondary	38.5	42.0	37.8
Post-Secondary, Non-University	43.5	49.8	42.2
University	51.5	50.6	49.1
Total	40.8	41.6	38.6
B. Document Literacy Level			
Level 1	33.3	34.8	32.4
Level 2	37.5	38.7	36.8
Level 3	40.7	42.0	40.6
Level 4/5	47.5	51.8	45.0
Total	40.8	41.6	38.6

Note: The socio-economic occupational score is taken from Blishen et al. (1987) and is based on the level of education, income, and ratio of women in the occupation as defined in the 1981 Census.

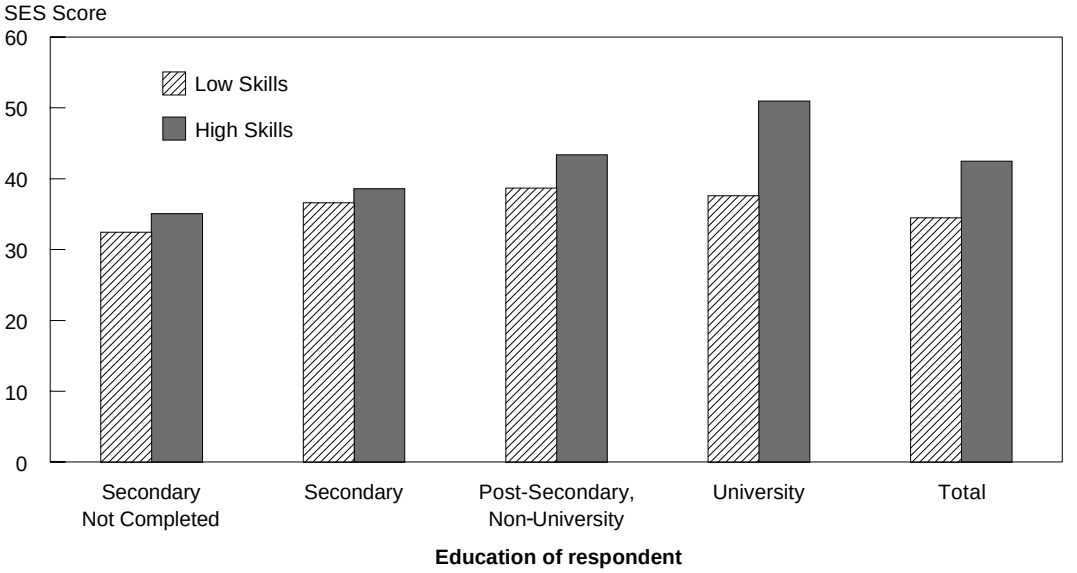
average socio-economic occupational score). Individuals with a high school diploma gain about five points over those who did not complete high school. In comparison, individuals with a university degree have a seven point edge over those with a non-university education. At all levels of education, except the university level, the older cohort has an edge over the younger cohort in terms of socio-economic occupational status. The likely explanation for this is that the older generation draws its advantage from accumulated experience, thus allowing them to benefit from promotions. As expected, the higher the level of education, the higher the difference in the advantage of the older cohort in terms of the socio-economic occupational status attained. The exception to this rule is the group of people having acquired a university degree. At the university level the older generation is on a par with the younger cohort. If the highly educated young people cannot claim the seniority or experience to rise to top management jobs, their presence is well noted among the professionals and highly skilled technicians.

Panel B of the table provides a similar picture, describing the relationship between socio-economic occupational status and the level achieved in document literacy. For both cohorts, the largest occupational gains are obtained when the workers are at the highest level of literacy. High levels of education as well as high levels of literacy are well rewarded in the labour market, and there does not seem to be any substantial difference over time, other than what can be explained by the experience acquired with age or seniority.

As a result the following question is raised: do literacy skills enhance further occupational opportunities above and beyond their impact through educational attainment? Figure 8.2 leaves no doubt about the answer. As expected socio-economic occupational status increases with the level of educational attainment, but this is further compounded by increasing literacy skills. The difference in socio-economic scores between low and high literacy skills also increases as the level of educational attainment increases. Hence, literacy skills play an important role in the determination of labour market outcomes.

Does the labour market experience of parents affect the intellectual capital passed on to their children? To address this issue we examine whether (at a given level of paternal education) the occupation of the father explains the educational attainment of children. In other words, fathers with a low education may have had good opportunities in the labour market and risen to occupations with a fairly high occupational status score. Would this situation be reflected in somewhat higher educational attainment of their children and does this contrast with the educational outcomes of children whose fathers had the same level of education and a job in an occupation with a lower socio-economic score?

Figure 8.2
Socio-Economic Occupational Score by Level of Educational Attainment and Document Literacy Skill Level of Respondent



In Table 8.7 the average socio-economic occupational status scores of fathers are cross-classified by paternal education and child education. If the father's occupation at a given level of education makes a difference to child education outcomes, then we would expect that on average the father's socio-economic status score (at any given level of education) to be higher as the child's level of education increases. This is actually the case. Respondents achieve higher educational outcomes concomitant with higher paternal socio-economic occupational scores at any level of paternal education. At each level of paternal education the gap in the socio-economic score between child outcomes at secondary not completed and university has a magnitude of about six points, approximately one-sixth of the full scale of scores.[6]

These results show that the labour market experience of parents (as measured by the occupational status) has an influence on the children's educational attainment. Fathers with low levels of education who have managed to rise to high status occupations are better able to offer their children an environment where they could achieve higher levels of education. On the other hand, fathers who, despite their high level of educational attainment, are in low status occupations (for their level of education) are more likely to have children with relatively lower education.

5. Education Support Strategies

How do these patterns come about? Do parents with higher education demonstrate strategies that are known to positively influence success in school? We hypothesize that the transmission of intellectual capital within the family is reflected in educational investment strategies that may materialize in different ways. The IALS identifies those individuals having children between 6 and 18 years, and offers a number of variables that can be related to parenting strategies. We attempt to uncover a relationship between parental education and some proxies that may reflect the ability of parents to further their child's education.

We use a series of logistic regressions that relate a specific activity to parental education and a number of additional factors for which it seems relevant to control. The sample is restricted to parents who say that they have at least one child between 6 to 18 years presently living with them (the sample size is 1,161). Five educational activities or characteristics of the children's early experience are examined: [1] whether parents buy the books their children read; [2] whether the children are limited by parents in the amount of time they are allowed to watch television; [3] whether the children have a certain amount of time set aside each day for reading at home;

Table 8.7

Socio-Economic Occupational Score of the Father, by Education Levels of Father and Child

Father's Education	Child's Educational Attainment				
	Secondary Not Completed	Secondary	Non-University Post-Secondary	University	Total
			(SES Score)		
Secondary Not Completed	33.3	36.4	35.3	39.3	35.2
Secondary	38.1	39.8	43.3	44.5	41.5
Post-Secondary	43.6	47.6	46.8	49.8	47.9
Total	34.4	38.5	39.7	44.4	38.2

Table 8.8

The Probability of Using Parenting Strategies Important for Child Education Outcomes

	Parents Buy Books	Child Read Before Grade One	Limit TV to Children	Time Set Aside to Read	Child Failed at School
Parent's Age					
16 to 25 Years	85.0	38.6	89.3***	68.2	n.a.
26 to 35 Years	82.2*	50.2	58.1	52.2	1.2**
36 to 45 Years	**68.3**	**51.8**	**54.9**	**47.6**	**3.1**
46 to 55 Years	57.5***	71.2*	50.6	47.9	13.3*
56 and Older	61.9	13.5*	50.9	44.5	25.7*
Parental Education					
Primary	61.8	59.5**	48.0	48.7	4.8
Secondary	**59.5**	**48.1**	**55.8**	**42.9**	**4.1**
Post-Secondary, Non-University	77.7*	53.6	62.3	43.2	1.9
University	92.5*	53.5	59.4	67.7*	1.1**
Family Income					
Bottom Quintile	61.7	44.7	59.3	42.9	9.9**
Second Quintile	87.5*	51.6	56.8	55.9	11.4*
Third Quintile	**72.6**	**41.2**	**66.8**	**43.3**	**6.6**
Fourth Quintile	71.8***	71.3***	45.1**	54.1	0.2
Top Quintile	64.0	49.6	53.7	48.4	3.8**
Child's Current Education Level					
Primary	79.3*	55.3*	64.1*	56.3*	3.6**
Secondary	**57.2**	**48.8**	**39.4**	**36.7**	**1.9**
Location					
Rural	84.5*	44.0*	64.2**	47.3	1.8***
Urban	**68.7**	**55.5**	**53.4**	**50.0**	**3.3**

Note: Table entries are estimated probabilities from a logistic model. The detailed estimation results are available from the authors upon request.

* significantly different from reference group (in bold) at 99%.

** significantly different from reference group at 95%.

*** significantly different from the reference group at 90%.

n.a.: Because of the manner in which the dependent variable is created, the 16 to 25 year age group is not relevant, and has been omitted from the regression.

[4] whether the children learned to read before grade one; [5] whether the children failed at school (cumulated at least two years behind the normal grade for their age). We control for the age group of the parents, their level of education, the family income (classified by quintiles), whether the child was in elementary or secondary school, and whether the family lived in an urban or rural setting.

Table 8.8 provides the probabilities derived from the regressions. (The detailed results are available upon request.) Higher education implies that parents are more likely to buy books for children to read. The likelihood that a child fails a grade is also substantially reduced when parents have higher levels of education. As for time set aside to read, it seems that only university educated parents pay a lot more attention than all others. At the same time it is interesting to note that more attention is paid to reading time when the child is in primary school, the formative years for learning to read. There does not seem to be a clear strategy towards limiting TV watching time, but one may assume that this time may be limited *de facto* by the time consumed in other activities such as reading, without any need for parental intervention. Parental intervention is more frequent with younger children, those enrolled in primary school. Learning to read before grade 1 is not associated with an attitude specific to parents of a certain level of education: about one child of every two start learning to read before entering grade 1, whatever the parents' educational attainment. One may see in this an effect of the extension of pre-school experience that cuts across the educational background of parents.

In summary, parental support of children's education is a reproduction of their own educational background. One limitation of this analysis is that we are unable to analyse the final educational outcome of those strategies, that is the children's educational attainment. The only firm conclusion from our analysis is that parents with higher levels of education tend to set their children on a successful path.

6. Conclusion

In this chapter we examine some intergenerational aspects of the transmission of intellectual capital. Our point of departure is that inherited intellectual capital likely plays a significant role in the ability of children to match or improve upon their parents' educational attainment. Our main conclusions are the following. [1] There is substantial upward educational mobility; about half of the children in our sample attain higher levels of education than their parents. [2] The rate of upward educational mobility is "naturally" declining as more people move to the highest level of education, thus reducing the number of children that can outstrip their parents' level of education. [3] Inherited intellectual capital makes a lot of difference given that it is much more difficult for children whose parents have not completed high school to attain college or university level than it is for children whose parents have obtained a university degree. However, there seems to be evidence that the expansion of the college system has provided opportunities for some to reach post-secondary education. [4] The relative gap between children whose parents are at both extremes of the educational attainment spectrum does not seem to close as time goes by. There are even signs that the polarization of educational opportunities is on the rise. [5] Literacy skills largely reflect educational attainment. However, at given levels of education, literacy scores show wide variations. These widen as age increases, indicating a possible loss of literacy skills when such skills are not regularly put to use. [6] In addition to educational attainment, literacy is a significant predictor of one's participation in adult education and training. [7] Besides education, experience gained at working in some occupations may be an important addition in the transmission of intellectual capital. [8] Literacy skills also enhance one's ability to move up the occupational ladder. [9] Parents' educational investment strategies reflect their own educational background and the need to perpetuate their knowledge and education to their children. Parents with high levels of education adopt more often strategies to set their children on a success path than parents with less education.

Undoubtedly, the family is an essential locus for the transmission of intellectual capital. The family can bring hope to some or it can perpetuate intergenerational inequities. Is the education system up to the challenge of providing education opportunities that so many need? Is the education system able to provide equal opportunities to all? A wide range of government policies touch on issues related to the importance of human capital for the development of our society and the success of our economy: education and labour market-related information and counselling, accessibility to higher education, income support for further education and training, adequate child care facilities, economic and

employment security. Are these policies set in place to cater to the needs of those whose horizon might be limited by virtue of birth? Recently, a Canadian university advertised on a commercial billboard using those words: “Not everyone inherits the family business. No one’s about to hand you your future.” In fact, it seems that the future of many Canadians is, to a large part, in the hands of their parents.

Notes

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[1] This implies that 17.1% of male respondents and 14.5% of female respondents are not included in the analysis. There was no attempt to impute missing data, nor to reweight after exclusion of observations with missing information. An appendix available upon request examines the distribution of respondents not knowing their parents education and not stating their own or their parents’ level of education in more detail.

[2] This involves excluding a total of 303 individuals (or 5.3 % of the sample). Of these, 295 individuals are between the ages of 16 to 25, five are between 26 and 35 years (3.5%), and three are 36 to 45 years (0.5%).

