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CANADA IN THE 21ST CENTURY

III. RESPONDING TO THE CHALLENGES

INDIVIDUAL RESPONSES TO CHANGES IN THE CANADIAN LABOUR MARKET

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INDIVIDUAL RESPONSES TO CHANGES IN THE CANADIAN LABOUR MARKET

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PREFACE

AS A NEW MILLENNIUM APPROACHES, Canadians are going through a time of dramatic economic change. Markets are becoming global, and economic activity across nations is becoming increasingly integrated. Revolutionary developments in computer and communications technology are facilitating globalization, and are also altering a great deal the workplace and the lifestyles of Canadians. At the same time, largely as a consequence of the information revolution, knowledge-based activities are becoming increasingly important within the Canadian economy and the economies of other industrialized nations.

These and related major transformations of the economic environment invite a comparison with the Industrial Revolution of the 1800s. As in the earlier time, major structural changes are giving rise to uncertainties. Firms and workers are struggling to find their place in the new economic order. Canadians collectively face the question of whether their nation's physical, human and institutional resources will provide a firm foundation for continued prosperity. Many see Canada's prospects as being much less secure than in earlier years, when the country's rich natural resources played a major role in shaping the Canadian economy.

To examine fully the medium to longer-term opportunities and challenges of these developments, the Micro-Economic Policy Analysis Branch of Industry Canada asked a group of experts to provide their "vision" for Canada in the 21st Century on a number of important issues. Each author was required to undertake two formidable tasks: first, to identify major historical trends and develop scenarios to illustrate how developments in his/her respective area might unfold over the next ten to fifteen years; and second, to examine the medium-term consequences of these developments for the Canadian economy.

The papers coming out of this exercise are now being published under the general heading of "Canada in the 21st Century". This series consists of eleven papers on different aspects of Canada's medium-term outlook. The papers are divided into three major sections. The first section, *Scene Setting*, focuses on important developments that are going to shape the medium-term economic environment in Canada. The second section, *Resources and Technology*, looks at trends among some important components of Canada's wealth creation and considers the actions needed to ensure that these factors provide a firm foundation for continued prosperity. The last section, *Responding to the Challenges*, explores individual, corporate and government responses to the medium-term challenges and offers some options for an appropriate course of action.

As part of the third section, *Responding to the Challenges*, this paper by Professor Paul Beaudry and David Green of the University of British Columbia examines the reaction of young workers to the dramatic labour market changes of recent years. The authors document the significant deterioration in the position of recent labour market entrants. New male entrants (over the age of 25)

in the 1990s face a 20 to 30 percent lower level of real earnings over their lifetime than individuals who entered the labour force in the 1970s. For females, the dominant trend has been the successful integration of large numbers of new entrants into the labour force. But the authors find that, when appropriate adjustments are made to account for the upward trend in employment and hours worked up to 1989, females have also experienced a decline in real earnings.

The authors project a continuation of the negative labour market trends for young workers, accompanied by a further increase in school enrolment rates. The steady rise in female participation and employment rates, however, appears to have ended. Over the long run, the authors see two conflicting forces. Globalization and increased competition from low-cost labour overseas might be expected to make life even more difficult in the future for young and low skilled Canadian workers. On the other hand, unskilled males are likely to face less competition from new labour market entrants, since the pressures on labour supply from demographic factors and increasing female participation have abated.

INTRODUCTION

Change is the single most pervasive element emphasized in current research on the labour market.

Stephan F. Kaliski, 1985

More than TEN YEARS LATER, Kaliski's statement about the perceived state of change in the Canadian labour market is still relevant. Canadian society today is concerned with the effects of ongoing events such as the arrival of the information age, the constraints imposed by high public-sector debt and the impact of persistently high rates of unemployment. Those effects will be determined by the responses of individuals, firms and government, all bound by the framework set by Canada's institutions and place in the world economy. This paper, focussing on individual responses, has two goals: First, we seek to document recent patterns in individual labour market-related outcomes such as earnings, employment, school enrollment and family formation. Second, we shall attempt to predict how individual outcomes will continue to evolve in the next decade. In meeting these goals we shall concentrate on youth since we are concerned with how current and future turbulence in the labour market will permanently affect new entrants.

To document recent patterns, we must characterize the major labour market trends. However, observed trends over the last two decades reflect several different phenomena occurring simultaneously. For example, they reflect aggregate business cycle effects, differing relative outcomes for newer versus older cohorts of labour market entrants, and the ageing patterns of older cohorts. To understand how individuals may respond to current turbulence, it is important to untangle whether poor outcomes for young workers in the 1990s are due mainly to cyclical effects that will pass if and when aggregate labour market conditions improve, or whether they reflect permanent declines in the relative performance of recent labour market entrants. Predictions for youth would be gloomier if the poor outcomes in the 1990s reflect permanent declines for new cohorts rather than a particularly strong cyclical downturn that may soon be reversed. For this reason, a major part of the analysis is concerned with disentangling cohort versus business cycle effects.

Projecting observed trends into the future can take two forms. The first is a mechanical extension of past trends. This is useful for a short period but it becomes more uncertain the farther ahead we try to predict. Even mechanical extension, though, will depend on our success in untangling cyclical from cohort effects in the recent past. This is particularly true since we are more concerned with welfare over the entire life cycle of current youth rather than simply the nature of adjustments they must make in the short run. We are particularly interested in predicting the relative long-term success of new entrants rather than whether their outcomes will improve in the short run because of a

cyclical upswing. Using this first prediction approach, we project outcomes for new entrants in the very near future.

To predict outcomes beyond the very short run of, say, three to five years, one needs a theory of what has caused existing trends and how that cause itself is likely to change. This is the second form of projection. Unfortunately, no one theory presents itself but information on past trends provides the extra service of helping us evaluate competing theories. We use past information in that way and settle on two plausible theories of underlying causes. We then describe two different predictive scenarios built from those theories.

As discussed above, our overriding concern is with outcomes for youths. However, we focus largely on and make predictions for 25- to 34-year-olds. We do so because we view this age as the time of a crucial transition to stable work patterns, accelerating careers and family formation. If change in the economy and the responses of youths to it generate permanent scars, these will be most evident in the time immediately following youth. The naturally high degree of flexibility of young people will make such scars difficult to detect directly. Alternatively, if current changes in the labour market require more adjustments from youth (for instance, in the form of prolonged schooling) but those adjustments still lead to stable work patterns at older ages, changes for youths may not arouse as much concern. We can evaluate this possibility directly by examining the experiences of different cohorts as they advance from age 25 to 34.

The remaining sections of the paper are structured as follows: In the next section, we provide an extensive overview of the changes occurring in the labour market, emphasizing how these changes are distributed across the population. The third section, which is the most novel aspect of the paper, presents a cohort-based analysis of observed changes in order to identify how opportunities are shifting for young workers. Drawing on the information presented in both the second and third sections, we map out, in the fourth section, two different scenarios of plausible adjustments by individuals to present changes. Finally, we summarize our main findings in the final section.

BASIC TRENDS IN THE LABOUR FORCE, EMPLOYMENT, EARNINGS AND NON-LABOUR ACTIVITIES

LABOUR FORCE TRENDS

Population Trends

We begin our analysis of labour market trends by examining the growth of the source population for the labour force. This essentially consists of the civilian population over the age of 15. The defining feature of the population growth rate has been a surge as members of the baby boom passed the age of 15, followed by a sharp fall. Figure 1 shows the size of the population in the 16-24, 25-34 and 35-44 age groups from 1950 to the present.[1] The baby boom is strongly in evidence in the more than 100 percent rise in the size of the youth population from 1960 to its peak in 1980 as well as in the parallel, lagged patterns for the other two age groups. In the next two to three decades, the population age distribution will shift: the peak of the baby boom will move close to retirement and the proportion of the source population in the youngest age category will be relatively small. The demographic shift is likely to be a central feature in defining the labour market experiences of new youth cohorts. The contrast between this situation and that in the previous two to three decades (when the youth cohorts were either the baby boomers themselves or the cohorts directly following them) should be kept in mind when projecting any past trends into the future.

Employment Rates by Age Group

We start our examination of labour force trends for those in the source population over the last 20 years by focussing on employment. We believe this is a useful place to start because employment is both the goal and the main labour market experience for most of the source population, something that is often forgotten in the more standard focus on unemployment and labour force participation. Also, this is the element of the labour force that is least subject to measurement error. Figure 2 shows the ratio of employment to the source population from 1965 to 1995. The pattern over that time period may be roughly characterized as an upward trend with cyclical swings increasing in amplitude. In the late 1970s, for example, the employment-to-population ratio declined by between 1 percent and 2 percent but it then surged to a much higher level by 1981. In the 1981-82 recession, the ratio fell by about 4 percent but by 1990 it again surged to levels well above the previous peak. The 1990s have so far been marked by a very sharp drop in the ratio, which has remained persistently low.

Underlying this general pattern has been a complex set of employment trends for various age, gender and education groups in the source population. Figure 3a shows the employment-to-population ratio by age group for males as

FIGURE 1

POPULATION BY AGE GROUP, 1951-1995

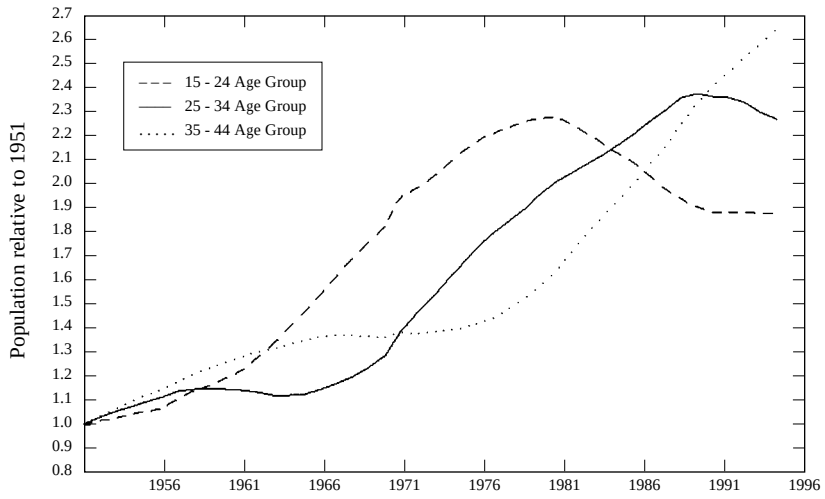
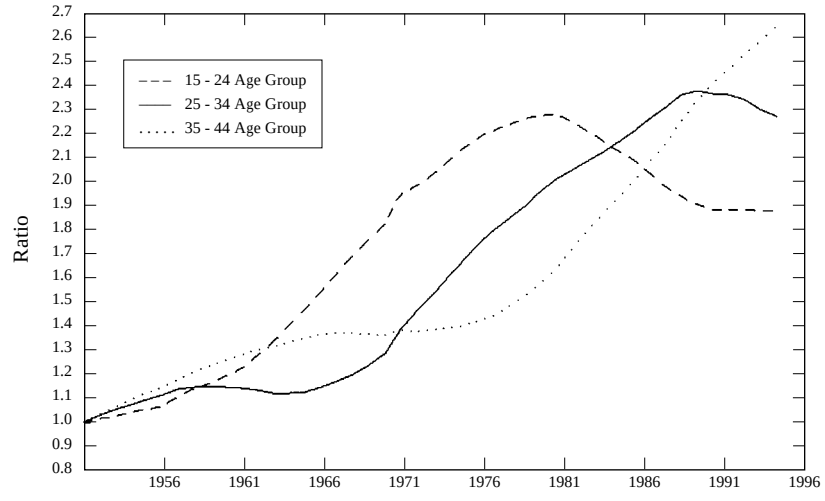


FIGURE 2

EMPLOYMENT-TO-POPULATION RATIO, BOTH SEXES, OVER AGE 15, 1976-1996



well as the ratio of the employment-to-population ratio for youths to that for males aged 25 to 54. The overall pattern seen in Figure 2 is not strongly in evidence for any of the age groupings presented for males. For males aged 15 to 24, the same strong cyclicality is evident as in Figure 2 but the overall trend is flat or downward. For all males over the age of 25, a sharp trend downward may be observed over the last 20 years with only small cyclical movements. The negative trend is often attributed to the impact of earlier retirement among men over the age of 55. However, the employment-to-population ratio for 25- to 34-year-olds falls by nearly 10 percent over this period. The trend for the latter age group suggests that trends in male employment are of more concern than might be warranted if they could be attributed purely to retirement decisions. Both the youngest age group and the 25- to 34-year-olds show strong cyclical patterns in their employment ratios. One might expect this feature in the case of young workers who have alternative uses of their time for investment in education and training. For the 25-34 age group the cyclicality is more of a surprise, as is the strong downward trend. Finally, the ratio of the employment-to-population ratio for youth to that for all workers over the age of 25 indicates that the relative position of youth is essentially unchanged from start to end of the period.

In Figure 3b, the results for females indicate much less cyclicality than that observed for males, and they show a strong upward trend for several of the age groups. The greatest cyclical variation is again evident in the youngest age group, with the drop being particularly large and persistent during the most recent labour market downturn. A comparison of cyclical peaks (1980 and 1989) indicates that an upward trend existed for youth before 1990. Relative to the employment patterns for those over the age of 25, however, employment for female youths fell dramatically over the period. Finally, in contrast to the situation for males, the 25-34 age group of females has more in common with older age groups than with youth. The 25-34 age group shows the same strong upward trend and minor cyclicality as the overall line for all age groups 25 and older.

One key result from Figures 2, 3a and 3b is that overall trends can hide very significant differences between sub-populations, and particularly between males and females. While females' employment ratios have strongly increased over the last 20 years, those of males have plummeted even for age groups not near retirement. Further (a perhaps surprising finding), the male series display more cyclicality than their female counterparts. Similarity between males and females appears mainly in the youngest age group, where both males and females have experienced sharp employment downturns in the 1990s.