[3] The original data in the survey classify educational attainment in seven or eight categories. We have used these categories to determine the number of “educationally mobile,” but we have aggregated the results in three categories of parents’ education to produce the estimates.

[4] The rising proportion of people obtaining post-secondary credentials is borne out by the following figures:

	Parents of Older Cohort	Parents of Younger Cohort	Older Cohort	Younger Cohort
Proportion with Community College	9.1	11.9	15.2	22.9
Proportion with University	5.9	14.4	15.7	16.1

These numbers relate to proportions, but given that there was a large increase in the population over the last decades, they imply that a considerable number of people went into post-secondary institutions and completed their degrees. The increase in the proportion of parents in the two cohorts with a post-secondary education is sufficient to explain the reduction in the potential for upward mobility between the two cohorts.

[5] The calculation of the socio-economic scores is taken from Blishen et al. (1987). In this work based on the 1981 Census, socio-economic scores are computed for each occupation on the basis of three variables: the level of education, the income, and the ratio of women in the occupation. We adopted the scores given by Blishen et al. to the 4-digit occupations in the Canadian Classification and Dictionary of Occupations (CCDO). We transposed the classification into the Standard Occupational Classification 1980 (SOC) and weighted the scores with the labour force by SOC 1980 occupations in the 1991 Census of Population to arrive at socio-economic scores for the 2-digit level of occupations (21 occupations). This gave us the following scores: Managerial, Administrative 56.78; Natural Science 61.78; Social Science 56.30; Religion 50.48; Teaching 61.61; Medicine 55.65; Artistic 43.62; Clerical 37.97; Sales 36.55; Service 29.35; Farming 27.16; Fishing 25.22; Forestry 30.04; Mining 42.08; Processing 34.25; Machining 41.17; Fabricating 37.94; Construction 37.75; Transportation 36.56; Materials Handling 31.25; Other Crafts 43.04; and, Not Stated 29.94. We use a more detailed classification of occupations than previously to produce a richer scale of the occupations, free from the constraints of regression analysis.

[6] Unfortunately, the sample size is too small to permit a replication of this table for the two cohorts separately. Therefore we cannot determine if the magnitude of the influence of father’s occupation has changed over time. However, the regression results presented in the previous two sections have led us to think that this influence has decreased between the two generations.

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Chapter 9

Health Care Utilization During the First Year of Life: The Impact of Social and Economic Background

Tamara Knighton, Christian Houle, Jean-Marie Berthelot and Cam Mustard

Socio-economic status—as measured by income, education and occupation—is a complex phenomenon used to describe social inequities. It is well known that people in lower socio-economic categories experience higher mortality rates and poorer health than those further up the social ladder. In addition, differences in health by socio-economic status are most pronounced in early and late mid- life.[1] However, it is not clearly understood why this is so. Selection effects, individual adult life experiences, or early childhood experiences may all play a role (House et al. 1990; Hertzman 1993). But one important impediment to understanding these patterns has to do with the fact that socio-economic status may be both the cause and the result of ill health: for example, low-income may lead to a life of poor health, or poor health may predispose people to a life of low-income. Furthermore, many measures of socio-economic status are ecologically based, that is to say they measure the status of the area in which individuals resides, not the individuals' actual socio-economic status.

In the case of infants, however, the causal relationship is more straightforward: socio-economic status influences health, but ill-health is less likely to reduce family income or alter parental education. Yet the literature has been largely focused on the adult population. An understanding of differences in health utilization during infancy by socio-economic status may, therefore, contribute to a better understanding of the health outcomes or behaviours associated with socio-economic environment. It may also provide insight into the relationship between early childhood experiences and health outcomes in later life.

Parental income, education, and occupation have been shown to influence childhood health. In particular, low socio-economic status is related to low birth weight, higher mortality, and higher incidence of various morbidities and behavioural problems.[2] The focus of the literature has typically been on the influence of socio-economic status on various diseases rather than on overall health use. In part this is due to the fact that differences in the use of health services across socio-economic groups may reflect differences in health status, but also differences in behaviour with respect to the health delivery system.

For example, some studies have shown that higher use of preventive care is related to higher socio-economic status (Newacheck et al. 1995; Pill, Peters and Robling 1995; Newacheck and Halfton 1988). Clinical practice standards in infant health emphasize not just the treatment of symptoms and illness during early childhood, but also "well" baby care (meaning the immunization and monitoring of infant development for the onset of congenital and developmental deficits). It has been established that appropriate preventive health care during infancy improves the short and long-term health of the child (Redman et al. 1992). The implication is that inadequate preventive care during infancy could set in motion processes detrimental to health, processes that cannot be reversed even if the initial cause is subsequently addressed (Williams 1990). In this sense the relationship between higher socio-economic status and health is not direct, but related to how the health care system is used and delivered.

To the best of our knowledge there have been no Canadian studies providing a comprehensive overview of socio-economic disparities in health care utilization during infancy, encompassing both hospital and ambulatory care as well as preventive and treatment-oriented care. In this chapter we describe an analysis that is intended to fill this void. Our work is based upon a unique data set that provides an opportunity to examine the effects of parental socio-economic status on infant health use during the first year of life. We are able to link socio-economic information on individuals from the 1986 Canadian Census

with comprehensive hospital and medical care utilization data for the province of Manitoba. Our analysis has two objectives: [1] to examine socio-economic differences in health care utilization during the first year of life; and [2] to examine socio-economic differences in the use of preventive and curative health care.

We find that parental socio-economic status has an impact on infant use of health services during the first year of life, but parental education seems to exert a stronger influence than income. Infants born to parents whose education levels place them in the bottom 25% of the population tend to be more likely to use treatment care services and less likely to use preventive care services, than infants whose parents had more education. This education effect underlines the importance of behavioural factors—in addition to material resources—in explaining health inequalities during the first year of life.

1. Methods

The data base associated with the "Linked Census—Manitoba Health Services Insurance Plan Project" is the source of our information. This data base was created through a collaborative effort between the Government of Manitoba, the University of Manitoba, and Statistics Canada to assess the analytical benefits of linking administrative health care records with the 1986 Census data. As a part of this project individual socio-economic status information (household income, and educational attainment) from the Canadian Census conducted in June of 1986 is linked with data from the Manitoba Health Services Insurance Plan longitudinal files. The linked data consists of hospital discharge records and physician services claims covering the seven fiscal years between 1983 and 1989, and 1986 information for those completing the more detailed Census questionnaire (the 2B Form). The information on hospital separation records includes: type of visit; primary and subsequent diagnoses codes; clinical procedure codes; and date of admission and separation. Additionally, newborn separation records contain information on birth weight and gestation period, while physician services claims contain information relating to a billable physician service such as diagnostic code, tariff code, net fee charged for service, and date for service. All health records contain a unique personal identification number that permit the linkage of hospital records and medical encounters to produce comprehensive individual histories of health care utilization.

The linked data are based on a stratified random sample of 47,935 individuals in 16,627 private or collective dwellings representing the Manitoba population as of Census day June 3, 1986. Details of the sampling methodology, linkage, and quality evaluation are provided in Houle et al. (1996) and David et al. (1993). Our analysis is based on a study sample of infants born between June 4, 1986 and March 31, 1989 to women in the sample living in private household dwellings. However, infants who migrated out of the province during their first year of life are excluded, and birth event results are reported only for infants who are born in and discharged from the hospital. The sample is made up of 1,882 infants. A Manitoba administrative file identifying babies born to women in the sample was used to obtain these individuals. Each infant had a unique personal health information number that was used to obtain health services data. Health services records are obtained for a one year period from the date of birth, representing 2,660 hospital discharge records and 27,200 ambulatory (non-hospital) physician services claims.

Two measures of socio-economic status derived from 1986 Census data are used: household income and maternal education. **Household income** refers to the total income received by all persons 15 years of age and over in the household during the calendar year 1985 from wages and salaries, self-employment income (non-farm and farm), government transfer payments, investment income, and other income. The value was adjusted for household size. **Maternal education** is based on the number of years of schooling and was derived using the highest grade (1 to 13) of secondary school completed, the number of years at university or other post secondary institutions, and the degrees, certificates or diploma obtained. Years of schooling ranged from zero (representing no schooling) to 19 (representing a PhD).

Three additional risk factors are included in the analysis: short gestation period, low birth weight, and maternal age. Gestation period and birth weight are provided on the hospital birth record; short gestation period is defined as a gestation period of less than 37 weeks; and low birth weight is defined as a birth weight less than 2,500 grams. Maternal age is obtained from the census file and is treated as a continuous variable in the analysis.

We examine three types of health utilization: hospital admissions, ambulatory treatment care visits, and ambulatory preventive care visits.

Hospital admissions include admissions of at least one day in length, and are all considered to be treatment oriented. Hospital transfers are associated with the initial hospital admission and treated as one visit, and visits of 60 days or more are capped at 60 days. **Ambulatory treatment care visits** pertain to care received for the management of an acute or chronic disease or condition. High frequency treatment care is identified using the top 25% of visits based on a weighted frequency distribution. This amounts to 10 or more visits during the year. Finally, **ambulatory preventive care visits** is defined as any type of care received whose primary purpose is to prevent disease or promote health. The following—based upon information provided by physicians—are considered as preventive contacts: health supervision of an infant or child; general medical examination; and immunization and vaccination. High frequency preventive care is based on the top 25% of visits. Using a weighted frequency distribution this turns out to be five or more visits during the year. (The analysis uses weighted data from a complex design sample to represent infants born in Manitoba on Census day in 1986.)

Hospital costs are derived by multiplying per diem hospital charges by the length of stay. Hospital per diem charges (fiscal year 1991-92) are obtained from the Population Health Information System at the Manitoba Centre for Health Policy and Evaluation. Ambulatory care costs are constructed using the associated fee provided by Manitoba Health Services Insurance Plan for the service rendered by the physician. Laboratory tests and imaging tests are included in the calculation of ambulatory care costs. All costs are measured in 1986 dollars defined using the health care component of the Consumer Price Index.

2. Results

We present results for four types of utilization: [1] hospital contacts resulting from the birth event; [2] hospital contacts during the first year of life excluding the birth event; [3] treatment oriented ambulatory medical care contacts; and [4] preventive oriented ambulatory medical care contacts.

The Birth Event

A significant negative relationship exists between both income and education, and short gestation period. For example, infants with short gestation are twice as likely to be born to parents in the lowest education quartile than in the highest education quartile (see Table 9.1). A similar relationship exists with respect to low birth weight: higher education or higher income are associated with lower chances of low weight births.

The average length of hospital stay for the birth event was slightly higher for those in the lower income and education quartiles, but the difference in the means between the highest and lowest quartile does not appear, according to a t-test, to be statistically significant.

Overall 41.6% of newborn births had diagnoses associated with the fetal period or the birth event. Perinatal morbidity accounts for the majority of the reported diagnoses (87.6%) followed by congenital anomalies (10.7%).[3] There are no significant differences across education and income categories in the percentage of infants with any morbidity. (Roughly 40% of births in all income and education quartiles experience any morbidity.)

Hospital Use Duing the First Year of Life

The use of hospital resources is a function of the admission rate, and the average length of stay. Both of these factors are negatively associated with socio-economic status. Socio-economic status differences in hospital admission rates are most pronounced in the lowest quartile relative to the other quartiles (Table 9.2, Panel A).[4] Hospital admission rates are approximately twice as high for those in the lowest income or education quartile compared to those in the highest quartile. Infants in the lowest socio-economic status quartile are also more likely to have a higher frequency of hospital visits. This difference is most pronounced for education, with the rate of infants experiencing two or more hospital visits in the lowest quartile being twice the rate of those in the second lowest quartile and four times the rate in the highest two quartiles.

In addition, infants in the lowest socio-economic status groupings spent more days in the hospital during their first year of life. Of infants who visited a hospital, those in the lowest income quartile spent on average 8.5 days in the hospital versus 4.5 days for those in the highest income quartile. Similarly, those in the lowest education quartile spent an average of 9.4 days in the hospital compared to 5.8 days for those in the highest education quartile.[5]

We also conduct a multivariate analysis that simultaneously controls for the impact of income,

Table 9.1

Household Income, Maternal Education and the Birth Event

	Short Gestation Period (less than 37 weeks)	Low Birth Weight (less than 2,500 grams)	Average Hospital Stay
		(per 1,000 Births)	(Days)
A. Household Income Quartile			
Lowest	69	59	4.9
Second	66	52	4.8
Third	43	26	4.4
Top	42	21	4.5
B. Maternal Education Quartile			
Lowest	78	63	4.6
Second	60	49	5.1
Third	47	29	4.6
Top	36	38	4.4

Table 9.2

Hospital Admissions, and Ambulatory Care During the First Year of Life by Socio-Economic Status

	Bottom Quartile	Second Quartile	Third Quartile	Top Quartile
		(per 100 Infants)		
A. Hospital Admissions				
Income				
At least One Visit	**19.8***	**15.4***	**13.7***	**11.2***
Two or More Visits	5.3*	5.4*	4.1*	0.9*
Education				
At least One Visit	**24.9***	**12.8***	**11.2***	**11.5***
Two or More Visits	**8.0***	**3.7***	**2.0***	**2.2***
B. Ambulatory Treatment Utilization				
Income				
At least One Contact	96.0	95.8	95.8	93.9
High Frequency Contact[1]	29.1	27.9	23.1	21.6
Education				
At least One Contact	93.2	96.8	96.1	95.7
High Frequency Contact[1]	28.4*	26.4*	26.2*	21.2*
C. Ambulatory Preventive Care Utilization				
Income				
At least One Contact	**89.2***	**93.2***	**94.2***	**96.9***
High Frequency Contact[2]	**21.6**	**27.4**	**25.4**	**32.1**
Education				
At least One Contact	**86.7***	**94.5***	**97.2***	**94.8***
High Frequency Contact[2]	**18.9***	**27.9***	**28.1***	**30.9***

[1] Ten or more visits
[2] Five or more visits
* Indicates that row elements are significantly different from each other at 0.10 level of significance.
Shaded indicates that row elements are significantly different from each other at 0.05 level of significance.
Bold indicates that row elements are significantly different from each other at 0.01 level of significance.
Bold* indicates that row elements are significantly different from each other at 0.001 level of significance.

Table 9.3

Hospital Admissions and Ambulatory Care by Socio-Economic Status: Logistic Regression Estimates of the Odds Ratios

	Hospital Admissions		High Frequency Ambulatory Treatment Care		High Frequency Ambulatory Preventive Care	
	Odds Ratio	Marginal Significance Level	Odds Ratio	Marginal Significance Level	Odds Ratio	Marginal Significance Level
A. Undadjusted Model						
Bottom Income Quartile	1.99	0.0002	1.50	0.007	0.59	0.003
Second Income Quartile	1.45	0.06	1.40	0.03	0.82	0.15
Third Income Quartile	1.26	0.25	1.09	0.58	0.73	0.02
Bottom Education Quartile	2.59	0.0001	1.48	0.009	0.54	0.0001
Second Education Quartile	1.13	0.54	1.33	0.06	0.88	0.38
Third Education Quartile	0.96	0.85	1.32	0.07	0.89	0.41
B. Adjusted Model						
Bottom Income Quartile	1.34	0.15	1.36	0.05	0.69	0.02
Second Income Quartile	1.12	0.58	1.29	0.11	0.89	0.42
Third Income Quartile	1.12	0.58	1.06	0.71	0.76	0.06
Bottom Education Quartile	1.95	0.0006	1.27	0.16	0.59	0.001
Second Education Quartile	0.98	0.92	1.23	0.19	0.93	0.63
Third Education Quartile	0.87	0.52	1.28	0.12	0.91	0.53
Low Birth Weight	2.95	0.0001	2.45	0.0001	0.87	0.59
Maternal Age	0.96	0.007	0.99	0.71	1.00	0.98

Note: Unadjusted Model refers to separate models in which only income, or only education are used.
Adjusted Model refers to a model in which income and education appear simultaneously, as well as low birth weight and maternal age.

education, low birth weight, and maternal age on the probability of one or more hospital admissions during the first year of life. This involves the use of logistic regression. Two alternative models are estimated: in the first, income and education are examined independently of other factors (labelled the Unadjusted Model in Table 9.3); in the second, these other factors are simultaneously controlled for (the Adjusted Model in Table 9.3).[6] When examined independently, income and education are positively associated with the probability of having one or more hospital visits during the first year of life, but the impact of education is more notable. Children in the lowest household income and maternal education quartiles have the highest probabilities of hospital admission. For example, those born to parents in the bottom income quartile are 1.99 times as likely to experience one or more admissions than those born to parents in the top 25%, and those born to a mother in the bottom education quartile are 2.59 times more likely to do so than their counterparts in the top quartile. However, when low birth weight, maternal age and the other socio-economic status measure are controlled, education—but not income—remains significantly associated with the risk of one or more hospital admissions, as illustrated in the first and second columns of Table 9.3.

Ambulatory Care Visits

Almost all infants experience a treatment care visit during their first year of life, and there is no significant relationship with socio-economic status (Table 9.2, Panel B). However, a negative relationship does exist between socio-economic status and high frequency of contact. In the case of income, there appears to be a threshold effect between the bottom two quartiles and the top two quartiles. With respect to education, a lower rate is evident in the highest quartile, but similar rates in the remaining quartiles.

Table 9.4
Average Health Care Utilization Costs per Person-Year by Type of Care and Socio-Economic Status (1986 Dollars)

	Hospital Care		Ambulatory Care		Total Costs
	Hospital Costs	Medical Costs	Treatment	Preventive	
	(Costs per Person, 1986 Dollars)				
Household Income Quartile					
Lowest	851	77	267	69	1,264
Second	810	79	258	76	1,223
Third	361	55	222	80	718
Top	231	45	201	87	564
Maternal Education Quartile					
Lowest	1,152	69	254	65	1,540
Second	398	72	244	81	795
Third	391	62	242	84	779
Top	327	55	212	82	676

When considered independently both income and education are significantly related to high frequency ambulatory treatment care. Infants at higher risk of treatment care are those in the lowest two income quartiles and those in the lowest education quartile relative to their counterparts in the highest quartile. However, when all variables are included in a regression model education no longer remains significantly related to high treatment care (Table 9.3).

There is a positive association between ambulatory preventive care contact and socio-economic status. As income increases so does the percentage of infants who have at least one preventive care visit during the first year of life (Table 9.2). In addition, those in the higher income and education groupings have higher rates of high frequency (five or more visits) preventive care. Income and education remain positively associated with ambulatory preventive care when low birth weight and maternal age are controlled for (Table 9.3). Infants in the lowest income quartile had 69% the chances of high frequency preventive contact relative to those in the highest quartile. The difference was larger across education categories with those in the lowest quartile having only 59% the chances of high frequency preventive contact relative to those in the highest quartile.

Health Care Costs

Average health care utilization cost per person-year by socio-economic status and type of care are depicted in Table 9.4. Income levels and the amount of dollars of health care consumed move together, but in opposite ways. The amount of money spent per person-year decreases as household income increases, with more than twice as much money being spent on infants in the lowest income quartile relative to those in the highest quartile. With respect to education, a threshold effect seems to be apparent: those in the lowest education quartile consume more dollars per person-year compared to the other quartiles. The cost difference across quartiles is mainly attributable to differences in hospital costs. With respect to type of care, a negative relationship exists between treatment care costs (both hospital and ambulatory) and income and education. As income and education increase less dollars are spent per person. In contrast, a positive association exists between preventive care costs and socio-economic status, with costs per person-year increasing with higher income and education.

3. Conclusion

In this chapter we add to the literature on the relationship between socio-economic status and health by providing an analysis of the relationship between hospital and ambulatory medical care utilization during the first year of life and individual based measures of income and education. When income and education are examined independently we find that: [1] infants whose parents have a low level of education face a higher risk of hospitalization, and a higher risk of frequent treatment care while using preventive care less frequently; [2] education has a stronger influence than income on the risk of hospitalization and preventive care use. When income, education, maternal age, and low birth weight are simultaneously controlled for, the role played by income in determining hospitalization risk diminishes, while the role played by education in determining the risk of high frequency treatment care diminishes. Our analysis suggests that these measures are capturing different dimensions of the socio-economic environment. It is likely that income and education reflect different ways in which social factors may influence health and health behaviour.

Various explanations for the relationship between socio-economic status and health have been put forth (Adler et al.1994; Marmot et al.1987). One possibility is a so-called "selection hypothesis" in which the direction of causality runs from health status to socio-economic position (Mackenbach et al. 1994). This hypothesis is not supported by our research since we examine the health of infants and obtain socio-economic information before their birth. Consequently the observed relationships between income and education on the one hand, and health care utilization on the other hand can be considered causal with the direction of causality running from socio-economic status to health care, and not in the opposite direction.

Another explanation has to do with the possibility that socio-economic status influences biological functions that in turn influence health status. According to Adler et al. (1994) little is known about how this hypothesis operates since components of socio-economic status—income, education, and occupation—are enmeshed in key aspects of life. For example, they describe four life domains: [1] one's physical environment and associated exposures to pathogens, carcinogens, and other environmental hazards; [2] the social environment including the degree of access to social resources and support; [3] socialization and experiences; and [4] health behaviour. Within these domains many specific variables may contribute to the relationship between socio-economic status and health.

The use of both income and education in our work is helpful to an understanding of the relationship between health care use during the first year of life and socio-economic status. Several researchers have grouped the underlying risk factors associated with health differences into two categories: material risk factors and behavioural risk factors. Material risk factors include the financial resources needed to purchase goods and services necessary (adequate housing and living conditions) to achieve and maintain good health (Mackenbach et al. 1994; Feinstein 1993). Behavioural risk factors reflect one's social environment. They are defined by Feinstein (1993: p. 307) as individual characteristics that do not necessarily require a greater expenditure of financial resources or that cannot be purchased directly with money, yet which are important in achieving a healthy state. There is no consensus on the relative importance of behavioural versus material explanations of health inequalities. However, if one considers that income represents a proxy for material risk factors while education represents a proxy for behavioural risk factors, behavioural risk factors appear to have a predominant influence in our data.

Knowledge about the way in which income and education exert their influence would facilitate the development of appropriate interventions for specific sub-populations (Gazmararian et al. 1996). Education may operate through individual behavioural patterns associated with both adverse outcomes and education. For example, our analysis is unable to control for maternal smoking, a factor known to increase the risk of low birth weight and respiratory ailments during infancy (Bell and Lumley 1992; Redman et al. 1992; Lumley et al.1985; Morrison et al. 1989).

The influence of education could also operate through health-enhancing behaviour. Others have also found a relationship between education and preventive care. Redman et al. (1992) examine the relationship between six infant-associated preventive health practices and familial demographic variables, and find that women who did not undertake preventive health practices are more likely to be less educated. Since we observe a threshold effect, a profile of behavioural factors—both health-damaging and health-enhancing—between infants in the lowest education quartile and infants in the other

quartiles may provide additional insight into the underlying mechanisms of education's effect.

Other studies that focus on the relationship between income and health utilization have obtained results similar to ours: poor children tend to use preventive care services less often and have higher rates of hospitalization and emergency care use (Navarro-Rubio et al. 1995; Williams et al. 1995; Egbuono and Starfield 1982; Kleinman et al. 1981). Most studies are conducted in the context of a private medical care system, but at least one other study in addition to ours examines socio-economic status and preventive health care use under a national health care system. Using survey data for Spain, Navarro-Rubio et al. (1995) find a positive relationship between preventive health care use by children and the socio-economic status of their families. The authors find a strong relationship linking both education and income to preventive care. That is, although socio-economic effects are most pronounced at the lowest levels, they persist at all levels. We observe such a relationship only for income. The presence of an income gradient suggests that insurance coverage is not the sole determinant of health status differentials among infants.

Caution is needed when quartiles for income and education are used. It can, for example, be argued that the use of quartiles results in a loss of information. Our finding that differences only exist for infants in the lowest education quartile suggests the possibility that within this quartile there are subsets of infants with extremely high risks for low preventive care services and high treatment care use. A more detailed breakdown would probably provide even greater insight into the observed relationship, but our sample size is limiting in this respect.

Childhood experiences are believed to influence outcomes in later life, but there are no agreed upon mechanisms. Two explanatory models described by Hertzman (1993) suggest that childhood experiences could: [1] operate within a critical period (early in life) during which one is susceptible to discrete events that will have a strong independent effect in later life; [2] operate via a pathways model in which the cumulative effect of life events and ongoing life conditions affect ones health. If one believes in the pathways model, the results from this chapter suggest that socio-economic differences in health care utilization are events that could cumulate.

Finally, our findings dealing with health care costs imply higher health care utilization costs for those in the lowest two income quartiles, and the lowest education quartile. Higher spending among lower socio-economic groups is mainly attributable to hospital costs. Our hospital costing methodology uses standard per-diem costs rather than case-costing. This methodology may overestimate hospital costs for infants with longer lengths of stay, a pattern that occurs more often in the lower quartiles. In addition we examine the reason for hospital stays, and these may be associated with relatively higher or lower costs. However we use hospital specific, rather than a global, per diem cost. Our findings indicate that the relative costs by quartile translate into significant differences in costs expenditure. On the other hand, the high use of preventive services in the higher quartiles implies negligible differences in expenditures. If one considers that preventive care mitigates the need for treatment care, equalization of preventive care may be a cost effective medical approach.

There is a possibility of taking this analysis further. For example, a larger sample size would permit a finer breakdown among those in the lowest socio-economic quartile. This group may contain individuals with extremely high risks for high treatment care use and low preventive service use. More detailed analysis could also focus on the distribution of behavioural and material risk factors among the quartiles in order to test the hypothesis that differences in health use during the first year of life are attributable to differential distributions in risk factors across socio-economic groups.

Notes

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[1] For example, see Adler et al. (1994), Mackenbach (1992), House et al. (1990), Marmot et al. (1987) as well as Mustard et al. (1995).