FIGURE 3a

EMPLOYMENT-TO-POPULATION RATIO BY AGE GROUP, MALES
1976 - 1996

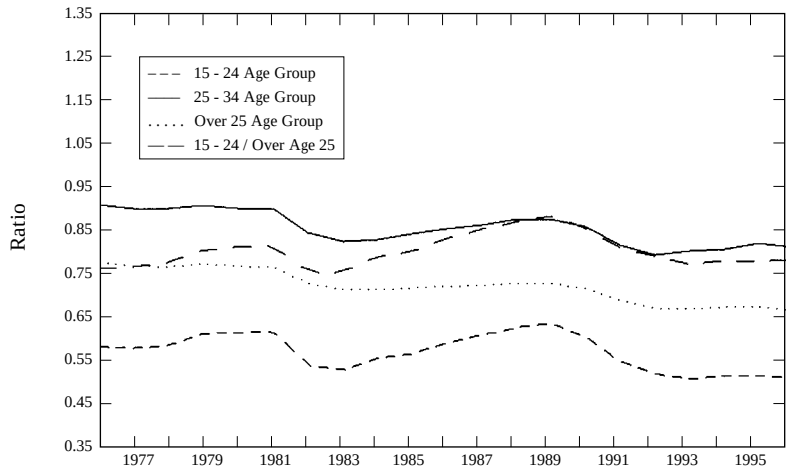
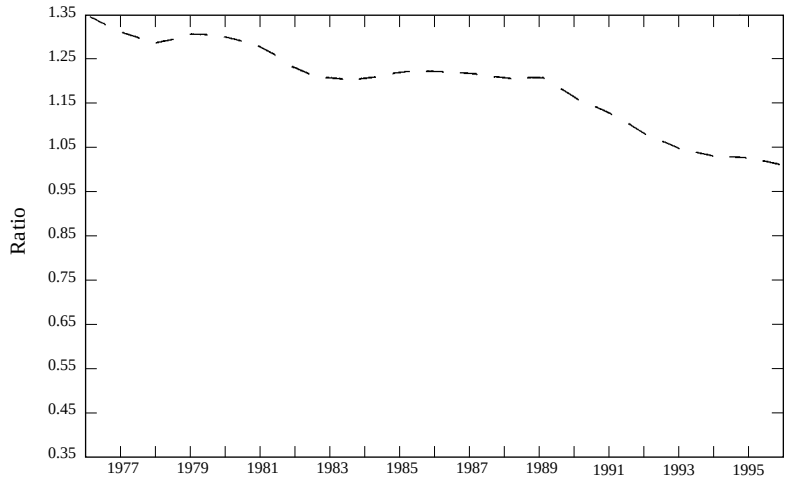


FIGURE 3b

EMPLOYMENT-TO-POPULATION RATIO BY AGE GROUP, FEMALES
1976 - 1996



Employment Rates by Education Group

Strong trends and interesting patterns for sub-populations are also evident from an examination of employment trends by education level. Riddell (1995) shows that since 1980 there has been a substantial movement in the educational composition of the workforce away from the lowest education categories and toward postsecondary categories. In particular, over the period from 1980 to 1993, Riddell documents a 57 percent drop in the number of employed workers with an elementary education and a 77 percent increase in the number with a university degree. Those trends have accelerated in the 1990s (see Riddell, 1995, Table 2). Underlying these patterns are changes induced by the retirement of older, less educated cohorts as well as by the education choices of new cohorts, plus the poorer labour force performance of the least educated workers in economic downturns. Whatever the exact reason for the changes, however, the scale of the shifts is remarkable.

Tables 1-4 present employment-to-population ratios by gender, age and education for 1981, 1982, 1988 and 1992 respectively. A comparison of Table 1 to Table 3 shows trend effects from one cyclical peak (1981) to another (1988). It is not possible to arrive at a simple statement in terms of a common drop in employment rates for elementary-educated workers of both sexes or all age types. While such a trend exists for prime-age males, the employment rate of low-educated males aged 15 to 24 actually increases over this period. For males over the age of 25 in most education groups, the employment rates can best be described as high and relatively stable. Perhaps the main trend observable over this time period is the increase in the employment-to-population ratios for females over the age of 25 in all education categories above elementary - an indication that the trends for older females discussed earlier are present across virtually the entire education range. For young females, the pattern of increases and decreases in the employment rate across education categories is mixed. It is difficult to provide a full interpretation of the patterns for the youngest age group since they will reflect changes in employment opportunities as well as in school enrollment rates.

A comparison of Table 3 and Table 4 reveals how employment rates changed as the economy moved into the labour market difficulties of the early 1990s. For all age and sex groups, there are sharp reductions in the employment rates of individuals with an elementary education. For the youngest age groups, this finding may reflect decisions to stay in school longer in the face of a recession; for the older workers, however, it is an indication that the least educated bear the brunt of economic downturns. For workers over the age of 25, the recession has caused drops in employment rates for most education groups, with the smallest drops occurring for those with more than a high school education. Among young workers, declines may be seen in the employment rates for all male education groups but there is a substantial increase in the employment rate for females with a high school education.

TABLE 1

EMPLOYMENT-TO-POPULATION RATIOS, 1981
AGE GROUP AND GENDER

	15 - 24			25 - 34			35 - 54			ALL
Education	Male	Female	All	Male	Female	All	Male	Female	All	GROUPS
Elementary	.5758	.3862	.4941	.9036	.5160	.7096	.9083	.5055	.7158	.6769
High school, some or completed	.8072	.7144	.7611	.9723	.6745	.8168	.9667	.6756	.8099	.7927
Some postsecondary studies	.9199	.8629	.8925	.9650	.7820	.8789	.9722	.7555	.8664	.8820
Postsecondary certificate	.9472	.9304	.9377	.9761	.8331	.9012	.9869	.7858	.8741	.8988
Postsecondary degree	.9278	.9665	.9478	.9688	.8768	.9275	.9852	.8110	.9260	.9288
All	.8165	.7401	.7786	.9660	.7252	.8445	.9571	.6658	.8112	.8107

Note: Based on authors' calculations using the Survey of Consumer Finances.

TABLE 2

EMPLOYMENT-TO-POPULATION RATIOS, 1982
AGE GROUP AND GENDER

	15 - 24			25 - 34			35 - 54			ALL
Education	Male	Female	All	Male	Female	All	Male	Female	All	GROUPS
Elementary	.5238	.3594	.4557	.8667	.5019	.6844	.8964	.5030	.7047	.6591
High school, some or completed	.7824	.6882	.7360	.9589	.6828	.8136	.9489	.6660	.7965	.7785
Some postsecondary studies	.8791	.8291	.8540	.9722	.7874	.8886	.9771	.7369	.8667	.8676
Postsecondary certificate	.9186	.8820	.8974	.9776	.8226	.8961	.9823	.7734	.8683	.8856
Postsecondary degree	.8316	.9501	.8948	.9711	.8639	.9220	.9802	.8222	.9232	.9203
All	.7849	.7160	.7507	.9584	.7266	.8411	.9467	.6605	.8035	.7983

Note: Based on authors' calculations using the Survey of Consumer Finances.

TABLE 3

EMPLOYMENT-TO-POPULATION RATIOS, 1988
AGE GROUP AND GENDER

	15 - 24			25 - 34			35 - 54			ALL
Education	Male	Female	All	Male	Female	All	Male	Female	All	GROUPS
Elementary	0.6360	0.3805	0.5270	0.8479	0.5533	0.7098	0.8507	0.5390	0.6964	0.6652
High school, some or completed	0.8506	0.7563	0.8051	0.9614	0.7759	0.8678	0.9430	0.7594	0.8456	0.8400
Some postsecondary studies	0.9563	0.8907	0.9230	0.9727	0.8250	0.8989	0.9356	0.8054	0.8723	0.9001
Postsecondary certificate	0.9715	0.9412	0.9548	0.9832	0.8924	0.9358	0.9711	0.8351	0.8994	0.9234
Postsecondary degree	0.9474	0.9509	0.9494	0.9668	0.9092	0.9380	0.9738	0.8958	0.9413	0.9407
All	0.8648	0.7865	0.8262	0.9617	0.8153	0.8878	0.9387	0.762	0.8499	0.8555

Note: Based on authors' calculations using the Survey of Consumer Finances.

TABLE 4

EMPLOYMENT-TO-POPULATION RATIOS, 1992
AGE GROUP AND GENDER

	15 - 24			25 - 34			35 - 54			ALL
Education	Male	Female	All	Male	Female	All	Male	Female	All	GROUPS
Elementary	.5491	.3251	.4532	.7878	.4985	.6507	.7561	.5156	.6369	.6055
High school, some or completed	.7304	.6698	.7016	.9163	.7005	.8087	.9180	.7561	.8301	.7847
Some postsecondary studies	.9083	.8710	.8898	.9145	.8113	.8628	.9265	.7773	.8506	.8698
Postsecondary certificate	.9169	.8990	.9075	.9735	.8787	.9252	.9347	.8569	.8961	.9080
Postsecondary degree	.9209	.9297	.9263	.9595	.9189	.9391	.9684	.8701	.9265	.9308
All	.7832	.7405	.7623	.9360	.7971	.8663	.9182	.7793	.8482	.8334

Note: Based on authors' calculations using the Survey of Consumer Finances.

Finally, a comparison of Table 1 and Table 2 reveals the effects of the onset of an earlier recession. While we can see some of the same patterns as those at the onset of the recession in the early 1980s (the employment rates for the least educated decline in both cases), the movements are much smaller in 1981 and 1982 compared with 1988 and 1992. By this measure, the changes observed in the early 1990s cannot be attributed to a "standard" recession effect.

Overall, there is evidence of substantial downward shifts in employment rates for low-educated workers and upward shifts for the most educated. The 1990s witnessed sharper and more sustained falls in employment rates than occurred in the recession of the early 1980s.

Industrial Composition

The labour force has also undergone substantial shifts in its sectoral composition in the last two decades. Kaliski (1985) and Riddell (1985) discuss trends in industrial and occupational composition of the workforce up to the early 1980s, and Riddell (1996) extends the analysis into the 1990s. The main industrial composition trends before 1980 are a strong shift away from all primary sector industries, a rise in employment in manufacturing and construction, and a much stronger rise in employment in the service industries. Much of the growth in relative importance of the service sector occurred before 1973 but it has continued unabated to the present. In the 1980s, the manufacturing sector showed near-zero employment growth while the service sector grew strongly, particularly in the financial services industries. In the 1990s, employment growth in manufacturing turned sharply negative. Service sector employment continued to grow but within that sector there were very significant drops in growth in the financial services industries and the public sector. As Betcherman and Morissette (1994) note, the latter trend could be seen as particularly troubling for youth, for whom government jobs have provided a high-quality entry port to the labour force in the past. Finally, it is worth noting that youth and female workers account for a disproportionate share of the growth in the service sector.

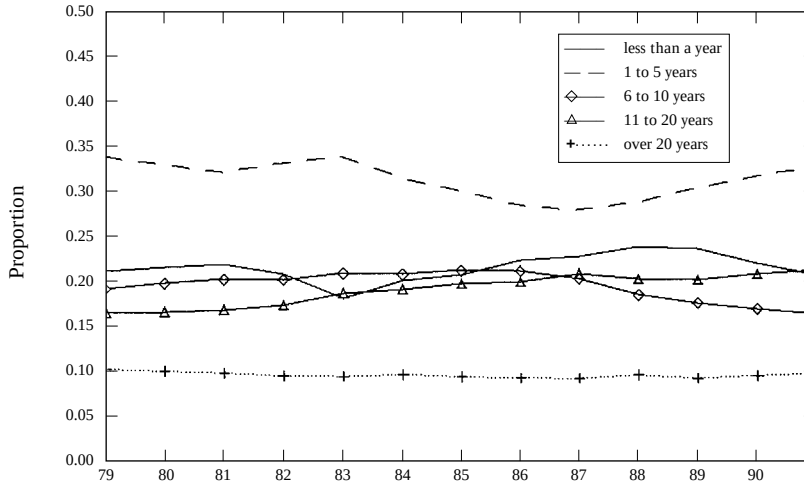
The stagnant growth in employment in Canada's manufacturing sector has fuelled an ongoing concern that significant structural change is occurring in the labour market, leading to more unstable work patterns. Riddell (1996) discusses this issue in the context of shifts in employment both across broad sectors and within the manufacturing sector. He concludes that there is little evidence of a recent increase in structural change across broad sectors relative to the 1960s and 1970s, but there is evidence of more upheaval within the manufacturing sector in recent times.

Trends in Job Tenure

To investigate whether perceived structural changes have created more job instability, Green and Riddell (1996) examine the distribution of non-self-employed job durations over time. Figure 4 (which recreates their Figure 1) shows the proportion of ongoing jobs of various (incomplete) durations in March of each year, from 1979 to 1991. On the basis of this figure there does not appear to be substantial evidence of increased job instability since the proportion of jobs that are of very short duration has not increased over time. There is some evidence of cyclicality, particularly in terms of reductions in the proportion of jobs lasting less than one year in the recessions of the early 1980s and early 1990s. The overall picture masks significant differences between subgroups, however. After controlling for business cycle conditions, Green and Riddell find statistically significant and substantial increases in the proportion of jobs lasting under one year for males and females aged 20 to 24 in virtually all education groups over the period from 1979 to 1989. Increases in this proportion are also evident for males aged 25 to 34 in all education groups, and for workers with less than a high school education in virtually all age groups (both males and females). The fact that, by this measure, there has been an increase in job instability for males aged 25 to 34 but not for females in this age group provides an interesting parallel to the trends in employment discussed earlier.

FIGURE 4

TENURE PROPORTION FOR THE ENTIRE LABOUR FORCE



It should be noted, though, that while positive trends are stronger for males in this age category, females still have a higher probability of holding jobs lasting one year or less. The increased instability for these groups is offset by a trend toward longer-lasting jobs among women over the age of 25 and men in the 35 - 44 age category. Overall, the job duration distribution has experienced a "hollowing out" of the middle: instability is greater for the young and least educated, and also for males aged 25 to 34.

Non-Standard Employment

Job instability may show up in shifts toward non-standard forms of employment as well as in changes in job duration. One interesting trend in this regard has been an increase in the proportion of self-employed workers in the economy. Crompton (1993) documents a slow but steady increase in self-employment from 1971 to 1991. Self-employment constituted 14 percent of total employment in 1989 and 15 percent in 1994 (Krahn, 1995). More specifically, for own-account self-employed (self-employed individuals who have no employees), the equivalent figures are 7 percent in 1989 and 9 percent in 1994, with the percentages being slightly higher for men than women. Self-employment seems not to play a large role in youth labour market experience, with only 5 percent of males and under 3 percent of females aged 15 to 24 being classified as own-account self-employed (Krahn, 1995). Self-employment rates increase significantly with age, as might be expected. There appears to be no trend toward self-employment among the youngest age cohort in the 1990s, but there is a slight (statistically insignificant) shift in that direction for workers aged 25 to 34 (Krahn, 1995).