[2] On the relationship with birth weight see Katz et al. 1994, Mustard and Roos 1994, Starfield

1992; with respect to mortality see Lumey and Reijneveld 1995, Singh and Yu 1995, Nordstrom et al. 1993, Nelson, 1992, and Neresian 1988; morbidities are studied by Roberts et al. 1996, Durkin et al. 1994, Victora et al. 1994, Hertzig, 1992, Margolis et al. 1992, and Starfield, 1992; finally Gortmaker et al. 1990 offer evidence relating to behavioural problems.

[3] More details are available from the authors upon request.

[4] It should be noted that our analysis of hospital admissions includes nursing station admissions, which account for approximately 5% of all hospital admissions. Nursing stations are located in remote northern communities and may not provide treatment to children in the same way as a hospital. However, we did perform the analysis excluding nursing stations, and the results did not change.

[5] These differences are statistically significant. More details are available from the authors.

[6] We also conducted the analysis using continuous measures of income and education rather than the discrete levels reported in Table 9.3. The results are the same, and are available upon request.

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Chapter 10

Eternal Youth? Changes in the Living Arrangements of Young People

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To some important degree young people establish their living arrangements in response to the constraints and opportunities created for them by previous generations. In fact, the very definition of what it means to be a youth is at the core of this intergenerational relationship since it determines the appropriate way for people to live when they are of a particular age. The nature of the family, the structure of the school system, and the opportunities for work are the central institutions determining the transition to adulthood, and the associated "living arrangements." For example, to Galland (1985, 1993), youth is a process of social establishment, through which people move from the dependency of childhood to various forms of autonomy in adulthood: it involves moving away from the family of origin and forming a couple, after having concluded the preparatory stage of schooling and acquired a relatively independent means of subsistence. In Canada, this is no longer an orderly sequence of events. The stages last longer, and they collide with one another: previously incompatible statuses now coincide, previously irreversible changes are now reversible. Our objective in this chapter is to document these changes.

Many North American researchers have focused on one key aspect of the transition from youth to adulthood, the changing propensity of unmarried young adults to leave home (Boyd and Pryor 1989, Boyd and Norris 1994). Goldscheider and Goldscheider (1994), however, decompose this single event into three broad avenues: family formation (marriage, or the formation of a non-traditional family via cohabitation and single parenthood), semi-independence (either to attend school, or to enter military service), and non-marital independence (either to take a job, or simply to live independently). This approach is closer to Galland, and we adopt it in this chapter to study changes in the living arrangements of young men and women.

We define "living arrangements" along three major dimensions. First, **relations of cohabitation**, reflecting with whom young people share their daily lives. This sharing may involve living with parents, living as an independent couple, living alone or in a household with non-relatives, in a single parent household, or in a non-conventional familial household. Second, **relations to schooling**, which may require more or less of young people's available time: full or part-time schooling, or non-involvement in it. And finally, **relations to paid work**, with various levels and forms of involvement: out of the labour force, unemployed for a short or a long period, employed part-time or full-time. We offer a descriptive overview of the changes taking place in the living arrangements among various cohorts of young Canadians during the 1980s, focusing on three broad patterns: [1] deferral, where access to autonomous living arrangements is gained later in life; [2] destandardization, where various hybrid transition states become more prevalent; and [3] the attenuation of differences between men and women.

The next section of the chapter discusses these patterns in more detail, and is followed in Section 2 by an overview of our data and methodology. The major results are presented in Section 3. In particular, we find that the 1980s were a period of rapid change in the living arrangements of young Canadians. A significant proportion have deferred forming couples and have continued to live with their parents for a longer period. To cite one example, in 1981 about 26% of 23 to 24 year olds lived with their parents, but in 1990, 40% did so. In addtion, the young are now staying in school longer, but still experiencing difficulty getting a foothold in the labour market. Even those who have left school, found a job and living independently are still not "established" workers. Finally, we also find that relative to their male counterparts young women

are in fact more likely to prolong schooling, leave the parental home, find a job, and form a couple earlier.

1. A Taxonomy: Deferral, Destandardization, and Attenuation

Taking our inspiration mainly from the work of Galland, we explore three main patterns concerning the evolution of the situation of young people during the 1980s in Canada. The first pattern involves the extent to which there is a trend towards deferral: access to adult roles (finishing school, finding a job, leaving home, forming a union) being gained later in life than was the case in an earlier period. Second, as a consequence of this lengthening of the youth period do unusual living arrangements multiply? This destandardization might imply, for example, combining school and work, or living away from the parents' home without forming a union. Third, to what extent is there an attenuation of gender differences? Specifically, what is the trend in the proportion of women living exclusively in a matrimonial/familial relationship, and the proportion lengthening the time spent in schooling?

The pattern of **deferral** in access to adult roles involves all three dimensions of living arrangements—cohabitation, schooling, and work—so that it translates into a number of sub-patterns. (See Table 10.1.) It is possible that young people now leave the parental home later in life (hypothesis 1.1). Their propensity to form couples, either married or common-law, may also decrease, even among those who have left the parental home (hypothesis 1.2). In addition, schooling, both full-time and part-time, may last longer (hypothesis 1.3). Paradoxically, involvement in the labour market may start earlier in life, not later (hypothesis 1.4). But, in conformity with the notion of deferral, this activity will increasingly involve contingent work rather than an employment trajectory that helps launch young people into adult roles and living arrangements (hypothesis 1.5). This may be the case even among young people who have left school and who do hold a job (hypothesis 1.6), and among those who have also left the parental home (hypothesis 1.7).

The latter two patterns could indeed be a part of the **destandardization** of the usual life stages, and the multiplication of "hybrid" living arrangements. First, all forms of cohabitation other than forming a couple may be relatively more frequent among those who have left the parental home: living alone or in a household with non-relatives, in a single parent household, or in a non-conventional familial household (hypothesis 2.1). Second, young people may more frequently be both students and workers, and at later ages (hypothesis 2.2). Finally, there may be a greater proportion of young people who are out of school and still living with their parents: some may be out of a job (hypothesis 2.3), while others may have a job but will not feel they can or should leave the parental home (hypothesis 2.4).

Up to this point, we have given destandardization a strictly descriptive meaning, in reference to hybrid living arrangements: leaving the parental home without forming a couple, assuming the ambiguous status of student/worker, staying with parents for lack of a good job, or even if one has been found. In the last three of these four cases, we may also ask ourselves whether such hybrid combinations attract young people in higher numbers than one would expect simply from independent changes in the distributions of the three underlying dimensions: relations of cohabitation, relations to schooling, and relations to work. If so, then such non-standard living arrangements would appear to spring from genuine cultural preferences on the part of young people, rather than simply from the constraints of the situation. In order to test such hypotheses, the observed proportions in these types of living arrangements will be compared to expected proportions. (The Appendix describes how such expected proportions are estimated.)

The **attenuation** of gender differences (hypothesis 3.1) may develop in part from the decrease in the proportion of females who are exclusively involved in a matrimonial/familial relationship (hypothesis 3.2). We might also expect an attenuation of gender differences among younger age groups: the propensity of women leaving the parental home much earlier than males, decreasing both because economic times are more difficult and because they are more involved in prolonged schooling and in paid work (hypothesis 3.3). Among older age groups, the differences between the genders may actually increase along certain dimensions: women may assert their traditionally higher propensity to leave home and to form couples, while men may stay put, not engaging in independent living arrangements they probably consider too demanding from the points of view of norms or resources (hypothesis 3.4). "Older" men who

leave home will disproportionately live alone or with roommates, outside of any family form (hypothesis 3.5), while "older" women will disproportionately become single parents (hypothesis 3.6). Finally, other forms of familial solidarity will take their share of the increased numbers of both men and women who have left home and not (yet) formed a couple (hypothesis 3.7).

2. Data and Methods

In order to examine these patterns, we use the Survey of Consumer Finances (SCF) as it has a large enough sample to allow a detailed examination of living arrangements, even within specific gender and age groupings. Just as importantly the SCF contains an impressive amount of factual information about all three dimensions of living arrangements. It has also been conducted annually for a reasonably long time period, so that we can detect changes in how young people's living arrangements have evolved.

We use fairly simple statistical methods, such as percentages and coefficients of dissimilarity, since our objective is to highlight changes through time rather than to offer a causal modelling of the underlying processes. Our major methodological challenges concern the appropriate definition of age groupings, the time period over which comparisons are made, and finally the construction of a typology of living arrangements and its reduction to a manageable set of categories.

We attempt to avoid imposing arbitrary limits on the age at which youth starts and ends, especially since we are interested in patterns of deferral over time. We have followed the widely used practice of selecting ages 15 and 34 as boundaries. Indeed, the data reveal that very few young people have left home or school at 15 or 16 years of age. The transition to independence is barely underway at these ages. However, most have left home and school by the age of 30, even though they may not have gained a secure position in the labour market or formed a stable union. The transition to adulthood seems to have been completed by this age.

Since our interest lies in what happens to young people as they age (particularly in the deferral of certain transitions and in the lengthening of stays in non-standard living arrangements) we examine rather narrowly defined age categories. Balancing this need for detail against the necessities of parsimony, seven age groups are defined: 15 to 16 years, those who are still teenagers and must attend school; 17 to 18 years, those who are barely out of this situation; 19 to 20 years, those who have largely attained the age of legal majority; 21 to 22, and 23 to 24 years, those who are in the midst of orienting and establishing themselves; 25 to 29 years, those who are approaching stability; and finally the subgroup ranging from 30 to 34 years, representing the standard for autonomous adult status, to which other age groups can be compared. It makes sense that these groupings are narrower at younger ages, where living arrangements change more rapidly, and broader at older ages, where we can expect the situation to gradually stabilize.[1]

It should be pointed out that changes in the distribution of living arrangements between age groups reflects net displacements, not all movements between categories. We cannot take for granted that young people currently deferring some transitions or living in non-standard arrangements have not experienced more autonomy beforehand, or that young people currently experiencing more autonomy will consolidate their situation. However, since the overwhelming majority of young people do move from dependence to independence between the ages of 15 and 34, it seems reasonable to examine how their living arrangements are distributed, in the net, over various parts of this age range, and how this distribution evolves over time.

The analysis is focused on the 1980s, a time of radical change in terms of the economic circumstances faced by young people. The unemployment rate for those 15 to 24 years of age was about the same in 1981 (13.1%) as in 1990 (12.7%). It seems reasonable to select years where this rate is similar since this variable is directly related to the establishment of living arrangements. This being said, it is obvious that economic conditions have changed dramatically during the period, and this is largely reflected in the distribution of living arrangements. The constraints and opportunities for young people have been profoundly modified, and we want to observe how this generation has reacted. First, there was a dramatic decline in the relative earnings of the young over the decade: about 20% for 17 to 24 year-olds, and 10% for 25 to 29 year-olds (Morissette, Myles, and Picot, 1993). Second, Riddell (1995) argues that relative unemployment increased for less educated young people. Third, the relative cost of shelter

Table 10.1
A Taxonomy of Living Arrangements

Hypotheses and sub-hypotheses	Data Patterns (Ratios of Living Arrangement Types)
1. Defferal	
1.1 Later parental home leaving	(1 to 5) / All
1.2 Later formation of couples, even among home leavers	(6 to 10) / (6 to 7)
1.3 Longer schooling	(1,2,6,11) / All
1.4 Earlier Involvement in the labour market	(2,3,4,8,9,12,13) / All
1.5 Longer period of contingent work	(4,9,13) / (2 to 5, 7 to10, 12 to 14)
1.6 Longer period of contingent work even for those finished schooling and having a job	(4,9,13) / (3,4,8,9,12,13)
1.7 Longer period of contingent work even for those finished schooling, and having a job, and having left home	(9,13) / (8,9,12,13)
2. Destandarization	
2.1 Growing propensity to live outside standard family forms	(11 to 14) / All; (15,16) / All; 17 / All
2.2 Growing proportion of student/workers living with their parents	2 / All
2.3 Growing proportion of inactive people or contingent workers living with their parents	(3,5) / All
2.4 Growing proportion of established workers who are living with their parents	4 / All
3. Attenuation of Gender Differences	
3.1 Attenuation, yet persistence of age-specific gender differences	Coefficients of dissimilarity across all types
3.2 Decreasing proportion of inactive women living in couples	10 / All
3.3 Decreasing propensity of “younger” women leaving their homes earlier than men	(1 to 5) / All
3.4 Increasing propensity of “older” women forming couples earlier than men	(6 to 10) / All
3.5 Increasing propensity of “older” men living alone or with roommates	(11 to 14) /All
3.6 Increasing propensity of “older” men/women becoming single parents	(15, 16) / All
3.7 Increasing propensity of men and women using other types of familial solidarity	17 / All

Note: See text for definitions of living arrangement types used in Column 2.

has increased over the decade (the shelter cost sub-index advanced 11% faster over the decade than the overall Consumer Price Index). Thus, young people in 1990 had greater financial hurdles to overcome in leaving the parental home, forming spousal unions, and establishing independent households. Furthermore, there was an increasing employment-related incentive for them to stay in school longer.

The construction of our living arrangements typology involves cross-classifying the five categories describing relations of cohabitation, the three categories for relations to schooling, and the seven categories for relations to work. The resulting 105 possible types are then reduced to a more manageable set of 17 types (see the Appendix for details). For the most numerous group, those living with their parents, we constructed five categories: [1] those whose only activity is schooling; [2] those whose schooling activities predominate over their paid work; [3] contingent workers, for whom work is the major activity, even though they have not acquired a great deal of seniority in a full-time job, and even though some may still be somewhat involved in schooling; [4] established workers who have relatively long tenure in a full-time job; and finally [5] those who are marginalized with respect to the labour market while at the same time not being involved in schooling.

Among couples, we distinguish five types: [6] cases where schooling predominates; [7] non-student unemployed workers; [8] contingent workers (less than one year tenure in a full-time job); [9] established workers; and [10] inactivity without involvement in schooling. For those living alone or with roommates, small numbers force

Table 10.2
Data Patterns for the Deferral Hypothesis

		Age						
		15 to 16	17 to 18	19 to 20	21 to 22	23 to 24	25 to 29	30 to 34
		Percent						
Living with Parents								
1	1981	98.5	90.6	70.3	47.7	25.8	10.9	4.4
2	1990	99.0	92.4	76.2	55.7	40.2	17.7	6.6
3	Change	0.5	1.8	5.9	8.0	14.4	6.8	2.2
Living in Couples (among those not living with parents)								
4	1981	-	22.3	45.5	54.7	63.9	76.2	81.6
5	1990	-	17.1	31.1	38.6	53.5	67.0	75.5
6	Change	-	-5.2	-14.4	-16.1	-10.4	-9.3	-6.1
Mainly in School								
7	1981	91.6	63.2	31.6	17.4	8.2	3.4	1.8
8	1990	95.5	76.4	44.5	30.6	16.6	5.0	2.8
9	Change	3.9	13.2	12.9	13.2	8.4	1.6	1.0
Involved in the Labour Market								
10	1981	33.4	51.8	57.5	62.8	64.7	67.4	68.9
11	1990	42.4	55.8	57.6	55.8	64.6	70.1	70.4
12	Change	9.0	4.0	0.1	-7.0	-0.1	2.7	1.5
Established Workers								
13	1981	-	5.7	24.3	38.6	44.8	51.0	55.4
14	1990	-	3.5	15.8	29.2	41.4	52.3	54.8
15	Change	-	-2.1	-8.6	-9.4	-3.4	1.3	-0.6
Established Workers (among those finished schooling and holding a job)								
16	1981	-	19.5	43.7	55.3	62.0	69.2	73.9
17	1990	-	18.4	33.0	48.5	56.9	66.3	70.4
18	Change	-	-1.1	-10.7	-6.7	-5.1	-2.9	-3.5
Established Workers (among those finished schooling, holding a job, and having left home)								
19	1981	-	14.7	48.3	55.0	62.7	69.0	73.6
20	1990	-	13.3	30.4	49.8	58.9	67.0	70.1
21	Change	-	-1.4	-17.9	-5.3	-3.8	-2.1	-3.5

Note: - indicates sample variability higher than 25%, in all other cells sample variability is below 16.5%.
Source: Calculations by authors using Statistics Canada, Survey of Consumer Finances.

us to be more parsimonious: we group in type [11] cases where schooling predominates; in [12] contingent workers; in [13] established workers; and in [14] people who are on the margins of the labour market and not involved in schooling. The small number of single-parents only offers the opportunity to distinguish between: [15] those who are engaged in work or study or both; and [16] those who are not. Finally, we have had to keep as a single category [17] the few people who live in other family arrangements. While some of these seventeen types bring together young people who live in quite different situations, they nevertheless are indicative of major aspects of their experience. Table 10.1 summarizes our taxonomy, as well as the data patterns that will be examined to test them; these patterns consist, in most cases, of proportions and ratios involving the 17 types.

3. Results

The detailed distributions of young people, by age groups, into the 17 living arrangement types for 1981 and 1990 are presented in an appendix available from the authors. For most of the analysis we use simpler tables displaying ratios of types of living arrangements.

Table 10.2 organizes the data required for the examination of the deferral sub-hypotheses. Living with parents is almost universal at age 15 and 16, and becomes very rare beyond 30 (lines 1 and 2); at the same time couples are rarely found at 15 and 16, but they are by far the preferred form of cohabitation beyond 30 (lines 4 and 5). Young people keep on living with their parents in increasing proportions at later ages (hypothesis 1.1), and especially around 23 and 24, where the increase in this form of cohabitation

reaches 14% (line 3). Consequently, it is to be expected that couples are formed less often (hypothesis 1.2), especially from ages 19 through 29. But the two phenomena are not mirror images of one another: even among young people no longer living with their parents, the proportion forming couples also declines (line 6 of Table 10.2). In other words, alternative patterns of cohabitation have proliferated, especially from age 20 onwards.

We regroup the types of living arrangements in order to examine the other patterns of deferral: types 1, 2, 6, and 11 all involve a significant amount of schooling (and adding type 15 changes nothing to the pattern we will report); types 2, 3, 4, 8, 9, 12, 13 all involve a significant amount of paid work (and, again, adding type 15 changes nothing to the pattern). As one would expect, schooling activities go down dramatically through the age range (lines 7 and 8 of Table 10.2), while paid work goes up (lines 10 and 11); it must, however, be noted that about a third of the 15 and 16 year olds were already involved in work in 1981, and only slightly more than two thirds beyond age 30.

The changes have been quite dramatic over the decade. Schooling is up in all age groups, and most dramatically from 17 to 24 years (line 9). Working (line 12) has increased both among the youngest (15 through 18 years) and the oldest (25 and up). Young people between the ages of 19 and 24 have not increased their presence in the labour market, however, and there has even been a dramatic decrease among 21 and 22 year olds. As will become clearer below, these mid-range age groups have clearly reoriented their strategies: in increasing numbers, they go to school instead of looking for work, while a significant proportion use the hybrid formula of combining the two activities.

While involvement in the labour market is more widespread in many age groups, getting a firm foothold is increasingly rare for people younger than 25 years. The proportion of established workers (with at least one year tenure in a full-time job) increases with age (lines 13 and 14), although it does not reach much beyond 50% for people in their thirties. But in conformity with hypothesis 1.5, the slope of this increase with age is clearly lower in 1990 than in 1981 (line 15). The same difficulties in getting established in the labour market are also manifest when we consider only the young people who are out of school and have a job (hypothesis 1.6, lines 16 through 18), or even only the subset of the latter who have left the parental home (hypothesis 1.7, lines 19 through 21). Contingent work is thus not only a consequence of more people having to juggle the requirements of schooling and working at the same time: even those who have left school, found a job, and launched themselves into an independent form of cohabitation find it increasingly difficult to become established workers.

The results in Table 10.3 address the destandardization hypotheses. Living alone or with roommates (lines 1 through 3) is of course less common among very young people (who live with their parents) and among older people (who have formed couples). It reaches its peak in the middle age groups, where it can involve as much as one young person in five. In conformity with hypothesis 2.1, this form of cohabitation is more widespread at the end of the period for people 21 and older and, surprisingly, especially after age 25: in 1981, spousal unions used to be a more tightly followed norm among young people who had reached the threshold of the mid-twenties. Single-parenthood (lines 4 through 6) still is very much a minority lifestyle, even among the older group, where it does not quite reach one person in twenty. While changes over the period are not dramatic, there is a slight increase of the proportion of single-parents at ages 21 and beyond. Other forms of familial solidarity (living with brothers and sisters, aunts and uncles, grandparents) as depicted in lines 7 through 9, present just about the same characteristics as living alone or with roommates: they are more widespread in the middle of the age range, and their use increases during the period in all but the younger categories. These living arrangements are increasingly used by people who want or need to leave the parental home, and yet cannot or would not form a couple.

Pressed between the necessity of pursuing their schooling and the difficulties of the labour market, young people have organized their lives in different ways, especially those remaining in the parental home. What do young people do in the cluttered nest? While the mixed status of being simultaneously a student and a worker (hypothesis 2.2) is quite widespread in 1981 at ages 15 through 18, it decreases quite dramatically at later ages. This pattern has expanded dramatically over the decade in all age groups, and especially among the 24 and younger group (line 12 of Table 10.3). Two separate processes are probably at work simultaneously: students now work on the side to fund their consumption needs, and young

Table 10.3
Data Patterns for the Destandardization Hypothesis

		Age						
		15 to 16	17 to 18	19 to 20	21 to 22	23 to 24	25 to 29	30 to 34
		Percent						
Living Alone or with Roommates								
1	1981	-	4.2	12.5	17.0	20.2	15.6	11.2
2	1990	-	3.6	11.1	19.5	19.6	19.7	15.8
3	Change	-	-0.6	-1.4	2.5	-0.6	4.1	4.6
Living as a Single Parent								
4	1981	-	0.0	0.7	1.7	2.3	2.9	4.4
5	1990	-	-	0.7	2.0	2.7	2.9	4.7
6	Change	-	-	0.0	0.3	0.4	0.0	0.3
Living in Other Types of Familial Solidarity								
7	1981	0.9	1.9	2.7	5.0	4.2	2.6	1.8
8	1990	0.8	1.8	4.3	5.6	5.6	4.5	2.3
9	Change	-0.1	-0.1	1.6	0.6	1.4	1.9	0.5
Student/Workers Living with their Parents								
10	1981	31.5	32.3	13.8	5.8	1.8	0.2	-
11	1990	41.1	43.3	22.8	11.7	5.7	0.6	-
12	Change	9.6	11.0	9.0	5.9	3.9	0.4	-
13	Observed/Expected	1.02	1.11	1.04	0.99	0.98	1.17	-
Inactive or Contingent Workers Living with their Parents								
14	1981	7.0	25.5	30.9	19.9	11.8	4.8	1.9
15	1990	3.5	15.9	27.9	21.7	17.1	8.4	3.0
16	Change	-3.5	-9.6	-3.0	1.8	5.3	3.6	1.1
17	Observed/Expected	1.20	0.98	0.90	0.98	1.02	1.13	1.00
Established Workers Living with their Parents								
18	1981	-	3.3	11.9	14.5	9.3	5.3	2.5
19	1990	-	2.1	8.4	10.8	13.3	8.0	3.3
20	Change	-	-1.2	-3.5	-3.7	4.0	2.7	0.8
21	Observed/Expected	-	1.47	1.30	1.08	1.21	0.93	0.93

Note: - indicates sample variability higher than 25%, in all other cells sample variability is below 16.5%. See the Appendix for derivation of expected outcomes in lines 13, 17, and 21.
Source: Calculations by authors using Statistics Canada, Survey of Consumer Finances.

people in their twenties live in some ambiguity as to whether they are students who have to work, or workers who keep improving their skills in school. The end result is that at almost all ages beyond 17, student/workers now account for at least as a high a proportion of school attendees as do full-time inactive students.

While these trends are descriptively true, can we say that young people favour this living arrangement to a larger extent than would be expected from the simple combination of separate trends leading towards later leaving home, longer schooling, and more widespread involvement in the labour market? A comparison of observed changes in the proportion of student/workers to changes expected from the simple combination of the evolution in the three underlying variables (line 13) reveals that genuine destandardization is found in at least some of the age groups: among people aged 17 to 20, the student/worker living arrangement definitely attracts people disproportionately, and it seems to become a lifestyle of its own (we disregard the even larger ratio for the 25 to 29 year olds, because the numbers are not entirely reliable).

A number of young people remain in their parents home while being (in most cases) out of school: many are marginal to the labour market (hypothesis 2.3), but one even finds young people who have not moved out in spite of being established in jobs (hypothesis 2.4). During 1981 such patterns used to be rare among the very young, increasingly widespread for those in their early twenties, and again quite rare later on, especially after 25. Modest but systematic changes have taken place over the decade. These patterns are now less widespread among people 20 or younger, who attend school in greater

Table 10.4

Age-Specific Coefficients of Dissimilarity Between the Distributions of Men and Women by Type of Living Arrangement, 1981 and 1990

	Age						
	15 to 16	17 to 18	19 to 20	21 to 22	23 to 24	25 to 29	30 to 34
	Percent						
1981	3.1	8.3	21.5	21.6	26.6	32.9	41.7
1990	5.2	6.9	16.5	19.4	25.5	23.4	31.3
Change	2.1	-1.4	-5.0	-2.2	-1.1	-9.5	-10.4

proportions as students or student/workers, but they are increasingly found beyond that age. People aged 23 to 29, in particular, seem to have more difficulties gaining from the labour market what is required to leave the parental home; it may also be that social norms are changing in this respect.

Do changes in these patterns go beyond what one would expect from changes in the underlying distributions? The proportion of inactive people or contingent workers living in the parental home (line 17) seems to have somewhat decreased for people aged 17 to 22, where lengthened schooling is more popular; but it has gone up (in the net) beyond that point, probably reflecting the gap that separates these people from an independence beyond the age at which more schooling is a strategy. We also note the paradox that while the proportion of 15 and 16 year olds who are inactive or contingent has decreased by half, this seems to be less of a fall than one would expect; there might be some minimal proportion of even very young people who just won't pursue schooling.