Further evidence of reduced labour market stability is found in the rapid rise in part-time employment. From 1976 to 1994 the percentage of the workforce working less than 30 hours per week rose from 11 percent to 17 percent. Within that trend there are strong differences by gender and age. For example, part-time employment for females aged 15 to 24 rose from approximately 23 percent in 1976 to 46 percent in 1994. For males in the same age group, the increase was from 18 percent to 36 percent. For men aged 25 to 54, the part-time rate was only 4 percent in 1994. In the 1990s the rate of growth of part-time employment has essentially stopped, but this overall trend hides large growth in part-time employment for both sexes in the youngest cohort (from 40 percent in 1989 to 46 percent in 1994 in the case of females aged 15 to 24), offset by declines for all age groups aged 25 to 54 (Krahn, 1995). Whether these trends are to be seen as worrisome depends to some extent on whether the individuals involved are choosing part-time employment. The majority of part-time workers voluntarily work less than 30 hours a week. In 1995, the proportion of part-time workers who listed themselves as involuntarily employed part-time was 25 percent for 15- to 24-year-old males, 28 percent for 15- to 24-year-old females, 42 percent for males over the age of 25, and 32 per-

cent for females over the age of 25. However, there has been a strong upward trend in the proportion of involuntary part-timers for both sexes and all age groups in the 1990s.

Why has part-time work increased in importance for young workers but not for their older counterparts in the 1990s? The close similarity of trends in the involuntary part-time component for youth and older workers in the 1990s suggests that the answer does not lie in relatively poorer labour market conditions for younger workers. Instead it may be related to the strong increase in school enrollment for 15- to 24-year-olds in the same period. If that is so, the rise in youth part-time employment may be less of a concern than it first appears. We return to this point later when we discuss enrollment trends.

Job instability may also be indicated by increases in contract jobs with a fixed termination date set in advance. An increase in contract jobs, even if the distribution of job durations remains unchanged, would indicate a weaker connection between workers and a specific firm as well as a career path that involves more job switches. As with other types of non-standard work, contract jobs are more common among the young than in other age categories. In 1994, 17 percent of 15- to 24-year-old females and 16 percent of males in the same age category held contract jobs, while the figure was below 9 percent for the remaining workforce. In the 1990s there has been a small upward trend in the proportion of young workers in these categories. Most other age groups show either no increase or a slightly negative trend in the 1990s for females but there are increasing rates for males, with the percentage of males aged 25 to 34 who hold temporary jobs increasing from 6 percent in 1989 to 10 percent in 1994 (Krahn, 1995).

The various types of non-standard employment exhibit a high degree of overlap. For example, part-time jobs are also more likely to be of short tenure. To aid in understanding net movements in non-standard employment, Figure 5a plots the proportion of males in various age groups who worked full-year/full-time in various years. Full-year/full-time workers are defined as individuals who worked over 50 weeks in a year and who list themselves as full-time workers on their main job in a year. Not surprisingly, the proportion varies considerably for youths and older workers. For both youths and older age groups, it is tempting to compare 1988 with perhaps 1993 and to draw a conclusion that non-standard work has been on a steep upward path in recent years. This may be true in part, but a comparison with the early 1980s indicates that the proportion working full-year/full-time declined sharply at that time as well. In the third section, we attempt to untangle common year effects, such as might be caused by a recession, from “permanent” differences facing new labour force entrants in the 1990s versus those in earlier periods.

Figure 5b presents the same information as Figure 5a for females. Considerable similarity is apparent in patterns for males and females in the youngest age group. For both genders, there is a strong cyclicality and a very large drop in the proportion who hold full-year/full-time jobs in the 1990s. For

FIGURE 5a

PROPORTION OF THE MALE POPULATION WORKING FULL YEAR-FULL TIME, BY AGE GROUP, 1981-1993

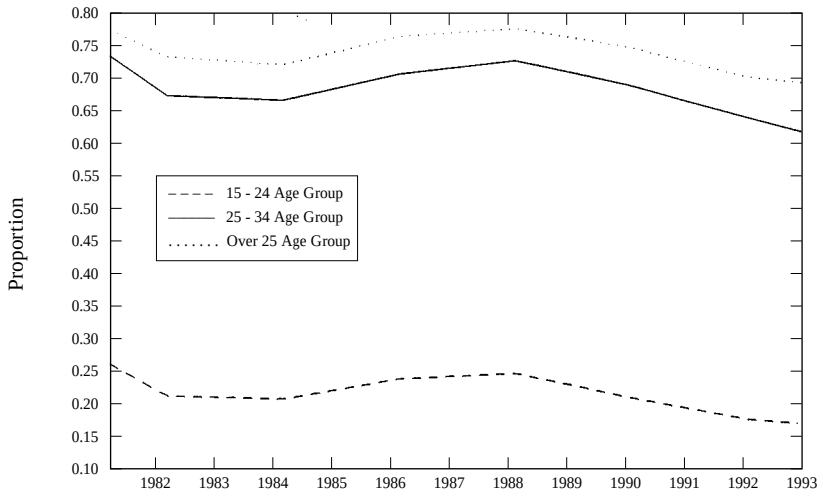
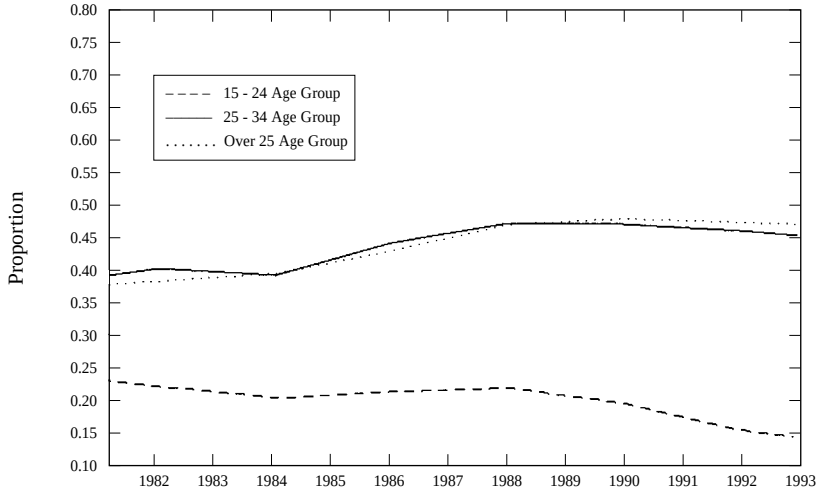


FIGURE 5b

PROPORTION OF THE FEMALE POPULATION WORKING FULL YEAR-FULL TIME, BY AGE GROUP, 1981-1993



older age groups, however, the pattern for females is much the same as patterns in employment rates seen earlier. In particular, a strong upward trend in the proportion of full-year/full-time workers through the 1980s becomes flat in the 1990s. The most striking difference between males and females is found in the age 25 - 34 category. The male pattern is much more similar to that for youths among males.

Non-standard employment as a whole can be summarized as following an upward trend, with some particularly sharp rises in the 1990s. The rises in the 1990s have been most noticeable for youths of both sexes and males aged 25 to 34. But while non-standard employment has certainly played a substantial role in adjustments by workers to the weaker labour market of the 1990s, it is not clear whether trends in the 1990s represent a cyclical reaction or a more permanent change. We return to this issue in the empirical work presented in the third section. It should be kept in mind, however, that none of the individual types of non-standard employment make up a very large proportion of total employment. Similarly, claims that the labour market has shifted dramatically toward unstable work arrangements are overstated, especially for prime-age workers.

Labour Force Participation

Underlying the employment trends we have been examining are movements in the labour force participation rates. Until the late 1980s these movements have been dominated by large and continual rises in the female participation rate, which was 23 percent in 1953 and approximately 60 percent in 1990. In the 1990s, the increase in the female participation rate has stalled. Figure 6a shows the participation rate for women in various age groups. For the youth component, aged 15 to 24, a very rapid increase up to 1981 slowed through the 1980s and then turned sharply negative in the 1990s. One might expect a downturn in youth participation in economic declines as youths respond to poor labour market opportunities by withdrawing and enrolling in education or training. However, a comparison of the small downturn in the youth participation rate in 1982-83 with the large drop in the 1990s suggests that something more than a standard cyclical response is occurring. For older age groups, the female participation rate has essentially stayed constant in the 1990s, with a slight fall for 25- to 34-year-olds and small increases for older groups (Butlin, 1995).

The patterns for males shown in Figure 6b are quite different. In contrast to females, the participation rate for males over the age of 25 shows a continual downward path over the last two decades, falling from 81 percent in 1976 to 74 percent in 1995. In part, this trend is a reflection of an ongoing move toward earlier retirement among men over the age of 55. However, the other two age group lines in the figure indicate that retirement is not the sole explanation of the overall trend. Males aged 15 to 24 show a pattern somewhat similar to females in the same age group. Their participation rate is essentially flat

FIGURE 6a

LABOUR FORCE PARTICIPATION RATE BY AGE GROUP, FEMALES, 1976-1996

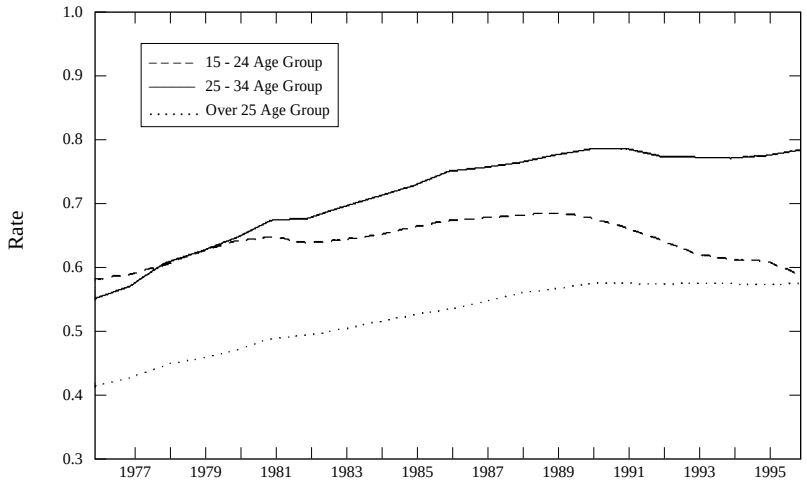
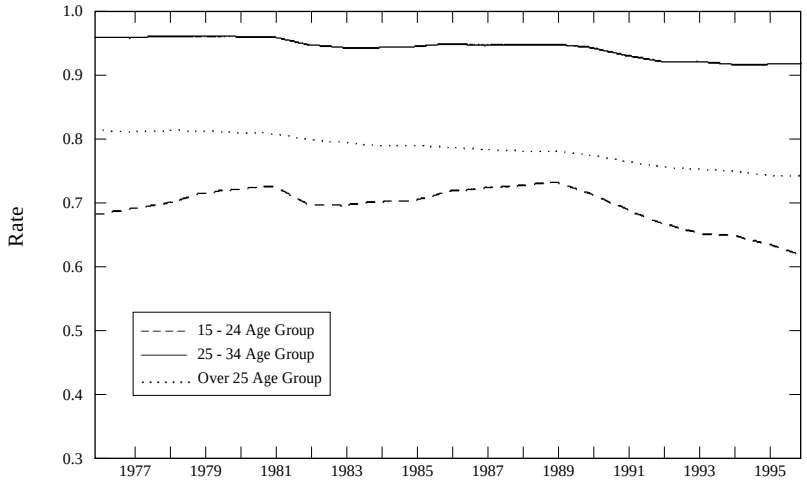


FIGURE 6b

LABOUR FORCE PARTICIPATION RATE BY AGE GROUP, MALES, 1976-1996



through the 1980s and then falls sharply, from 73 percent in 1989 to 64 percent in 1995. The male rate appears to be more cyclically sensitive than the corresponding female rate; again, however, it appears unlikely that drops in the male rate in the 1990s are simply a replay of the cyclical downturn in the early 1980s. More surprising than the recent decline in the youth participation rate is the fall in the participation rate for 25- to 34-year-old males. After remaining near 95 percent up to 1989, their participation rate fell to 91 percent by 1995.

Participation rates for males over the age of 25 can be summarized as following a downward trend with an accelerating decline in the 1990s. Females over the age of 25 experienced strong growth in participation rates up to 1989, followed by a plateau in the 1990s. Young males and females share a pattern of a relatively flat trend in the 1980s, turning into a large drop in the 1990s.

Unemployment

A useful way to understand the labour-related performance of the Canadian economy over the last two decades is to compare trends in the participation rate to trends in the employment-to-population ratios. For females, there are strikingly rapid increases in both participation and employment rates up to 1989. From 1981 to 1989, the labour force participation rate for females aged 25 to 34 increased by approximately 11 percent from 66 percent in 1981 to 77 percent in 1989. At the same time, the employment-to-population ratio for that group rose from 61 percent to 70 percent. The economy thus managed to provide a large number of new jobs for a very large increase in the labour force. The employment creation rate did not quite match the labour force growth rate over this period, however, and the result shows up in the unemployment rate. Figure 7a shows the unemployment rate by age group for females. As expected, the unemployment rate for females aged 25 to 34 increased slightly between 1981 and 1989. The patterns for all females over the age of 25 are very similar to those for females aged 25 to 34 in this period: rapid increases in the labour force participation rate, not quite matched by strong growth rates in employment. In the 1990s, as we have seen, the growth in participation stalled for women over the age of 25, and the unemployment rate pattern has been determined by employment growth that first declined and then recovered slightly.