As far as the propensity of established workers to still live with their parents is concerned (line 21), the net changes seem to contradict the gross ones. At the end of the period, younger age groups have a lower proportion of people in this living arrangement, but it has not decreased as much as one would expect from increased schooling and the postponement of entry into the labour market; there still seems to be a fair proportion of young people with an affinity for the lifestyle corresponding to this living arrangement. Conversely, the somewhat increased proportion of established workers living in the parental home age 25 and over remains below expectations: at such ages, the attraction of moving out when the resources are sufficient seems to take over.

To what extent are the changes just examined similar across gender? One way to address gender differences is to compute age-specific coefficients of dissimilarity between male and female distributions into living arrangements. As illustrated in Table 10.4, gender differences increase dramatically as people age: in 1981, they were barely noticeable at age 15 and 16, but they reached about one fifth of the potential range by age 19 and 20, and two fifths after age 30. Differences have decreased very significantly at all ages during the decade (hypothesis 3.1), and especially after age 25; there is only a slight exception among the 15-16 years old, where women are somewhat more taken with the student/worker model. Attenuation is very substantial, then, but gender roles and stereotypes have not, by a far cry, ceased to exercise a powerful influence on how young people live.

Part of this attenuation comes from the abandonment by women of roles which involve marginality with respect to both school and the labour market (hypothesis 3.2). Such marginality has shrunk dramatically, particularly for those aged 23 and beyond, while it has remained almost absent among men (Table 10.5, lines 1 through 7).

There are common threads to what happens to young men and women with respect to living with their parents and to forming couples: the propensity to live with parents decreases with age (lines 8 through 14), but the decline was significantly steeper in 1981 than in 1990; and couples are gradually formed in an overwhelming proportion of cases as people age (lines 15 through 21), but this propensity has slowed down significantly over the period.

Men and women are, however, experiencing these trends in somewhat different ways. It used

Table 10.5
The Attenuation Hypothesis

			Age						
			15 to 16	17 to 18	19 to 20	21 to 22	23 to 24	25 to 29	30 to 34
Inactive People Living in Couples									
1	1981	Women	-	2.3	6.6	11.2	18.9	27.1	30.4
2		Men	-	-	-	0.9	1.0	2.1	2.5
3		Difference	-	-	-	-10.3	-17.9	-25.0	-27.9
4	1990	Women	-	1.3	2.1	5.6	7.3	12.2	16.3
5		Men	-	-	-	-	1.1	2.2	3.6
6		Difference	-	-	-	-	-6.2	-10.0	-12.7
7	Change in Gender	Difference	-	-	-	-	11.7	15.0	15.2
Staying in the Parental Home									
8	1981	Women	97.6	86.6	59.3	39.9	17.4	7.0	2.8
9		Men	98.6	94.4	80.8	55.9	34.4	14.2	6.0
10		Difference	1.0	7.8	21.5	16.0	17.0	7.2	3.2
11	1990	Women	98.2	90.8	69.8	46.7	31.8	13.6	3.9
12		Men	98.9	93.8	82.3	63.9	48.9	22.2	9.1
13		Difference	0.7	3.0	12.5	17.2	17.1	8.6	5.2
14	Change in Gender	Difference	-0.3	-4.8	-9.0	1.2	0.1	1.4	2.0
Living as a Couple									
15	1981	Women	-	3.9	20.8	37.5	56.8	71.9	78.8
16		Men	-	0.0	5.7	19.2	37.9	63.7	77.4
17		Difference	-	-3.9	-15.1	-18.3	-18.9	-8.2	-1.4
18	1990	Women	1.3	2.4	11.1	23.9	41.9	61.3	73.5
19		Men	-	0.0	2.9	10.3	21.4	49.0	67.5
20		Difference	-	-2.4	-8.2	-13.6	-20.5	-12.3	-6.0
21	Change in Gender	Difference	-	1.5	6.9	4.7	-1.6	-4.1	-4.6
Living Alone or with Roommates									
22	1981	Women	-	5.4	15.4	14.8	18.3	13.2	8.7
23		Men	-	2.3	10.0	19.5	21.9	18.1	13.0
24		Difference	-	-3.1	-5.4	4.7	3.6	4.9	4.3
25	1990	Women	-	3.1	11.8	18.6	16.1	15.5	12.0
26		Men	-	2.8	10.6	20.2	23.4	24.1	19.9
27		Difference	-	-0.3	-1.2	1.6	7.3	8.6	7.9
28	Change in Gender	Difference	-	2.8	4.2	-3.1	3.7	3.7	3.6
Being a Single Parent									
29	1981	Women	-	-	1.4	3.0	4.6	5.3	7.9
30		Men	0.0	0.0	0.0	0.0	0.0	0.5	0.7
31		Difference	-	-	-1.4	-3.0	-4.6	-4.8	-7.2
32	1990	Women	-	-	2.0	4.2	5.2	5.5	8.5
33		Men	-	0.0	0.0	0.0	0.0	0.0	0.6
34		Difference	-	-	-2.0	-4.2	-5.2	-5.5	-7.9
35	Change in Gender	Difference	-	-	-0.6	-1.2	-0.6	-0.7	-0.7
Living in Other Types of Familial Solidarity									
36	1981	Women	-	1.8	2.8	4.9	2.9	2.1	1.3
37		Men	0.9	1.9	2.6	5.1	5.7	3.2	2.3
38		Difference	-	0.1	-0.2	0.2	2.8	1.1	1.0
39	1990	Women	-	1.6	5.3	6.6	5.1	4.3	1.9
40		Men	-	2.1	3.3	4.8	6.1	4.6	2.7
41		Difference	-	0.5	-2.0	-1.8	1.0	0.3	0.8
42	Change in Gender	Difference	-	0.4	-1.8	-2.0	-1.8	-0.8	-0.2

Note: - indicates sample variability greater than 25%.
Source: Calculations by authors from Statistics Canada, Survey of Consumer Finances

to be that women left the parental home earlier than men at all ages past 16. This is still true in 1990, but the difference has narrowed at ages 17 to 20. Similarly, women formed couples much earlier than men (presumably with older partners). This is still largely true in 1990, but the locus of the difference has changed: young women between the ages of 17 and 22 have narrowed the gap with their male contemporaries, while the difference between genders has actually increased from age 23 on, and especially among those who have attained the age of 25.

Overall, young men 21 and older have kept their higher propensity to stay with their parents as well as their lower propensity to form couples.

These differential changes in relations of cohabitation correspond to changes in relations to school and to work. Young females between the ages of 17 and 20 stay home to increase their schooling, both as students and as student/workers, thus making more or less the same choices as young males; at ages 19 and 20, young women are even more involved in schooling than young men in 1990, in marked contrast with the situation with 1981. The same converging process also happens, but to a more limited extent, among young women and men aged 21 to 29. As far as getting a job is concerned—again for young people living with their parents—both men and women have the same experience: 1990 witnesses a fewer proportion of 17 to 22 year olds with non-standard status, and a higher proportion of those 23 and older.

The circumstances of men and women are symmetric when young people living in couples are considered. The depletion of the ranks of men from age 21 on (or even from age 19) seems closely related to their inability to find a job, especially an established job. Young women do experience a decrease in their propensity to form couples, but the gap between them and men increases from age 23 on (line 21 of Table 10.5); this is accompanied by a decline in their level of inactivity, and a rise in their ability to secure and hold on to a job.

Single-parenthood is almost totally a female affair (lines 29 through 35), and increasingly so. As expected, its incidence grows with age, but there are almost no noticeable changes during the period in the proportion of young people in such living arrangements, and in their levels of activity in the school system and the labour market.

Living alone, with roommates, or in other familial solidarity forms appear as alternative solutions for those who wish or have to leave the parental home, while not forming a couple or a new family. There is a greater tendency of women between the ages of 17 and 20 to display this pattern than men, but somewhat less of a tendency at older ages (particularly in the case of those living alone or with roommates). This reflects the greater tendency of young women to form couples. This general pattern is reinforced during the period in the case of living alone or with roommates. In particular, there are growing proportions of men 25 and older who live in such households while attending school, working, being unemployed or simply being inactive.

4. Conclusion

Ten years appears to be a short period for the vast redefinition of living arrangements of young people that took place in Canada during the 1980s. Economic circumstances have changed in fundamental ways. Young people, and to a significant extent their families, have devised new ways to cope with transformations relating to the nature and structure of jobs, changing skill requirements in the labour market, and higher shelter costs. They have prolonged their schooling, taken jobs (often contingent ones) earlier, combined schooling with paid work, stayed home longer, delayed the formation of spousal unions, and increasingly lived outside standard family contexts. They have also redefined gender roles to a significant extent, with women abandoning the housewife status, prolonging their schooling, and taking on jobs. In spite of this convergence, substantial gender differences remain: paradoxically, women are most likely to prolong their schooling, leave home (though later than used to be the case), find jobs, and form couples (presumably with older companions).

Even though more people now live alone or with roommates, and even though unions are formed much later, families—parental families in most cases, but also extended families— still play a major role as a haven for young people, as a place where they can deploy their new coping strategies with respect to schooling and the labour market. One can only speculate as to how these arrangements are negotiated within families, but it is notable that the relationship often assumes that the young take charge of at least part of their living expenses through paid work, even in the case of students.

In the longer run, the values of young people will probably be altered by this prolonged cohabitation with parents and the development of non-standard living arrangements. Among other things, it will be interesting to observe how many of them will have children, when, in what numbers.

There is still a lot to be explored about the trends identified in this chapter, especially with proper longitudinal data. On the basis of our overview of the changing distribution of living arrangements, one could open up each of these

types and provide a more accurate picture of the situation young people face: where are they in their schooling trajectory, what is their exact position in the labour market (occupation, earnings), have they had children? The story could be brought up to the more recent years, and the precise shape of the evolution through time could be traced, in parallel to changes in the various elements of the economic conjuncture. This would provide us with a better grasp of how young people invent their own history, but do so under circumstances not of their own choosing.

Appendix

The typology of living arrangements

The construction of the typology of living arrangements requires that we first measure all three underlying dimensions. Relations to schooling are readily measured in the Survey of Consumer Finances in a form that is suitable for our purposes: young people are either studying full-time, or part-time, or not at all. Relations of cohabitation are a bit more complex, since we have to take into account both the type of economic family and the position of the individual in relation to the head of this family. We have constructed five types: [1] young people who still live with their parents (children with respect to the head, living in all family types); [2] those who have formed a couple (head of the economic family or spouse of the head, in all families with both spouses present); [3] those who live outside a family context, either by themselves or with roommates (heads of economic families with only one person); [4] single parents who do not live with their own parents (heads of single parent economic families); and [5] young people who live within family arrangements other than with their parents (for example, with their siblings or their grandparents; these have an "other" link to the head of the economic family, or they are heads of "other" economic families).

Relations to paid work are represented in even more detail, since we want to capture the diverse and volatile experience of young people with respect to earning a living. We have used four variables: activity (employed, unemployed, and inactive), duration of employment (at least one year, less than one year, undefined), duration of unemployment (more than 13 weeks, 13 weeks or less, zero), and full/part-time status. We have constructed seven types, ranging from inactivity to the standard job: [1] inactivity (inactive, undefined duration of employment, zero weeks of unemployment); [2] unemployment for a limited period (either inactive or unemployed, with undefined duration of employment, and unemployed for 13 weeks or less); [3] unemployment for a longer period (either inactive or unemployed, with undefined duration of employment, and unemployed for more than 13 weeks); [4] part-time work with short tenure (either employed, unemployed, or inactive, with duration of employment less than one year, and part-time); [5] part-time work with long tenure (either employed, unemployed, or inactive, with duration of employment one year or more, and part-time); [6] full-time work with short tenure (either employed, unemployed, or inactive, with duration of employment less than one year, and full-time); [7] full-time work with long tenure (either employed, unemployed, or inactive, with duration of employment one year or more, and full-time). Of course, the overwhelming majority of people in types 2 and 3 come from the unemployed activity category, and the overwhelming majority of people in types 4 through 7 come from the employed activity category.

The combination of these three dimensions produces 3 x 5 x 7 = 105 possible types, 99 of which contain any cases. As can be seen in Table 10.A1, most of the 36,499 young people in the 1981 sample belong to a limited number of categories, with about 60% of all cases found in 6 of these, and another 28% in the next 12 largest. A reduction of this typology is thus required and possible. We regrouped categories that are relatively similar from the substantive point of view of living arrangements, while managing to have under each final type a sufficient number of cases to be able to pursue the analysis. This same frequency table indicates, in boldface characters within each cell, to which of the final seventeen types each of the original combinations has been assigned.

Comparing observed and expected proportions in various living arrangements

We have to compare changes in the observed proportions of people in the various living arrangements from 1981 to 1990 to changes that we would expect under the assumption that such changes are due only to changes in the underlying three variables (relations of cohabitation, relations to schooling, and relations to paid work). We first compute the expected proportions by simply multiplying, within each age category, the probabilities obtained for each variable (the expected probability of having a student/worker living with parents would simply be

Table 10.A1

The Aggregation of Cohabitation, Schooling and Work Categories

Relations to Schooling	Relations to Work	Relations of Cohabitation									
		With Parents		In a Couple		Alone or with Roommates		Single Parents		Other Forms of Familial Solidarity	
		Sample size	Type	Sample size	Type	Sample size	Type	Sample size	Type	Sample size	Type
Full-time Schooling	Inactive	4,150	**1**	229	**6**	233	**11**	29	**16**	88	**17**
	Unemployment short	790	**2**	28	**6**	63	**11**	4	**16**	19	**17**
	Unemployment long	132	**2**	11	**6**	13	**11**	0	**16**	4	**17**
	Part-time work short tenure	1,209	**2**	32	**6**	59	**11**	0	**16**	26	**17**
	Part-time work long tenure	923	**2**	28	**6**	40	**11**	4	**16**	7	**17**
	Full-time work short tenure	36	**2**	13	**6**	13	**11**	0	**16**	0	**17**
	Full-time work long tenure	51	**2**	21	**6**	5	**11**	0	**16**	3	**17**
Part-time Schooling	Inactive	45	**1**	54	**6**	9	**11**	4	**16**	3	**17**
	Unemployment short	23	**2**	13	**6**	10	**11**	0	**16**	2	**17**
	Unemployment long	25	**2**	13	**6**	1	**11**	2	**16**	0	**17**
	Part-time work short tenure	49	**3**	20	**8**	9	**12**	0	**16**	1	**17**
	Part-time work long tenure	18	**3**	32	**8**	14	**12**	1	**16**	3	**17**
	Full-time work short tenure	83	**3**	77	**8**	40	**12**	3	**16**	1	**17**
	Full-time work long tenure	92	**4**	206	**9**	115	**13**	8	**16**	16	**17**
Not in School	Inactive	899	**5**	3,539	**10**	166	**14**	289	**15**	83	**17**
	Unemployment short	539	**5**	615	**7**	188	**14**	48	**15**	74	**17**
	Unemployment long	671	**5**	528	**7**	161	**14**	45	**15**	52	**17**
	Part-time work short tenure	254	**3**	442	**8**	86	**12**	34	**16**	17	**17**
	Part-time work long tenure	153	**3**	680	**8**	55	**12**	22	**16**	8	**17**
	Full-time work short tenure	1,583	**3**	2,280	**8**	1,065	**12**	113	**16**	219	**17**
	Full-time work long tenure	2,120	**4**	7,511	**9**	2,132	**13**	239	**16**	334	**17**

the product, for a given year, of the general probability of being a student, of being a worker, and of living with parents, all of these within a given age category). We regroup the 105 expected probabilities obtained into the same 17 types as the observed probabilities. We thus have, at the end of the calculations, four distributions of numbers over the 17 types: observed frequencies in 1981 and 1990, and expected probabilities, under the assumption of independence between the three underlying variables, again in 1981 and 1990. We then compute the odds for an individual of being in a given type, as opposed to all other types, in 1981 and in 1990, both for the observed and the expected frequencies. We can then compute a ratio of these odds for 1990 over 1981, again for observed frequencies and for expected frequencies. Taking the ratio of these odds ratios (observed over expected), we obtain for each type a single number which tells us how far the observed change in proportion is from equality with the expected change in proportion (a ratio of odds ratios equal to one). Anything quite above a value of one says that over the period, this type of living arrangement has become more frequent than we would expect from changes in the distributions of the three underlying variables; a ratio inferior to one tells us that the change in the observed frequency of this type has not quite kept up with the evolution we would have expected from changes in the distributions of the underlying variables.

Notes

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[1] Even in the absence of proper longitudinal data, we will to a certain extent be able to disentangle age and cohort effects: as we compare the distribution into living arrangements of people reaching the same age at two different points in time, we control for the former effect and isolate the latter. For lack of a better solution, we make the usual (but contestable)

assumption that the differences between two points in time between the differential profile of age groups will reveal how young people changed, over the period, in how they come of age. This appears, on the one hand, as a reasonable assumption given that we take into consideration all of the population at all times, in an age range where not too many die or move out of the country; in other words, self-selection out of our scope of observation over time is minimal, and we can fully examine the redistribution of young people as they age.

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Chapter 11

Perspectives on Policy

Intergenerational Equity: Policy and Data Implications

Susan A. McDaniel

Generation is the astrology of the millennial epoch, with Boomers, Busters, Gen-Xers, and Greedy Grannies (whether greedy or not) replacing zodiac signs to explain much of what we are as individuals and to guide us collectively through the unknown future. However, the links between these compelling popular images and actual data, analysis, or policy issues are far from clear or straightfoward. Accordingly, I examine three questions in this paper: [1] Does existing knowledge about intergenerational transfers, both public and private, provide the basis for effective policy choices? What is missing? What is needed, in particular by Canada's statistical system? [2] With an aging society, rapidly shifting labour markets, and shrinking social transfers in Canada, is a new generational compact emerging? And [3] What are the roles of differing models of inter-generational transfers, indeed of the demo-graphic concept of generation itself, in defining the field of policy options for Canadians in the late 1990s? In addressing these questions, I rely on analyses and a framework developed in McDaniel (1997).

1. Does Existing Knowledge Provide the Basis for Effective Policy Choices?

The research summarized in the chapters of this book certainly go a long way in offering new and important information for the understanding of intergenerational dynamics, but they also point to some important gaps in knowledge and information. What lessons are learned? What more is needed? My reading suggests at least ten things.

[1] Conceptual and theoretical precision. Policy choices need context and a critical interrogation of research concepts. For example, intergenerational equity, as a concept, has been subjected to sustained criticism, summarized by Phillipson (1996) and Walker (1996), and "…pronounced as unsuitable as a basis for conceptualizing the relationship between age cohorts or for policy development." (Walker 1996, p. 23). In this context, unsuitability stems from three central criticisms: [i] what is really at issue in many policy discussions are the fiscal implications of an aging population, not equity among generations; [ii] the concept is more a politically expedient use of demographic change than it is an empirical reality; and [iii] referencing people as being of a certain generation attributes to them characteristics they may not possess socially or economically. This was eloquently pointed out by Karl Mannheim in his classic 1952 essay on "The Problem of Generations," to paraphrase him, shared age does not a generation make.

[2] More inter-disciplinary work. Taken together the essays in this book and those in the companion volume (Corak 1998) set an admirable example. Future work should recognize that intergenerational relations take place in a socio-economic context, involving both public and private transfers, exchanges, and expectations. The social and the economic dimensions of these relations are not two solitudes, although their guiding assumptions are very different (see Table 11.1).

[3] The need for fewer assumptions about people in generations, who are often assumed to be completely alike. Wolfson et al. (1998), for example, recognize the need to distinguish individuals not only by age but also by gender and income.

[4] Similarly, analysts should try to adopt some real and accurate sense of people of different ages in families, sharing and caring for each other. The image of competing generations,

Table 11.1
Three Models of Intergenerational Transfers: Basic Assumptions and Definitions

1. Economic	
Dominant Concern	• Problems arising from transfers of resources among generations
Prevailing Concepts	• Fairness • Individual and horizontal equity at age group level • Incentives to work and save
Policy Questions	• Limiting tax burdens • Curbing expenditures on social programs • Increasing labour supply
2. Sociological	
Dominant Concern	• Transforming relations among generations in an aging society
Prevailing Concepts	• Power • Status • Security and insecurity
Policy Questions	• Status of older people and their social integration
3. Social Policy	
Dominant Concern	• Welfare of older people and quality of living standards of all generations
Prevailing Concepts	• Generational interdependence
Policy Questions	• Action to improve living standards for today's older people

of children and the old, is evocative of free-floating bands of urchins and seniors who are disconnected from families. This is unlikely. More research and data on the sharing of resources in families, both social and economic, is needed to build viable policy options.

[5] A global sense of the magnitude of the flows between generations is needed, not only from today's old to today's young, but of the longer term historical flows. Some of this may be possible with simulations, some with longitudinal data such as the Survey of Labour and Income Dynamics (SLID), and some with the use of Generational Accounting. Examples of some of these are offered in Corak (1998).

[6] Dynamism of intergenerational relations is not being fully captured with existing data. Reciprocity, interrelations, inter-dependencies and exchanges are only partially captured, some for the first time. With SLID and other longitudinal survey data this will be partially addressed.

[7] The transmission of "social capital," either in the public or private realm, is not well captured by the existing statistical system, although clearly some important aspects of relative advantage and disadvantage, and of social value and family transmission have been effectively assessed by the authors of Chapters 4 through 8.

[8] Gaps exist in the measurement of the intergenerational transfer of risks. The focus often seems to be on the transfer of assets, income and taxes/transfers. This is vital to Canadian values of hard work and sacrifice for the benefit of one's children, even though the risks to health and well-being of parents might be large, thereby creating risks for children.

[9] In my view, a vital policy question—that I emphasize in McDaniel (1997)—remains unaddressed, namely the degree to which

private generational transfers can substitute for diminishing public transfers. Almost nothing is known about this.

[10] There is a need for the collection of more data on private intergenerational transfers including bequests, but also possibly gifts in kind and assistance of various sorts.

2. Is a New Generational Compact Emerging?

Walker (1962, 1-2) argues that "…industrial societies are confronting a new generational crossroads." He quickly adds that this is not new to modern society: "In Britain there is evidence from the sixteenth century that when village communities were faced with economic hardship older people were sometimes marginalized and their financial relief portrayed as a burden on the community" (p. 24). So, the social construction of age-group conflicts predates today's debates about intergenerational equity by some 400 years! Added emphasis is given by Cheal (1987) who shows that there is nothing inexorable about life course and "net aid flows." In fact, based on the 1978 Family Expenditure Survey, he shows that the predominant flow is from older to younger age groups, contrary to prediction, prevailing theory, and the presumptions of most current models of intergenerational transfers.

Economic changes and the restructuring of the welfare state have necessitated the fashioning of a new generational compact, the contours of which are only beginning to emerge. I develop a typology of the new compact in McDaniel (1997), and am led to the conclusion that institutional changes in pensions, health care, social assistance, aids to independent living, child support and care, all imply shifts in both the public and private intergenerational compact.

The increase in the polarization of the status of young versus old, and of poor versus rich is now well documented: greater dependence of young adults due to insufficient incomes and access to jobs (Chapters 2 and 10), the polarization of educational opportunities (Chapter 8), of health outcomes (Chapter 9), of employment, earnings, social transfers and family characteristics (Chapter 2), and of net tax and transfers among pre-retirement and post-retirement cohorts (Hicks 1998, Murphy 1998). The questions that arise concern the degree to which polarization is the way forward for Canada, and the degree to which analyses along generational lines are useful. Analyses along this dimension may be important in setting a context for policy, but can ultimately be diversionary from the real needs of those within each generation or group.

Three factors provide evidence of the emergence of new generational compacts, which may paradoxically, derive from generational and socio-economic polarization. First, generation is first and foremost a family concept, meaning that transfers within families, both economic (mobility and assets) and social (health, well-being, intellectual capital) make the notion that polarization is occurring among generations less compelling. An understanding of the nature and degree of intergenerational mobility as well as of the underlying mechanisms is central. This is why the findings in Chapters 4 and 5 are important. With polarization among current generations could come deeply exaggerated polarization among the next generation, as income, wealth, and social capital are transferred within families. The finding by Fortin and Lefebvre in Chapter 4 that greatest immobility occurs at the very top and very bottom of the income distribution lends support to this possibility. There is more evidence uncovered by Corak and Heisz in Chapter 5 who find that the residential mapping of socio-economic status as well as the nature of parental income matters to mobility. All the work in Chapters 6 through 9 help to fill in the details of the possible underlying mechanisms. Families are the central agents in making intergenerational transfers, in some ways making up for lost public transfers by pooling resources, in other ways, working to increase the polarization between rich and poor Canadians.

The second factor suggesting the emergence of a new generational compact is that generation per se is an increasingly inaccurate proxy for real dependency, social or economic, as the categories of dependency blur and correspond less with life course stages. The labels "worker," "pensioner," and "child" may be less and less clear as workers have no work or are more insecure and less continuously working, as pensioners have less access to pensions but are de facto retired, and as children increasingly work in part-time jobs to help support increasingly insecure families. The work in Chapter 10 underscores some of these points, but Mannheim (1952, p. 311) recognizes this issue clearly:

> If we speak simply of "generations" without any further differentiation, we risk jumbling together purely biological phenomena and others which are the product of social and

> cultural forces: thus we arrive at a sort of sociology of chronological tables which uses its bird's-eye perspective to "discover" fictitious generation movements to correspond to the crucial turning-points in historical chronology.

Third, a new compact may be emerging because the concept of public intergenerational transfers should be widened to include workplace policies (McDaniel 1997, Gunderson and Hyatt 1998). The example I use is the de facto intergenerational transfer effect of seniority policies that potentially widen the gap between the productivity profile and the wage profile, entailing an unintended transfer from younger workers to older workers. That seniority policies are not as strong during the recent period of restructuring in Canada may have implications, thus far uncaptured, for intergenerational transfers, and could mark another way in which a new generational compact is developing. More data and research on these subtle and "hidden" aspects of intergenerational relations would greatly assist policy makers.