For females aged 15 to 24, there is much more cyclical variation in all three rates. However, matching the cyclical peaks of 1981 and 1989, there may be seen an increase in the participation rate of 4 percent and an increase in the employment rate of 5 percent. For this group: mild (compared with older females) participation growth was more than matched by mild employment growth. The result was a drop in the unemployment rate for young women during the 1980s. In the 1990s both the participation and employment rates for this group have plunged, with the employment rate dropping faster in the early 1990s and causing a sharp rise in the unemployment rate. Overall, women have found the 1990s very different from any time in the previous two decades. Up

FIGURE 7a

UNEMPLOYMENT RATE BY AGE GROUP, FEMALES, 1976-1996

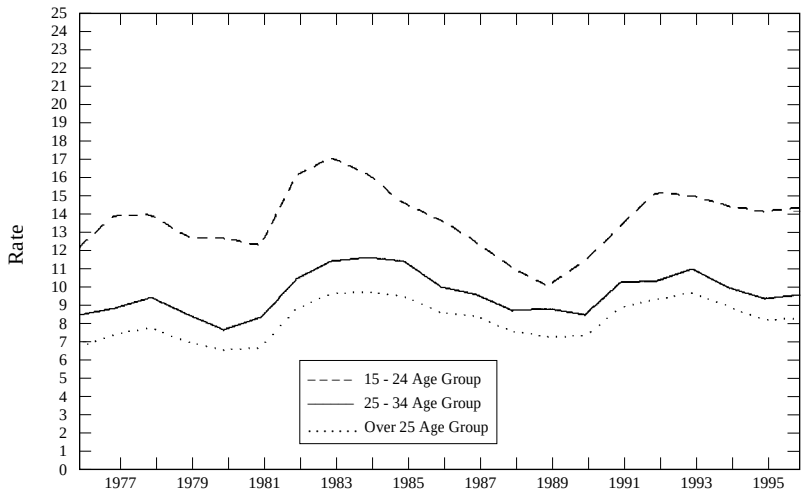
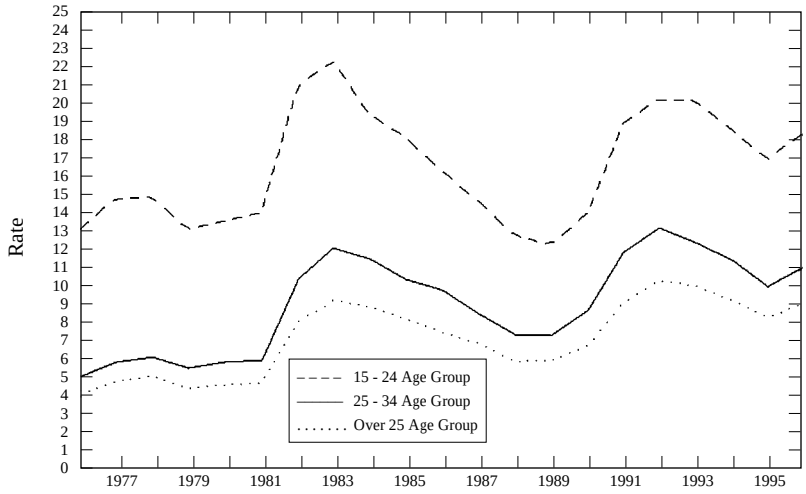


FIGURE 7b

UNEMPLOYMENT RATE BY AGE GROUP, MALES, 1976-1996



to 1989, variations in unemployment were generated by differing rates of increase in participation and employment rates. In contrast, the 1990s have witnessed stagnant or negative growth in most participation rates, accompanied by a decline and then resumption in employment growth for women over the age of 25 and a drop in employment growth for women under 25.

For males over 25, the past two decades brought continual declines in both participation and employment. While the decline has been quite smooth in the case of the participation rate, the employment rate has shown marked cyclical swings; the result is the large cyclical variation in the unemployment rates shown in Figure 7b. Again, the most surprising decline may be for 25- to 34-year-olds: their labour force participation rate fell from 95.5 percent in 1981 to 94 percent in 1989, at the same time as their employment rate fell from 89.4 percent to 87 percent. This group thus faced poorer employment outcomes offset by some withdrawal from the labour force as well as an increase in the unemployment rate. In the 1990s, the experience of 25- to 34-year-old men has been worse: their employment rate fell by 7 percent while their participation rate fell by 2 percent from 1989 to 1993. The overall pattern is in striking contrast to the positive employment growth for females in the same age group.

Males in the youngest age group followed a different pattern. Their employment rate actually grew from 1981 to 1989 while their participation rate was relatively steady, leading to a drop in their unemployment rate. Along with patterns in the 1990s, this situation is very similar to the pattern for females in the same age group. Movements in the youth labour market thus seem to differ from those in labour markets for older age groups of either sex. As with females, the male youth unemployment rate in the 1990s has not risen to the levels it reached in the recession of the early 1980s. On the other hand, for older males and females, unemployment rates in the 1990s have nearly matched or surpassed those in the early 1980s. Thus, while one would not describe youth labour market experiences in the 1990s as good, their outcomes in terms of unemployment are better (when compared with older workers) than in the recession of the early 1980s. This phenomenon is mainly the result of much greater labour force withdrawal among young workers in the 1990s; it masks the relatively poor (for young compared with older females) or relatively constant (for young compared with older males) employment experiences for youths in the 1990s compared with the early 1980s.

Table 5 presents unemployment rates by gender and education level. As might be expected, unemployment rates fall continuously as education levels rise for both sexes. For males, there is much stronger cyclicality in unemployment rates in the two lower versus the two higher unemployment rates. Unemployment rates for both elementary- and some high school-educated workers show very sharp jumps in 1990, to levels that are comparable with rates witnessed for these groups in the recession of the early 1980s. In contrast, the unemployment rate for individuals with a postsecondary degree does not increase substantially until 1992 but it reaches higher levels than those in 1982.

TABLE 5

UNEMPLOYMENT RATES BY EDUCATION LEVEL
YEAR AND GENDER

	1981		1982		1984	
Education	Male	Female	Male	Female	Male	Female
Elementary	0.1692	0.1582	0.1908	0.1658	0.1800	0.1676
High school, some or completed	0.1362	0.1245	0.1769	0.1515	0.1424	0.1357
Some postsecondary studies	0.0802	0.0737	0.1368	0.1190	0.0898	0.1045
Postsecondary degree	0.0325	0.0531	0.0432	0.0434	0.0485	0.0549
All	0.1151	0.1055	0.1470	0.1282	0.1213	0.1152

Note: Unemployment rates are calculated from the Survey of Consumer Finances. The unemployment rate equals the proportion of individuals in the labour force in the reference week who are without work and searching for work.

For females the pattern is similar, apart from the fact that unemployment rates climb much higher for males in the lower two education categories in the 1990s than for females in the same education groups.

Movements in unemployment rates can occur because more people enter unemployment (i.e., the state of being without work but searching for work), either through leaving a job or starting to search for a job when they are without one. Movements can also occur if there is variation in how long individuals stay in a given unemployment spell. The first avenue for unemployment rate movements is called the incidence of unemployment while the second is called duration. Incidence can be studied by examining movements in the probability that individuals will leave a job and enter unemployment, or that they will leave the "Not in the Labour Force" state (i.e., the state of being without work but not looking for work) and entering unemployment. The duration of unemployment spells is determined by the probability that an unemployed individual leaves unemployment by getting a job or ceasing to search for work. The latter movement can occur when unemployed individuals become discouraged about their job prospects and simply stop searching. As the economy moves through a cycle, the number of discouraged workers can vary a great deal, sometimes causing apparently perverse movements in the unemployment rate. For this reason, the unemployment rate can be described as a rubber ruler when it comes to measuring the business cycle.

Changing Patterns in Labour Earnings

Overall Trends

In recent years, researchers have directed considerable effort toward documenting changes in the distribution of labour earnings in Canada. The results provide a rather complete but intricate description of the changes that have occurred over the last 15 years. With the aim of offering a simple description of the major findings, we review this earnings literature by first documenting the overall movements in the distribution of annual earnings, then breaking down these movements into broad age and education groups, and finally discussing the breakdown of the observed changes between hours worked and hourly wages. Throughout we report findings for men and women separately. Most of the information summarized here derives from the Survey of Consumer Finances.

The overall changes in real annual earnings for men and women are summarized in Table 6. For men, median annual earnings have been declining since the early 1980s. However, the behaviour of the median does not summarize all changes appropriately; in particular, from 1981 to 1993 there has been substantial polarization. During this period, the gap between the top and bottom decile of the earnings distributions widened considerably: earnings of the top decile decreased by only 1 percent while those of the bottom decile decreased by more that 27 percent. This increased disparity in earnings indicates a particularly

TABLE 6

PERCENTAGE CHANGE IN ANNUAL REAL EARNINGS BY SELECTED DECILES, ALL EARNERS

	1981-88		1988-93	
Decile	Males	Females	Males	Females
10–			10 11	
–		17	12	
50	–4	1–		5 10
90	0	9–		1 6

Note: Based on authors' calculations using the Survey of Consumer Finances, various years.

harsh drop in absolute and relative earnings for those at the bottom of the distribution. Recent work by Morissette and Bérubé (1996) further suggests that the observed changes in annual earnings actually reflect changes in lifetime earnings. Using a panel data set based on income tax records, Morissette and Bérubé show that the increased dispersion in earnings over the 1980s was not associated with increased mobility across the income distribution. Therefore, the observed increased polarization of annual earnings over the 1980s can be reasonably interpreted as indicating increased inequality in permanent income.

The picture for women is substantially different from that for men. The earnings of women continued to grow throughout the 1980s and early 1990s. As might be expected, much of the growth in women's earnings is due to increases in annual hours worked. In fact, when we focus exclusively on full-year/full-time workers (an approach that limits the changes in earnings attributed to changes in hours worked), we observe that the earnings for women in the bottom decile have actually fallen relative to the median.

Breakdowns by Age and Education

Once it is recognized that there have been substantial movements in the earnings distribution, it is natural to ask whether the observed changes are attributable to changes in the composition of the workforce or to changes in earnings between different groupings of workers. The decomposition that has attracted the most attention is on the basis of age (or experience) and education groupings. Effort has also been devoted to assessing the importance of changes in industrial and occupational composition (see, for example, Richardson, 1994). Since the latter decomposition explains little of the overall trends, we concentrate on documenting how the increased inequality in earnings relates to age and education.

The first important finding related to age and education (see, for example, Morissette, Myles and Picot, 1993) is that the increased polarization of earnings observed over the 1980s is not due simply to a change in the age-education composition of the working population. In fact, as we shall see later in this paper, the changes in the age-education composition of the workforce have most likely contributed to a narrowing of earnings disparity.

Table 7 reports changes in earnings for different age and education groupings. The period covered is from 1981 to 1993. It should be noted that the analysis must be split by gender to obtain a clear picture of the changes. The first and perhaps most important observation from this table relates to age. For both men and women there were considerable declines in the absolute and relative earnings of workers aged 17 to 24 and, to a lesser extent, workers aged 25 to 34. In contrast, most workers aged 45 to 54 experienced increasing earnings during this period.

TABLE 7

PERCENTAGE CHANGE IN REAL ANNUAL EARNINGS BY AGE AND EDUCATION, 1981-93
GENDER

	Male	Female
I. All earners		
16 - 24 years	0.36	0.24
25 - 34 years	0.16	0.06
35 - 44 years	0.10	0.15
45 - 54 years	0.02	0.29
Educational level		
Elementary	0.20	0.03
Some high school	0.12	0.07
Some postsecondary studies	0.19	0.11
Postsecondary certificate	0.12	0.06
University degree	0.05	0.09
II. Full-year/full-time workers		
16 - 24 years	0.14	0.01
25 - 34 years	0.07	0.03
35 - 44 years	0.05	0.17
45 - 54 years	0.04	0.05
Educational level		
Elementary	0.07	0.08
Some high school	0.06	0.06
Some postsecondary studies	0.01	0.02
Postsecondary certificate	0.08	0.02
University degree	0.03	0.06

The changes in earnings across different education groups reported in Table 7 show no clear pattern of increase or decrease in the returns to education. This observation contrasts sharply with findings for the United States, where changes in earnings have been strongly and positively related to education. One possible explanation for the discrepancy is that institutions in Canada may better protect older workers and, as a result, any downward pressure on wages for less educated male workers would appear only among young or less experienced Canadian workers. If this is the case and we assume that Canada is subject to the same fundamental wage pressures as the United States, we should expect changes in Canadian earnings to be much more positively related to education levels among young workers than among the population at large. This is precisely what is found in Bar-Or et al. (1995). In particular, for workers with only one to five years of experience (i.e., mainly young workers), Bar-Or et al. report that the 1980s saw a substantial increase in the relative earnings of university- over high school- educated workers.

In summary, the 1980s and early 1990s have been a period of widening disparity in labour earnings. Part of the greater disparity is due to the fall in earnings for young workers and especially young less educated workers. Notwithstanding the importance of these between-group changes in earnings, it should be emphasized that they do not explain all the observed increase in disparity. In fact, as noted by Morissette, Myles and Picot (1993), an important fraction of the increased disparity in earnings has arisen from disparity within age-education groupings. Therefore, even though older workers have on average fared better than younger workers, there are many older workers who have also experienced substantial deterioration in labour market outcomes.

Weekly Earnings, Hours Worked and Hourly Wages

The previous discussion concerns changes in annual earnings and therefore considers changes in both hours worked and hourly wage rates. To provide an accurate picture of labour market trends, it is useful to break down changes in annual earnings into hours and wage rate components. To this end, we begin by briefly discussing whether changes in weekly earnings mirror changes in annual earnings and how changes in weekly earnings relate to changes in annual weeks worked. We then proceed to describe the decomposition of weekly earnings into weekly hours and hourly wages.

Richardson (1994) documents changes in the distribution of weekly earnings from 1981 to 1992 and reports a pattern of rising inequality very similar to that found for annual earnings. In effect, the similarity between changes in the distribution of weekly and annual earnings can be inferred indirectly from Table 7. As seen in this table, age-related changes are quite similar across the samples of all earners and the sub-sample containing only full-time/full-year workers. Since full-year workers undergo only limited changes in the number of weeks worked, this observation indicates that increased dispersion in weekly

earnings has been a factor contributing to the increased dispersion in annual earnings. The increased inequality in annual earnings cannot be attributed exclusively to increased inequality in the number of weeks worked.

Kuhn and Robb (1995) provide further information relevant for understanding how changes in weeks worked has contributed to changes in the distribution of annual earnings. For the period from 1971 to 1991, Kuhn and Robb found changes in weeks worked to be highly positively related to changes in weekly earnings. This finding indicates that variations in weeks worked actually amplified the effect of increased weekly earnings inequality on annual earnings. In particular, Kuhn and Robb's results suggest that the large fall in the bottom quintile of the annual earnings distribution was due to a combined effect of falling weekly earnings and a drop in the number of weeks worked per year.

Morissette (1995) provides information on the breakdown of weekly earnings into its hourly wages and weekly hours components (see also Morissette and Sunter, 1994). Beginning with weekly hours, Morissette documents a substantial hollowing of the weekly hours distribution. For example, over the period from 1981 to 1989, he finds a 9 percent decline in the fraction of male workers working between 35 and 40 hours per week. Simultaneously, he finds an increase of almost 4 percent in the fraction of male workers working more than 50 hours a week. Morissette also reports that the increase in the over-50-hours work week is most prevalent among older and more educated workers, while younger and less educated workers have an increased incidence of part-time work (less than 30 hours per week). These observed changes in the distribution of weekly hours are also found to be quite widespread, arising in most industries and occupations.

Documenting changes in the distribution of hourly wages is somewhat problematic in Canada given the limited reliable data. Nonetheless, using the Survey of Work History (1981) and the Labour Market Activity Survey (1988), Morissette, Myles and Picot (1995) provide information on how the distribution of hourly wages changed between 1981 and 1989, and how these changes are related to changes in the distribution of weekly hours. The overall picture indicates that the distribution of hourly earnings has neither clearly deteriorated nor improved over this period. The finding might at first suggest that the observed increased dispersion in weekly earnings is therefore due entirely to the increased dispersion in weekly hours. However, this is not the case. Although the variance in hourly wages decreased slightly over the period studied, the covariance between hourly wages and weekly hours has increased substantially. This increase in covariance is the main contributor to the increased dispersion of weekly earnings. In fact, for women it is solely because of this increase in covariance that there has been a rise in the variance of weekly earnings.[2] If we combine information regarding weeks worked and weekly hours, we reach the conclusion that the increased dispersion in annual earnings

is due mainly to an increased dispersion in annual hours worked and its increased covariance with hourly wages.

Although the above discussion suggests that there has been no marked change in the overall distribution of hourly wages, such an assumption hides important changes in hourly wages between the different age and education groupings. Morissette, Myles and Picot (1995) document a substantial deterioration of hourly wages for young workers and a marked improvement for older workers, as was the case for annual earnings. This phenomenon may reflect the fall in the proportion of young workers employed in high-wage sectors, such as goods producing sectors and government, and the rise in the proportion of young workers employed in the relatively low-paying sectors of retail trade, food and accommodation (see Riddell, 1996). The pattern is less clear for education categories but it nevertheless suggests that hourly wages for more educated workers increased to some extent, especially for workers with a university degree.

YOUTH ADJUSTMENT, EDUCATION AND FAMILY FORMATION

THE PREVIOUS SECTIONS DOCUMENT how employment and labour earnings have evolved over the last 15 years. One of the most striking features noted is the marked deterioration of labour market conditions for youth. An obvious question is how youth have responded to these changes. In particular, how have the changes affected education decisions, living arrangements and family formation?

Possibly the most notable change over the last 15 years is the significant increase in school enrollment. According to Card and Lemieux (1996), in 1981 approximately one third of youths aged 15 to 24 were enrolled as full-time students. By 1995 slightly more than one half were enrolled, a finding that implies an increase of over 50 percent. In comparison, over the same period, enrollment rates in the United States increased by less than 15 percent. It should be emphasized that Canada started the period with a lower enrollment rate than the United States. However, by around 1990 Canada's youth enrollment rate had caught up to that of the United States, and by 1995 Canada's rate was over 5 percent higher than the U.S. rate. The increased enrollment is strongly reflected in the increase in university attendance. Riddell (1995) reports that in 1982-83 only 20 percent of 18- to 21-year-olds were attending university, while by 1990-91 the figure had risen to over 30 percent.[3] The implication is that postsecondary enrollment increased by a phenomenal 70 percent (*Education Quarterly Review*, spring 1996).

The large increase in school enrollment has occurred alongside changes in living arrangements and family formation. For example, Card and Lemieux (1996) report that the proportion of 20-year-old men living with their parents increased from 67 percent in 1981 to over 76 percent in 1994, while the proportion of women living with their parents went from 54 percent to 63 percent.

The decline in the proportion of young adults starting families is even more pronounced. In 1981, about 16 percent of men aged 20 were the head or spouse of their own household; by 1994 that figure had fallen to 8 percent. For women of the same age, the decline was from 31 percent to 20 percent.

A rather clear picture emerges from the behaviour of youth. In response to decreased labour market opportunities, young men and women have continued living with their parents, prolonged formal schooling and postponed family formation. One question that arises is whether the substitution of education for work accounts for most of the fall in employment for this age group. If it does, employment is being replaced by investment in skills. If it does not, declines in employment correspond to increases in non-utilized human resources. To shed some light on this issue, it is helpful to examine changes in inactivity rates for young men and women.[4] The inactivity rate is the proportion of people who are neither working nor attending school in a reference week. For men aged 15 to 19, the inactivity rate decreased from 14 percent in 1981 to 7 percent in 1988 and finally to 6 percent by 1993. For men aged 20 to 24, the inactivity rate remained close to 20 percent over the entire period. We may thus infer that most of the drop in young men employment has been due to substitution by schooling (full- or part-time) as opposed to inactivity.

The picture for women is slightly more complex since changes in activity rates at least partly reflect changes in child rearing. Not surprisingly, the inactivity rate fell substantially from 1981 to 1993. Even in the sole category of young women without children, we observe that the inactivity rate decreased from 10 percent to 5 percent for females aged 15 to 19, and from 20 to 16 percent for females aged 20 to 24. Again, these patterns support the view that the recent deterioration in labour market conditions have not led to considerable increases in inactivity among young people but have instead pushed them toward prolonging their education.

Looking Beyond the Major Trends

By any of a number of measures from the data presented in the first section, it seems clear that a wide variety of workers experienced little labour market success in the early years of the 1990s. In making predictions for the next decade, it is clearly necessary to evaluate the extent to which these outcomes are responses to a temporary, if somewhat prolonged, cyclical downturn or represent fundamental, permanent shifts in the labour market. The aim of this section is to shed light on the nature of current changes and, in particular, to determine whether recent changes represent an ongoing process or the adjustment to a major one-time event.

We proceed by examining what has happened to different cohorts as they advance from the age of 25 to 38.[5] Even though our overriding concern is about outcomes for youth in the next decade, we focus on 25- to 38-year-olds for three main reasons. First and most important, in evaluating impacts of labour market changes on youths we need to know whether the impacts will continue to affect them throughout their working lives. One of the main reasons analysts focus on youth is a concern that bad outcomes at the start of life can permanently scar workers and thus are more important than outcomes at a less sensitive stage of the life cycle. Alternatively, if new employment arrangements in an economy demand more flexibility of young workers but those workers are still able to move into stable work patterns when they are older, concerns about increased turbulence in the youth labour market might be lessened. To understand which of these outcomes is relevant, we need to evaluate labour market experiences of workers as they enter the part of the life cycle immediately after their youth. While youth is a time when we might expect individuals to be flexible and to spend substantial amounts of time investing in education and training, the ensuing years are a time when we might expect individuals to settle into longer-term jobs and accelerating career paths. Understanding whether that transition to more permanent jobs has changed in recent years is an important element in evaluating future prospects for youths.

The second reason for focussing on 25- to 38-year-olds is that there have already been extensive studies of younger workers. There is thus more to be gained from examining the transition period as individuals pass out of their youth. Third, we believe that the work histories of these individuals may be particularly informative about changes occurring in the labour market since this age group has more limited substitution possibilities that younger individuals (especially in terms of education and living arrangements). In effect, by focussing on this age group we can more reasonably interpret changes occurring as a cohort ages in terms of changes in demand as opposed to changes in supply.

Our analysis centres on the changing nature of age-experience profiles for different measures of labour market outcomes. We begin by focussing on annual labour earnings since this is a quite comprehensive measure of labour market performance. In fact, we present results using earnings averaged over samples

that include individuals with zero earnings and both self-employed and regularly paid employed workers. Movements in our earnings measures will thus reflect changes in employment rates, weeks worked per year, hours worked per week and hourly wages, as well as movements into and out of self-employment. What we want to know is how the relationship between age and earnings has changed. Has the age-earnings relationship deteriorated for successive cohorts? If so, is the fall decelerating or accelerating? Alternatively, for more recent birth cohorts, do earnings begin at a lower level but grow faster with age? By answering such questions we hope to better isolate the nature of recent change and thereby have a basis on which to project into the future.

Figures 8 through 11 report realized age-earnings profiles for different birth cohorts as they advance from the age of 25 to 38. The figures are given for men and women separately and are divided according to broad education groupings. Our low education group comprises individuals having at most a high school diploma. Our high education category comprises individuals with at least one postsecondary degree or certificate. Note that an individual in our low education category may have some postsecondary education but not a postsecondary degree. The 11 cohorts we follow correspond to individuals aged between 25 and 26 in the years 1972, 1974, 1976, 1978, 1980, 1982, 1984, 1986, 1988, 1990 and 1992. We refer to each of these years as the year of entry of a cohort (since it is the year a given birth cohort enters the 25- to 38-year-old group). The years of observation used are 1981 to 1993; accordingly, different cohorts are within our observation window for different lengths of time. For example, we follow the early cohorts when they are in their thirties, while the later cohorts can be followed only while they are in their twenties. The earnings measure is the real average yearly labour earnings (in 1981 dollars) of all earners within a cohort. The data is drawn from the Survey of Consumer Finances and the exact years of observation are 1981, 1982, 1984, 1986, 1988, 1990, 1992 and 1993.

Several observations emerge immediately from an examination of Figures 8 through 11. First, it is remarkable how much flatter are the age-earnings profiles for women than for men. In particular, women appear to have almost no earnings growth as they age, while there appears to be substantial growth for men. Second, average earnings for men are quite similar at age 25 for the two education categories but increase much faster for workers with higher education.

To obtain a first impression of how age-earnings profiles may change across the different entry cohorts, it is helpful to examine the differences in earnings at a particular age. For example, let us consider highly educated males at age 29. It is clear that earnings at age 29 have been lower for more recent cohorts than early ones, and that the difference is substantial (approximately 25 percent). In contrast, for highly educated females, the cohort ranking is essentially reversed: average earnings at age 29 have been higher for more recent cohorts than earlier ones. These observations suggest that any characterization of changes in age-earnings profiles is likely to be very different for females and males.