3. Differing Models of Intergenerational Transfers and Policy

Three different models of intergenerational transfers with their basic defining assumptions are presented in Table 11.1. What is contested is not the assumptions of each model, but the policy choices each points toward. That tension exists on these choices is evident in recent federal and provincial budgets that ultimately balance, in varying ways, deficit considerations against living standards and quality of life concerns (primarily for the old, but also for vulnerable children).

In each of these models generation means something quite different, as do generational links and responsibilities. In the economic model, generation typically is synonymous with age group, sometimes large groupings (for example, 65 and older or older than 18 years of age) or even single years of age. This is an accounting perspective, reminiscent of Mannheim's concerns about the definition of generation rather than a social reflection of networks of responsibilities and entitlements that connect people in society (McDaniel 1996). With the sociological model, the relational aspect of generation is present, but no clear definition is widely used. In the social policy model, the sense is of moral norms and obligations of generations, one to another, obligations that are enhanced by state policies. In all three models, the demographic concept of generation as the time needed to bring one's offspring to the stage of reproduction, is not the definition used.

Mannheim (1952, 293-94) calls attention to a missing policy-relevant aspect of intergenerational transfers, at least missing from the existing knowledge base in Canada. It is the transmission of ideas, mindsets, progress. He has this to say:

> …our culture is developed by individuals who come into contact anew with the accumulated heritage… a fresh contact (meeting something new) always means… a novel approach to assimilating, using, and developing the proffered material… in the case of generations, the "fresh contact" with the social and cultural heritage is determined not by mere social change… it facilitates re-evaluation of our inventory and teaches us both to forget that which is no longer useful and to covet that which has yet to be won.

In intergenerational transmission are the seeds of innovation.

In this essay I point out the narrowness of many popular approaches to the concept of intergenerational equity. My analysis calls for a broadening and deepening of data collected, analyses undertaken, and policy questions posed. To illuminate policy questions on intergenerational relations, much more needs to be known about intergenerational transfers than simple analyses of dependency ratios and balances in payouts allow. The papers in this volume open the door to more complex and nuanced data capture and analysis work on the complexity of intergenerational relations.

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Intergenerational Equity: The Objectives of Policy

BOB BALDWIN

1. Equity for Future Generations

A great deal of concern has been expressed in the chapters of this book and in those of the companion volume about the current situation of both young adults and children in Canada (Corak 1998). With respect to young adults, the difficulty of gaining well paid employment and attaining a reasonable standard of living is a focus of many of the chapters. Indeed, as Morissette illustrates in Chapter 3, young men are on an earnings trajectory that is much lower in relation to older cohorts than has been typical in the past. The condition of children and the rise in child poverty is often dealt with as a point in time problem. Yet, it is clearly related to the situation of young adults. Moreover, a number of the chapters shed valuable light on the intergenerational transmission of social and economic status as well as a variety of behavioural characteristics. Notwithstanding the variety of concerns about the status of children, however, horizontal equity is not raised as an issue. Concern for younger generations has also focussed on their ability to financially support a growing elderly population and a large accumulated public debt.

To gain a perspective on the issues that have and have not been covered by the authors I propose to note the key elements in the legacy that younger generations should hope to receive from their predecessors. In view of the comments that I will make later about the elderly I should make it clear that central aspects of the prevailing life cycle are taken as given: children live with a parent or parents and acquire education and skills until late adolescence or young adulthood when they enter the labour market and form their own household more or less at the same time. (The work in Chapter 10 suggests that this process is not in fact as immutable as I make it out to be.) The immediate standard of living in childhood is determined primarily by transfers from the parents earned income, although the authors of

Chapter 2 draw attention to the increasingly prominent role of public transfers for low income families in the recent past.

Younger generations should hope to inherit:

[1] a public and private capital stock of sufficient quantity and quality that it can provide good employment opportunities for everyone who is willing and able to work;

[2] knowledge and skills that permit productive employment on the most modern technologies, the capacity to invent, and participation in the social and political life of the community;

[3] a natural environment that supports both economic production and recreational activity; and

[4] social peace, both as an end in itself, and as a support for the enjoyment of material well being and as a facilitator of its production.

These conditions have not emerged as an explicit focus of discussion in most of the chapters, but implicitly most of them are addressed.

Generally speaking the research dealing with the labour market status of young adults—principally Chapters 2, 3, and 10 but also 4 and 5—can be viewed as a commentary on the quantity and quality of the capital stock. But it is striking that none of the chapters deals directly with the current or future capital stock. In addition, there is a connection between the issues dealt with in these papers and the conditions required for social peace. The intergenerational and point-in-time inequalities that are documented can fairly be construed as potential contributors to a lack of social peace. The several chapters that document the transmission of socio-economic inequality as well as other social behaviours and characteristics (Chapters 4 though 9), add important dimensions to our understanding of the transmission of inequality through time. There is a risk that the perpetuation of social and economic exclusion from one generation to the next will undermine the stake that the excluded will feel in maintaining a stable society.

The chapter by de Broucker and Lavallée (Chapter 8) deals directly with equipping younger Canadians with the knowledge and skills required for life in the labour market and in the wider society. It brings the good news of a general increase in attained levels of education and literacy. But it also brings the unfortunate news that closing relative gaps in attainment from one generation to the next is difficult unless one is very well off.

Finally, there is little to be found in the chapters of this book or in Corak (1998) that bears on the protection of the natural environment.

Two final issues are worth noting. First, it should be clear that the legacy required by younger generations can be understood in large part through conventional measures of economic well-being. But it also encompasses dimensions that are not thoroughly understood in that way. This is most evident when environmental well-being is considered. Considerations of social exclusion and security, and acquiring knowledge as an intrinsic good, also suggest the need for supplementary measures of well-being. Debates on what constitutes well-being and how to measure it are to be welcomed and encouraged. Second, it is important to recognize that progress on all dimensions of the legacy have involved public and private initiatives in recent decades. The public sector has been a major direct source of employment opportunities in the post World War II period. It has been a particularly important source of good employment opportunities for women. The combination of publicly administered institutions and publicly financed private institutions have played central roles in the acquisition of skills and knowledge. Efforts to date on environmental protection have relied heavily on a combination of government regulatory, tax and spending measures. Taxes, transfers and labour market regulations have contributed to the preservation of social peace by limiting inequality.

At one level it is a matter of stating the obvious to note that public initiatives have played an important role in contributing to the legacy inherited by younger generations. But the prevailing spirit of market liberalization runs the risk of thoroughly undermining this role.

2. Equity in Retirement Arrangements

One of the specific concerns that has been raised about the situation of today's young people is that they will face a crushing burden when it comes to financing pay-go public pension arrangements. In turning to this issue, two preliminary points should be made.

First, given the recent but now deeply entrenched social practice of retirement, the older

members of the population are no longer deriving the bulk of their income from employment, nor are they expected to. The central question becomes how to make sure that this large and growing number or retired people have incomes that are reasonable by prevailing standards without imposing an intolerable burden on younger generations. Unlike the situation with the pre-employed young, income and care for the elderly is provided mainly outside the framework of intra-family transactions.

Second, since the issue of the cost of retirement income programs has been cast in large measure in terms of the aging of the baby boom generation, it is important to clarify that a much longer term process of the aging of society is underway. Indeed, it is the baby bust that followed 1966, rather than the baby boom that is the chief agent of change. Thus, pay-go pension costs in Canada remain virtually unchanged after the baby boom has passed through the retirement years. Indeed, the boomers and the members of Generation X share the experience of paying more for their CPP/QPP benefits than the previous generation, while receiving the same level of benefits. The baby boom and Generation X share more in common with each other in terms of the balance of their contributions and benefits than either does with preceding or succeeding generations.

In contemplating the aging of the population, it is important to bear in mind the income situation of the currently elderly, and what the retirement income prospects are for the future elderly if current arrangements are unchanged.

In this regard, there is some good news to report. The incidence of low income has been declining although it remains far too high, especially for the single elderly, most of whom are women. Moreover, it appears that many people make the initial transition from work to retirement quite comfortably. A comfortable transition seems to be associated with years of participation in a “good” workplace pension. But many do not even make the initial transition comfortably: incomes seem to decline during the retirement years compared to the population at large, and the transition from being a member of a couple to being a lone survivor is a source of declining living standards. It should be noted that most of what we “know” about these transitions are based on inference, given the absence of appropriate longitudinal data.

There are more grounds for pessimism than optimism when considering the incomes that existing arrangements are likely to generate for future retirees. Once again there is some good news: more older women will have CPP/QPP retirement benefits in their own right and that will help to reduce the incidence of low incomes. But bearing in mind the relatively low rates of female participation in workplace pensions, there may not be a corresponding improvement in the degree to which women retirees maintain their standard of living in retirement. Further, there are labour market developments that reduce the likelihood that people will be members of workplace pensions in the future. It is worth noting that women and others who are disadvantaged in the labour market have traditionally been under-represented in these plans, and now concern needs to be shown for the young adults who are having well documented difficulties gaining access to good jobs. Moreover, the recent decline in interest rates will have a negative effect on investment income and it has been speculated that the post 1966 baby bust will reduce capital gains on principal residences.

Finally, in the face of even modest real wage growth, the price indexed OAS will decline over time. As has been noted for some years, the declining relative value of OAS benefits has important implications. It increases the incidence of low-income and inequality in the distribution of income (Murphy and Wolfson 1991, and Wolfson and Murphy 1997). At a more instrumental level, the declining value of OAS makes it more difficult for middle income Canadians to maintain their standard of living in retirement.

There is then a risk that the aging of the population will bring with it a growing portion of the population living on substandard incomes. This is not true simply for aging baby boomers, it is true for succeeding generations as well. Notwithstanding the need to address the retirement income needs of current and future generations of the elderly, Canadians have entered a debate about the affordability and sustainability of our relatively modest public pension arrangements that simply ignores retirement income needs. All generations, but especially future generations, tend to be treated as if they will always be payers of pension contributions and will never be retirees themselves.

Given the concern that has been expressed in recent years about the intergenerational unfairness of public pensions, it is interesting to reflect on three aspects of the situation of the current elderly. They would seem to be an impossible combination given the way in which concerns about unfairness are being expressed. First of all, the current elderly are the recipients of the biggest intergenerational transfers within the OAS and CPP/QPP. People born between 1911 and 1922 got to take advantage of full OAS and CPP/QPP benefits but paid little to support earlier generations through these programs. If we were to take our ethical cues from people who are expressing concern about the intergenerational fairness of OAS and CPP/QPP, we might characterize today's elderly as "rip off artists" or something to that effect. However, the second thing to remember about today's elderly is that they live on incomes that are somewhat substandard by prevailing norms. To put it somewhat differently, today's elderly do not seem to be making unreasonable claims on national income, even though they are the recipients of large net intergenerational transfers. Finally, it is striking that in so far as a particular generation is being singled out for disapproval in the discussion of intergenerational transfers, it is the baby boom and not today's elderly. The net intergenerational transfers to the baby boom will be much smaller than the transfers to the current cohort of elderly.

It is a matter of pure speculation as to why popular disapproval has not fallen on the current generation of older Canadians. No doubt part of it turns on the fact that it is difficult for working age people to focus resentment on their parents and grandparents. But the lack of resentment might also reflect the fact that today's elderly left a legacy to the working population that satisfies most of the conditions of an appropriate legacy that I've discussed. In other words, there may be an acceptance that the receipt of a large intergenerational transfer through the OAS and CPP/QPP is a rather trivial concern in light of the economic and social foundations that today's elderly put in place for successor generations.

By analogy, even if it was true that the intergenerational fairness of the CPP/QPP could be improved by the measures proposed by the federal government, it would hardly be a cause of celebration by today's younger generations if lower CPP/QPP contributions during their working lives were part of a package that included poor employment prospects, a general decline in environmental and social conditions, and lower relative incomes in old age than those received by current retirees.

3. Conclusion

Being fair to older generations and to younger generations is a substantial challenge at any moment in time and through time. Moreover, the challenges are quite different thanks to the way that family relationships evolve through the life cycle and because of the obvious difference in the positions of older and younger generations in their life-cycles.

For older people, fairness revolves in substantial measure around tax and transfer issues. How can the retired population be provided with a reasonable share of national income without imposing an unreasonable burden on younger generations? To date it should be noted that younger Canadians have been spared the obligation to support older Canadians to a degree that would allow older Canadians to have incomes that are the norm in our society.

Being fair to the young involves a much wider range of considerations. Popular attention has been drawn to financial problems that are seen as being passed on from older to younger generations, namely the public debt and maturing pay-go pension plans. Yet the big question for today's young—like all young generations—is whether they will inherit the real economic capacity to provide good living standards for themselves while taking care of older generations and any negative legacies left by prior generations. An affirmative answer to this question requires strength in both private and public institutions. Presently, the rather narrow approach that is being taken to deficit and debt reduction is combining with the philosophy of market liberalization in a way that is jeopardizing the public sector presence that is necessary to future well being.

I've noted many shortcomings in data and analysis, but it is striking that so many of them relate to difficulties in capturing the contribution of the public sector to our social and economic life.

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