FIGURE 8

REAL EARNINGS BY COHORT, MALES, LOW EDUCATION

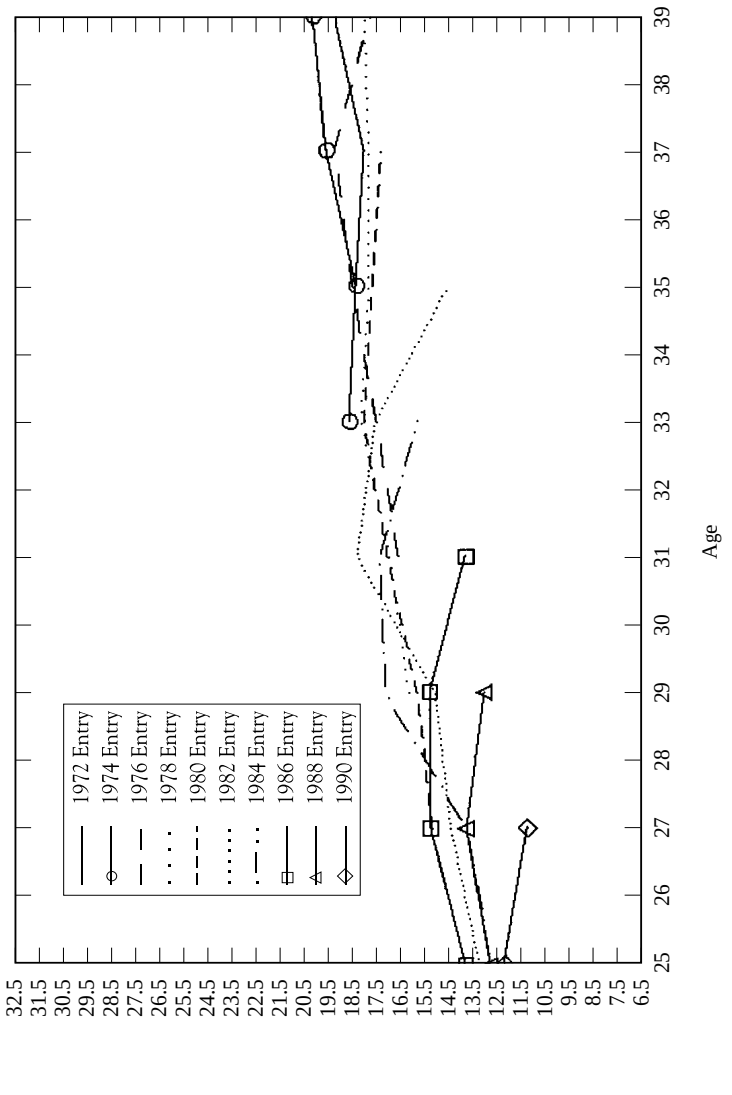


FIGURE 9

REAL EARNINGS BY COHORT, MALES, HIGH EDUCATION

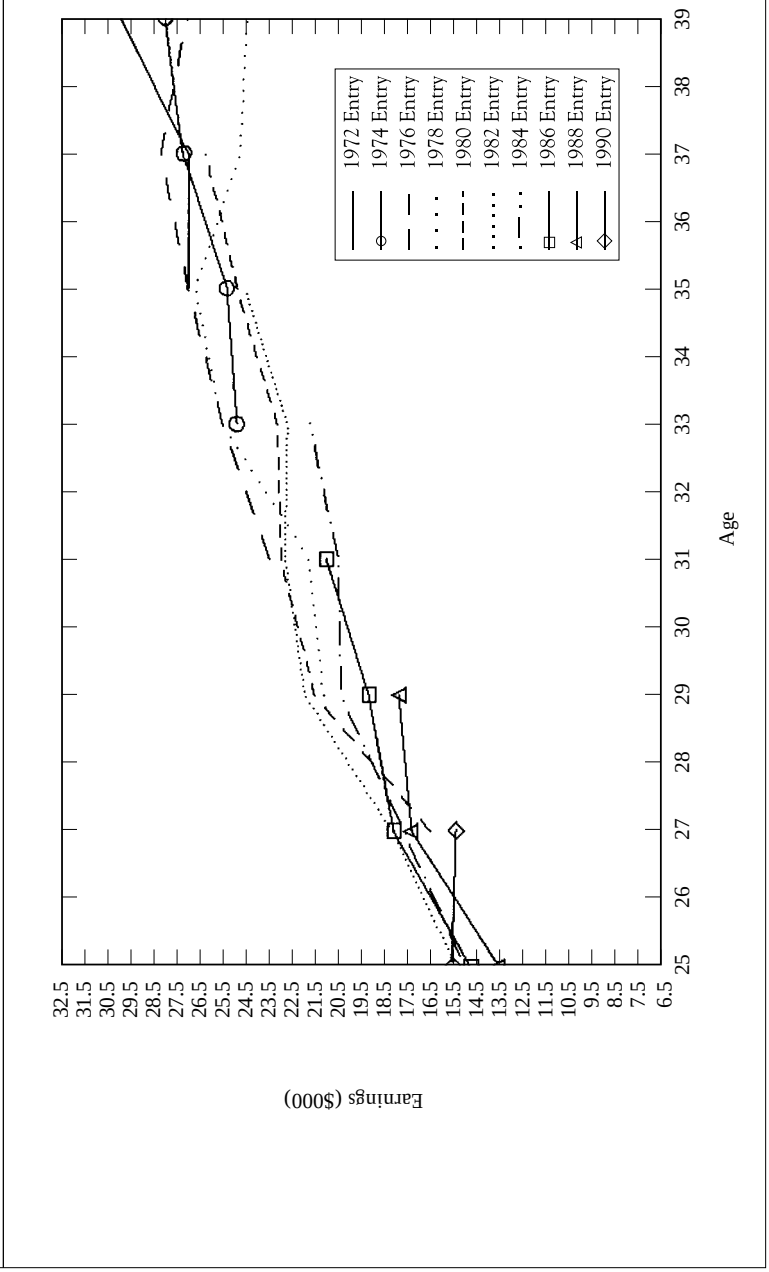


FIGURE 10

REAL EARNINGS BY COHORT, FEMALES, LOW EDUCATION

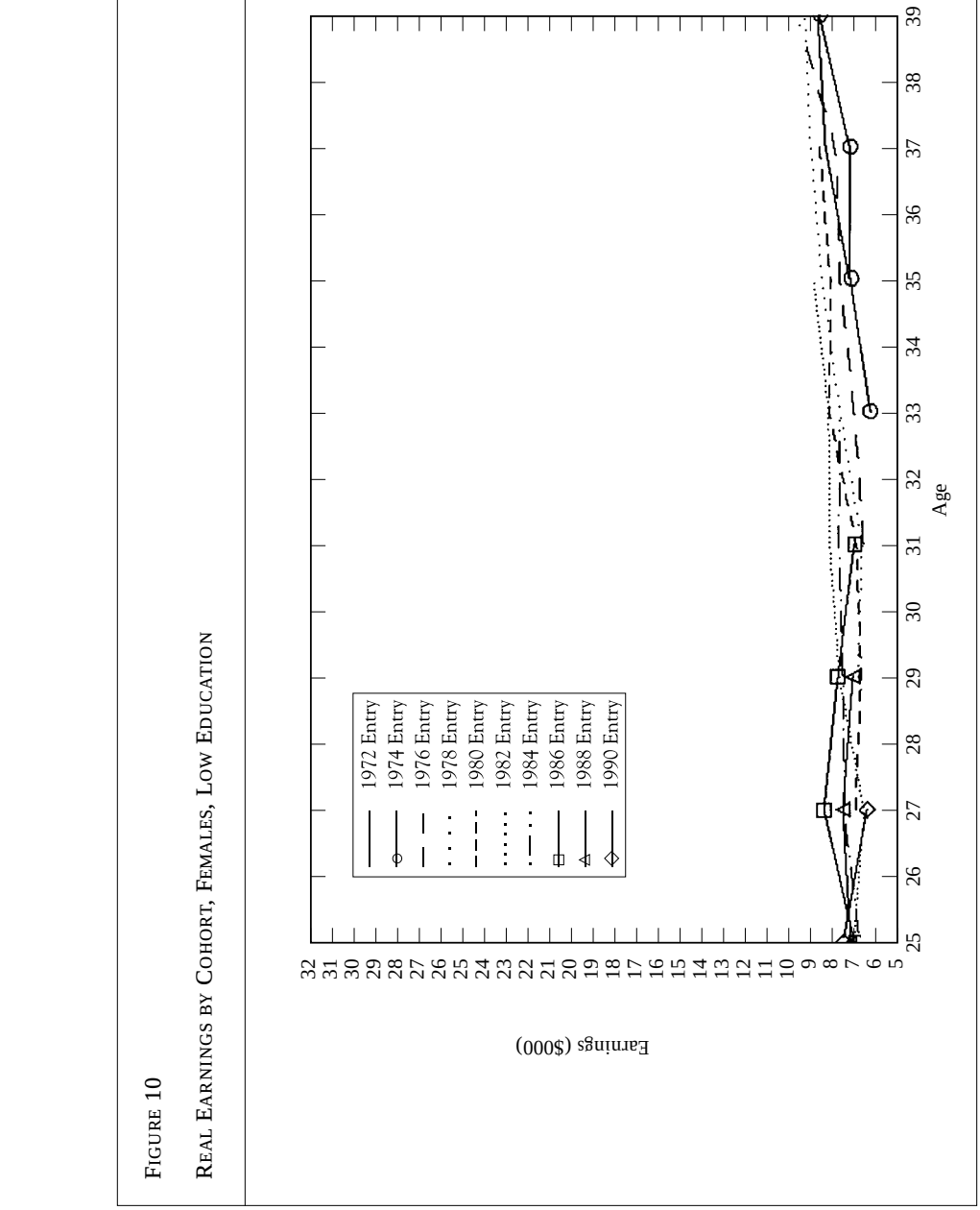
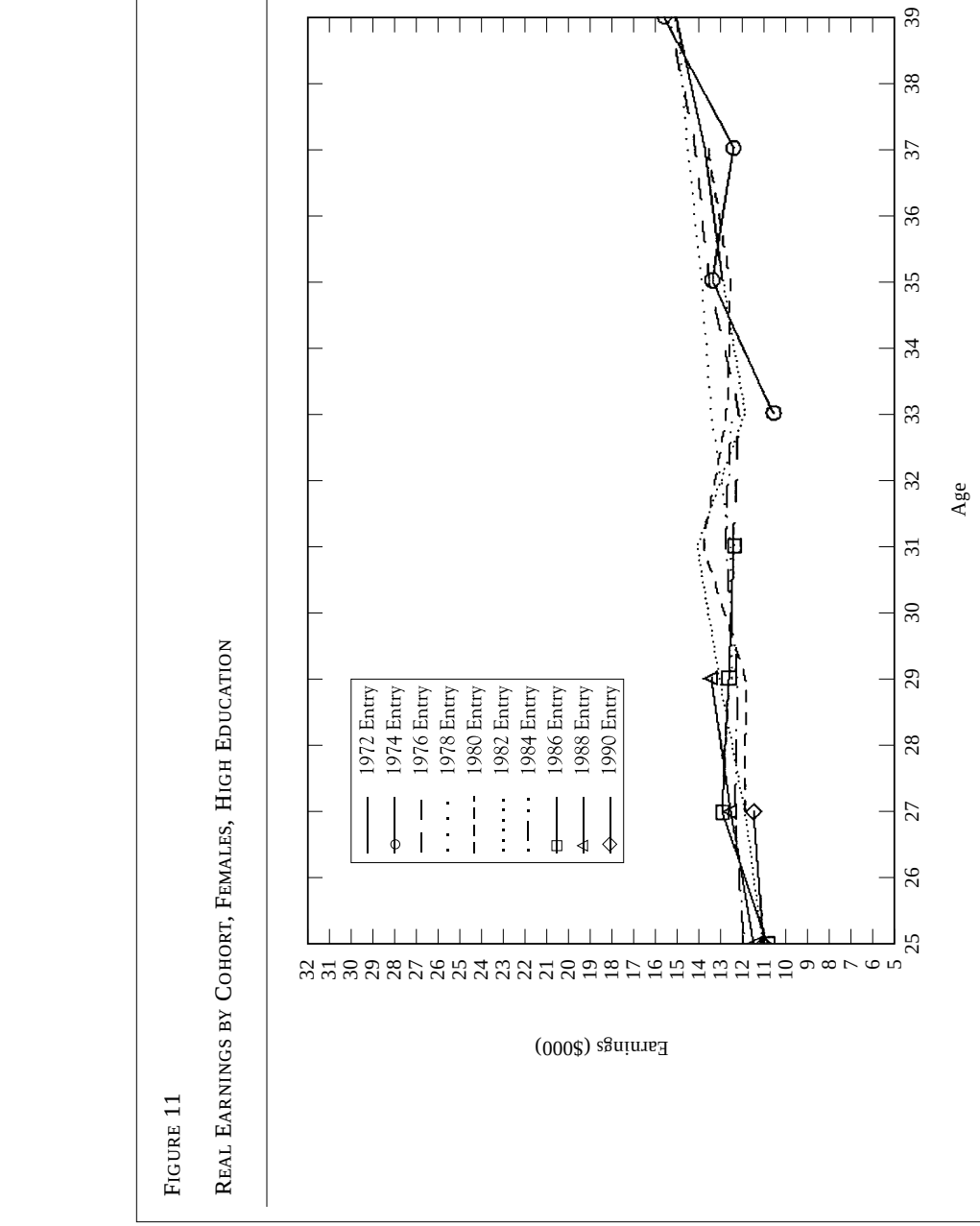


FIGURE 11

REAL EARNINGS BY COHORT, FEMALES, HIGH EDUCATION



The difficulty with making inferences about the ranking of age-earnings profiles by examining different cohorts at a particular age is that the observations are taken at very different points in the business cycle. For example, let us again look at highly educated males at age 29. The observation for the 1988 cohort is taken in 1992, a time of a business cycle trough. Therefore it should not be surprising that this cohort has lower earnings at age 29 than most other cohorts. To make an inference about average labour market opportunities, it is necessary to control for business cycle effects. In Figure 11, this could be done by comparing earnings at age 29 for the 1978 cohort with that of the 1988 cohort since both observations date from years of depressed labour market conditions. We turn next to a more systematic approach to delineating cohort effects while holding constant the effects of the business cycle.

Estimating Cohort-Specific Age-Earnings Profiles

Earnings observed for workers of a particular age (e.g., 29) at a particular time (e.g., 1992) can be conceptually related to three underlying effects. The first of these is what we will term a *year effect*, that is, an effect common to all workers at that time. The year effect will capture the impact of common events such as recessions. The second effect is what we will call a *cohort effect*; this captures the average earnings level of individuals who entered the mature labour market at a particular time, compared with those who entered at a different time. Knowing the cohort effect, one can assess whether recent labour market entrants are disadvantaged compared with earlier entrants in terms of their average long-run earnings. The third effect is an *ageing effect*; this represents earnings growth that occurs naturally over a worker's life cycle, holding constant any differences across cohorts and any year effects. Earnings for a 29-year-old in 1992 will reflect whether 1992 was a bad year, plus whether the individual entered in a relatively good cohort, plus the fact that this individual is relatively early in his or her life cycle.

Earnings ought to be broken down into each of these components in as flexible a manner as possible. The difficulty with such a decomposition is that the three effects are related through an identity: if we know a person's entry cohort (e.g., the cohort that turned 25 in 1988) and the year in which earnings were observed (e.g., 1992), we can calculate the individual's age exactly (in this case, 29). Econometrically, a flexible representation of the three effects in an earnings regression would include dummy variables corresponding to each age, entry cohort and year of observation. In that case, setting a particular entry cohort and year-of-observation dummy variable to 1 would always imply that a particular age dummy variable would also be set to 1. The result is a singular covariate matrix. The three pieces of information (cohort, age and year) are thus not independent and their effects cannot be independently identified without some extra restriction. The most common approach to this problem is to impose a normalization on one or more of the effects. For example, we could

assume that year effects exactly follow the business cycle and that the business cycle can be captured using the unemployment rate. In that case, year of observation dummy variables could be replaced with the unemployment rate and the year effect, cohort effect and age effect variables would no longer add up perfectly. With this normalization, flexible estimation of both age and cohort effects is possible in principle.

In our empirical work, we run regressions of the log of average earnings for a particular cohort in a particular year on a set of variables designed to capture cohort, year and age effects. We impose two restrictions on our specification. First, for parsimony we restrict the age effects to be captured by a quadratic in age. Second, we include a set of dummy variables corresponding to the different years of observation but group 1981 and 1988 together to form a grouped omitted category. The latter restriction reflects an assumption that 1981 and 1988 are at identical stages in the business cycle. It should be noted that this restriction allows us to identify cohort, age and time effects. All year effects are estimated relative to the business cycle stage occurring in 1981. We also include a complete set dummy variables corresponding to each of the 11 cohorts described earlier.

Before discussing results of this estimation, it is worth clarifying the assumptions underlying our specification. First, by allowing for a full set of cohort dummies, we are allowing the age-earnings profile to have a different intercept for each cohort. However, we are not allowing the age-earnings profile to change shape with the different cohorts. Since this assumption is rather restrictive, we explore alternative specifications below. Second, we are restricting the shape of the age-earnings profile to quadratic. Although this is again restrictive, our exploration of alternative specifications has not found it to be unduly so. Third, by allowing for a restricted set of year dummies, as opposed to parameterizing business cycle effect directly as a function of the unemployment rate, we are allowing the effects of the downturn of the 1990s to be arbitrarily different from that associated with the downturn of the 1980s. This approach seems particularly attractive since there is considerable discussion about whether or not the 1990s recession was similar to previous ones. Nonetheless, it should be emphasized that our identifying strategy imposes the assumption that there is no common trend affecting all cohorts between 1981 to 1988.

The results of our decomposition of earnings into cohort, age and time effects are presented in Figures 12 to 15. In Figures 12a to 12d, we plot the estimated value of cohort dummies for different gender and education groupings. The value of a cohort dummy can be interpreted as the average earnings of the cohort at age 25 if the labour market conditions were those prevalent in 1981. In each of these figures we also plot the estimated quadratic trend associated with the cohort effects. The first element to be noted from Figures 12a to 12b is the marked difference in pattern for males and females. In particular, average earnings are successively higher for more recent cohorts of women, while the opposite is true for men.

FIGURE 12a

COHORT EFFECT FROM LOG REAL EARNINGS, FEMALES, LOW EDUCATION, 1972-1992

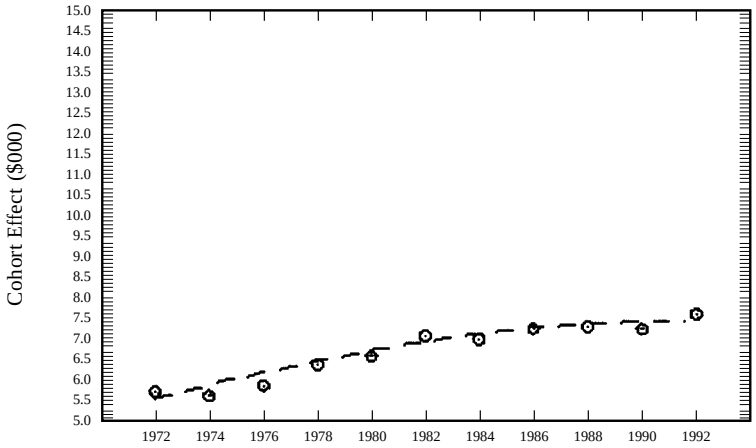


FIGURE 12b

COHORT EFFECT FROM LOG REAL EARNINGS, FEMALES, HIGH EDUCATION, 1972-1992

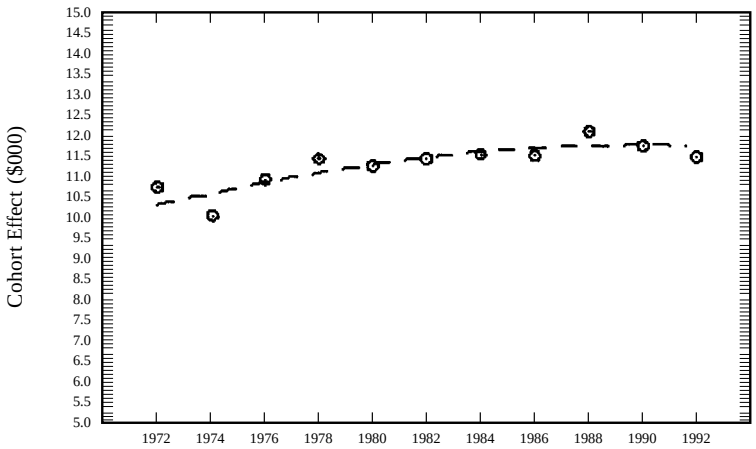


FIGURE 12c

COHORT EFFECT FROM LOG REAL EARNINGS, MALES, LOW EDUCATION, 1972-1992

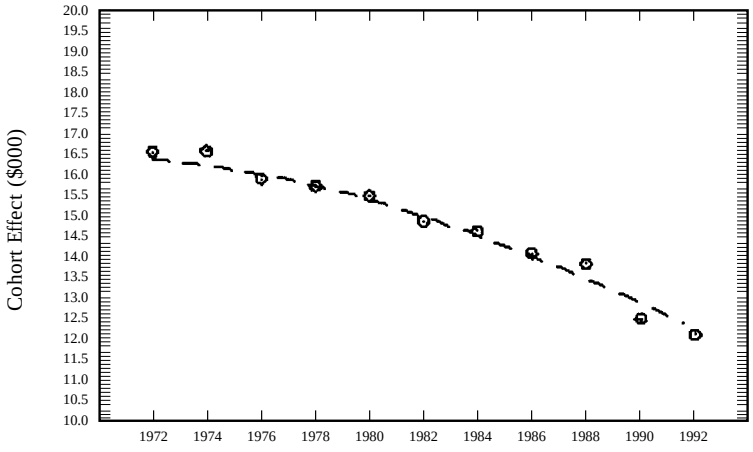
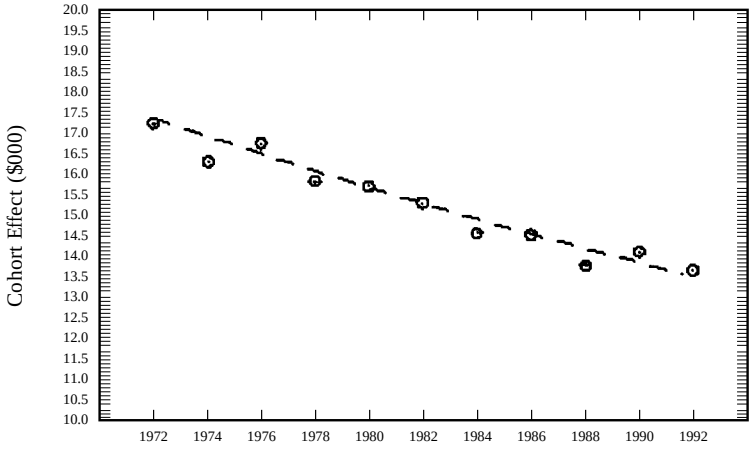


FIGURE 12d

COHORT EFFECT FROM LOG REAL EARNINGS, MALES, HIGH EDUCATION, 1972-1992



The pattern revealed by the estimated cohort effects is quite discouraging for young males, and especially so for men with lower education. For both high- and low-educated males, a recent cohort is estimated to earn about 30 percent less than a cohort born 20 years earlier. In both cases, there is no sign that the deteriorating labour market outcomes for more recent cohorts is likely to stop or reverse itself in the near future. In fact, the evidence suggests that the fall in earnings for recent cohorts of low-educated males is actually accelerating. It should be recalled that these estimated effects are net of business cycle effects, and their reversal should not therefore be expected simply as a result of the economy's emergence from the prolonged recession of the 1990s. The only possibly hopeful sign in this gloomy picture is the relatively small change in cohort effects for highly educated cohorts reaching the age of 25 in 1988, 1990 and 1992. Viewed in isolation, these estimated effects might indicate that future cohorts of highly educated males can expect no further deterioration in earnings levels. Viewed as part of the overall trend, however, they appear as a brief pause in a sharp decline.

The pattern of cohort effects for women reveals that more recent cohorts earn 15 percent to 20 percent more than earlier cohorts. However, the evidence also suggests that the increase in earnings for younger women is tapering off, with very little discernible change since the mid-1980s. A comparison of the pattern between men and women also reveals the extent of convergence in earnings. For example, the male-female earnings differential for the 1972 cohort was approximately 70 percent, while it was less than 20 percent for the 1992 cohort.

Figures 13a to 13b plot the estimated year effects for our four gender-education pairs. The value of a year effect can be interpreted as the average earnings at age 25 in different years if no cohort effects were present. In all four figures, a standard business cycle pattern is observed, with a first trough between 1982 and 1984 and a second trough in 1992 and 1993. One interesting observation is that the trough of the 1990s recession appears worse, for all groupings, than that of the early 1980s recession. It is remarkable how the amplitude of business cycle effects is very different for men and women. The lower-educated males display the largest cyclical sensitivity of earnings, followed by the higher-educated males. The cyclical sensitivity of female earnings appears considerably milder in comparison. This might be viewed as surprising since women are typically supposed to be less committed to the labour market and thus more likely to react strongly to business cycle fluctuations. However, the lack of cyclicality might reflect greater female flexibility as women move into the labour force in recessions as part of the “added worker” effect.

Figures 14a to 14b plot our estimates of the cohort-specific age-earnings profile, after controlling for business cycle effects. As might be expected from the information contained in Figures 12a to 12b, the age-earnings profiles are successively lower for more recent cohorts of men, while they are successively higher for cohorts of women. The slope of the age-earnings profiles are also

quite different across groups. In particular, higher-educated males exhibit substantial earnings growth (in the range of 40 percent to 50 percent) as they advance from 25 to 35 years of age. In contrast, lower-educated women gain only about 10 percent over these years.

One important restriction we imposed when estimating the age-earnings profiles presented in Figure 14 is that the slope of these profiles has not changed over time. In particular, this restriction rules out the possibility that more recent cohorts, especially men, may start at a lower level of earnings but experience more earnings growth as they age. To explore such a possibility, we re-estimated our cohort-specific age-earnings profiles allowing for the age profile to change with the different cohorts. The results from this alternative specification are presented in Figures 15a to 15d.[6]

Before commenting on Figure 15, we should mention that we did not find much statistically significant evidence in favour of the hypothesis that the slope of the age-earnings profiles changed between cohorts. Nonetheless, we believe that the results presented in Figures 15a to 15d are interesting because of the direction of the estimated effects. In particular, for men the results are actually contrary to the view that more recent cohorts enter at lower levels of earnings and experience faster growth as they age. In effect, we find that more recent cohorts exhibit slightly less growth as they age. It is also interesting to note that this evidence to some extent contradicts the view that recent changes in the labour market largely reflect an increase in the skills premium; if this were the case, we should observe an increase in the slope of age-earnings relationship for the younger cohorts to reflect the increased value of experience.

The pattern of female age-earnings profiles presented in Figures 15a and 15b also provide an alternative view of the changes occurring between cohorts. For example, from these figures it appears that the improvement in earnings for younger cohorts of women was mainly a phenomenon of the 1970s. Since 1982, it appears that the new cohorts of women may actually be losing ground in comparison to their slightly older counterparts. In this respect, the evidence suggests that newer cohorts of women may have begun experiencing a pattern of change similar to that occurring for men.

In overview, the evidence presented in Figures 12 through 15 suggests the following for men: younger cohorts are successively earning less; far from being temporary, this phenomenon is ongoing and may actually be accelerating for less educated men; and more recent cohorts are not catching up with older cohorts as they age and may be losing more ground. In contrast, recent cohorts of women are earning more than their counterparts of 20 years ago, but the earnings increase has come to a halt and may actually have begun reversing itself.

FIGURE 13a

YEAR EFFECT FOR REAL EARNINGS, FEMALES, LOW EDUCATION, 1981-1993

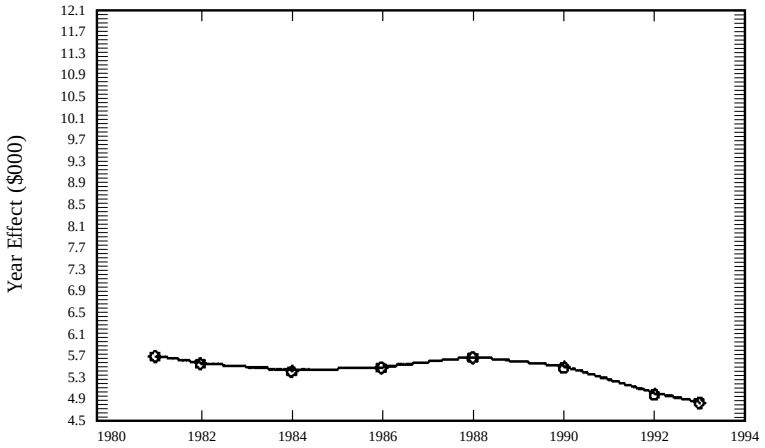


FIGURE 13b

YEAR EFFECT FOR REAL EARNINGS, FEMALES, HIGH EDUCATION, 1981-1993

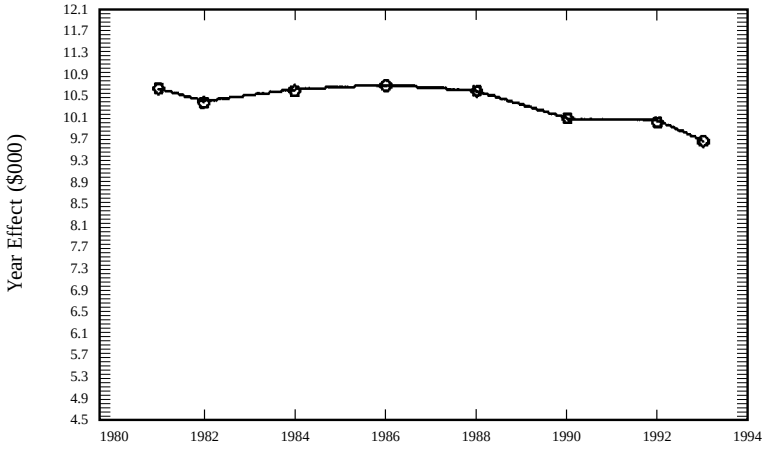


FIGURE 13c

YEAR EFFECT FOR REAL EARNINGS, MALES, LOW EDUCATION, 1981-1993

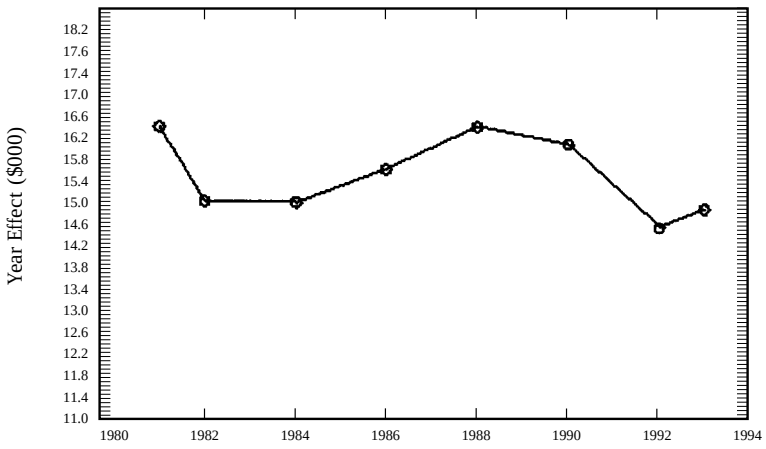


FIGURE 13d

YEAR EFFECT FOR REAL EARNINGS, MALES, HIGH EDUCATION, 1981-1993

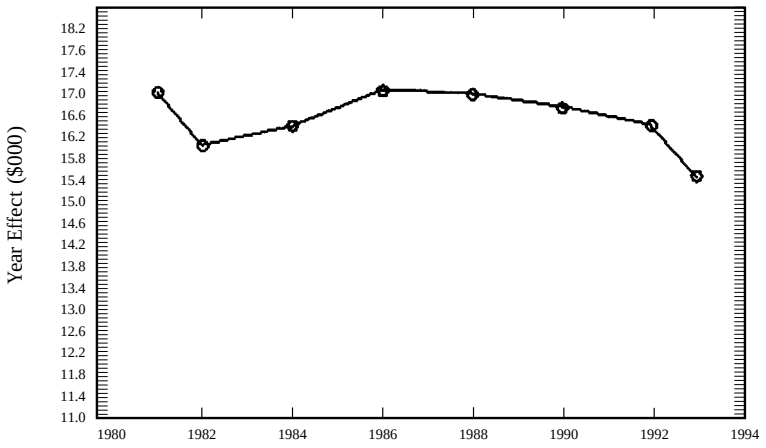


FIGURE 14a

AGE-EARNINGS PROFILES FOR VARIOUS COHORTS, FEMALES, LOW EDUCATION

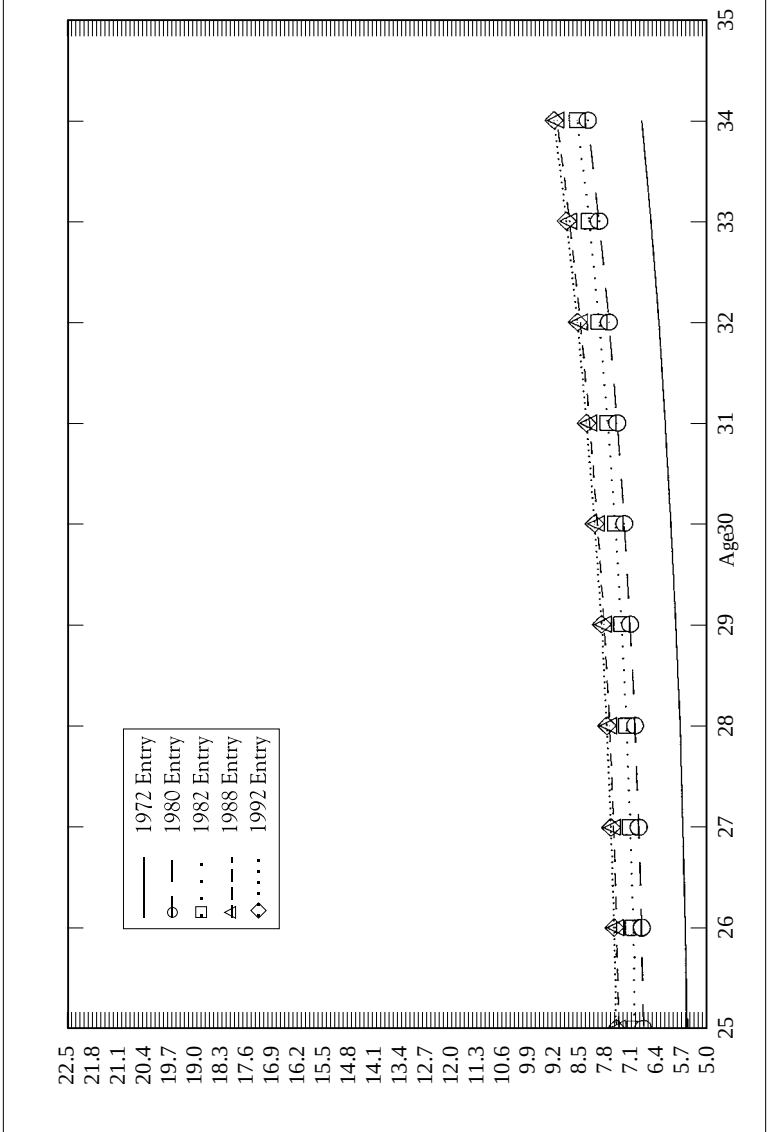


FIGURE 14b

AGE-EARNINGS PROFILES FOR VARIOUS COHORTS, FEMALES, HIGH EDUCATION

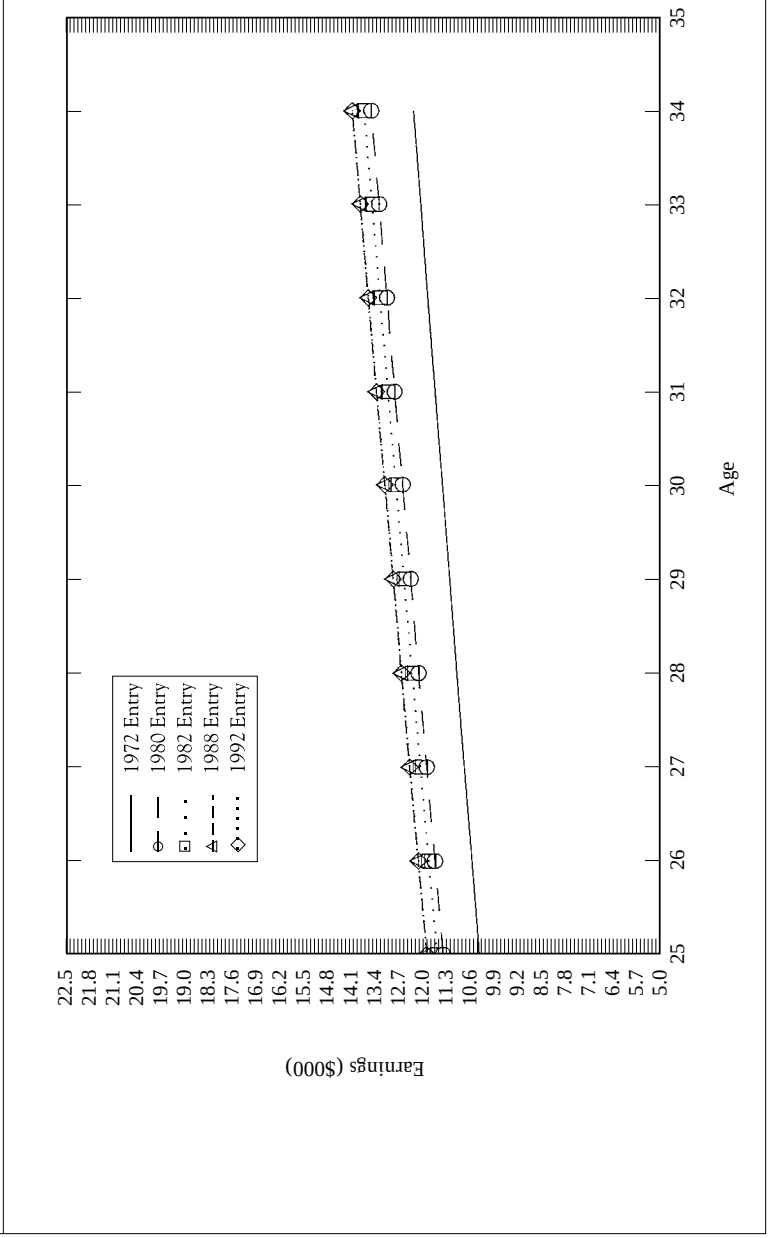


FIGURE 14c

AGE-EARNINGS PROFILES FOR VARIOUS COHORTS, MALES, LOW EDUCATION

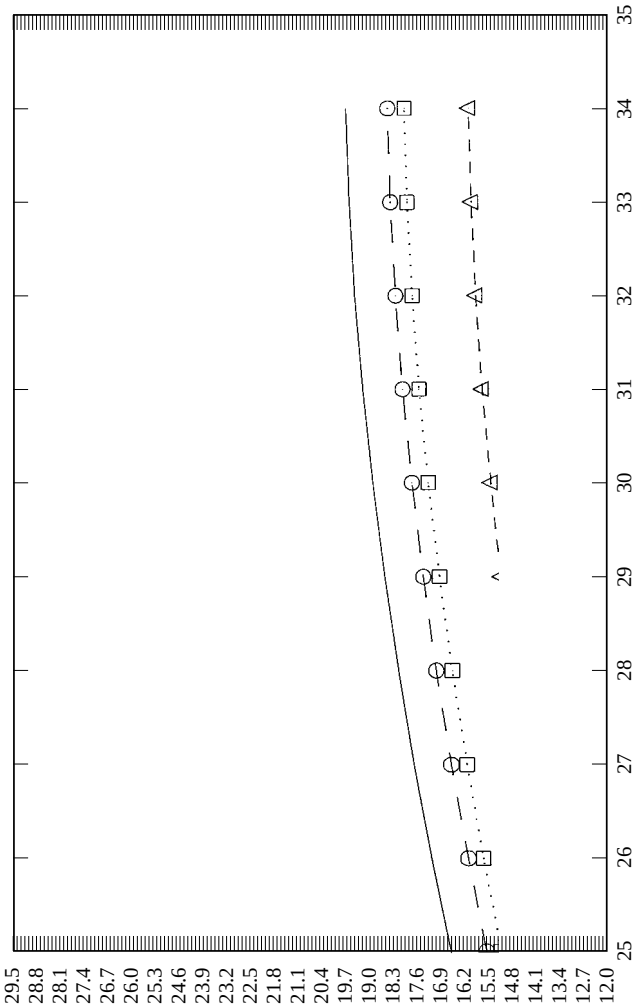


FIGURE 14d

AGE-EARNINGS PROFILES FOR VARIOUS COHORTS, MALES, HIGH EDUCATION

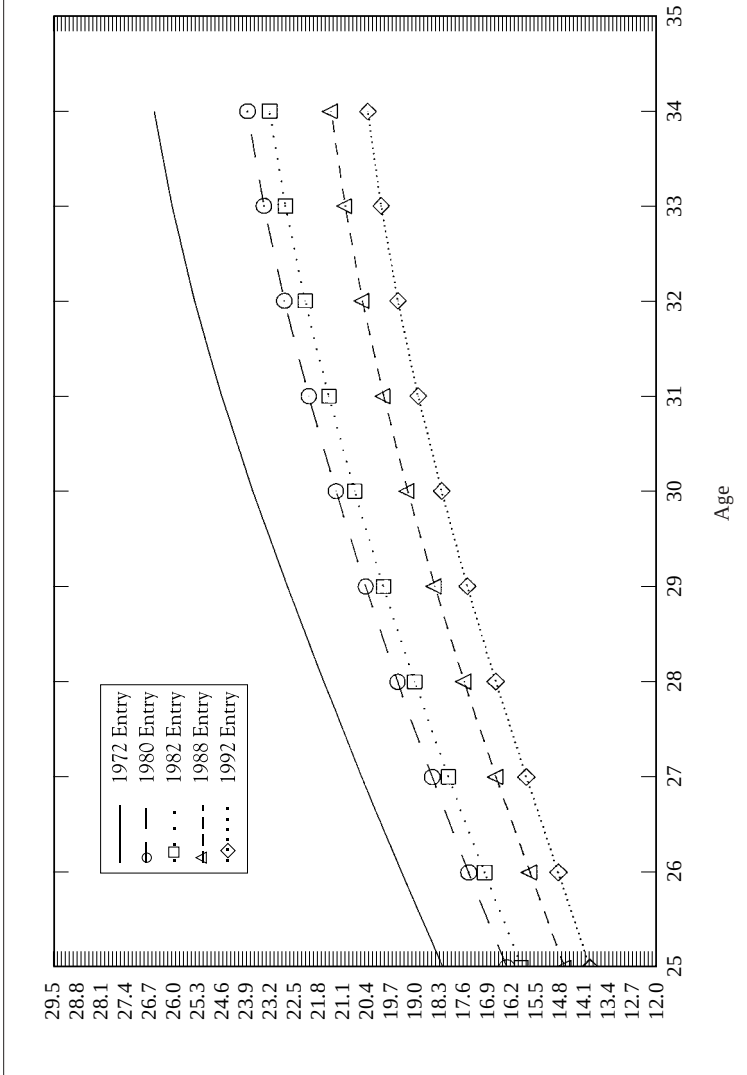


FIGURE 15a

AGE-EARNINGS PROFILES ALLOWING DIFFERING SLOPES BY COHORT, FEMALES, LOW EDUCATION

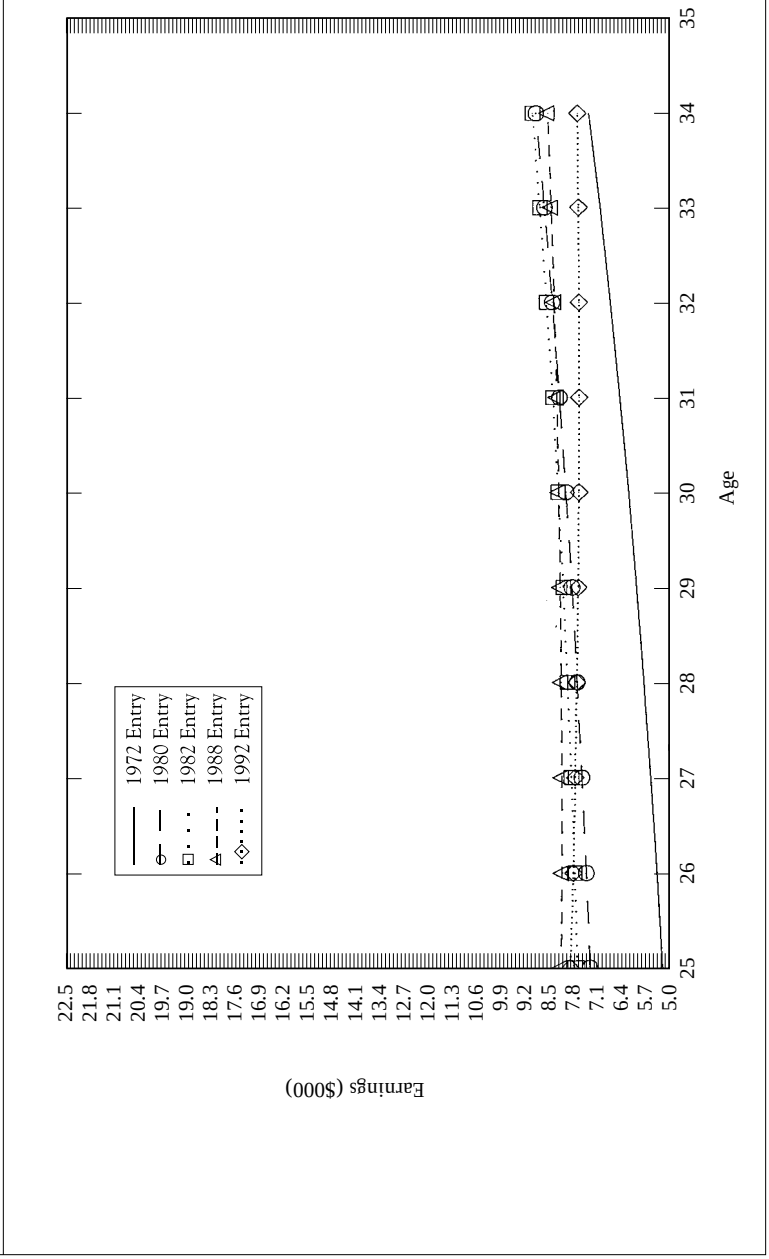


FIGURE 15b

AGE-EARNINGS PROFILES ALLOWING DIFFERING SLOPES BY COHORT, FEMALES, HIGH EDUCATION

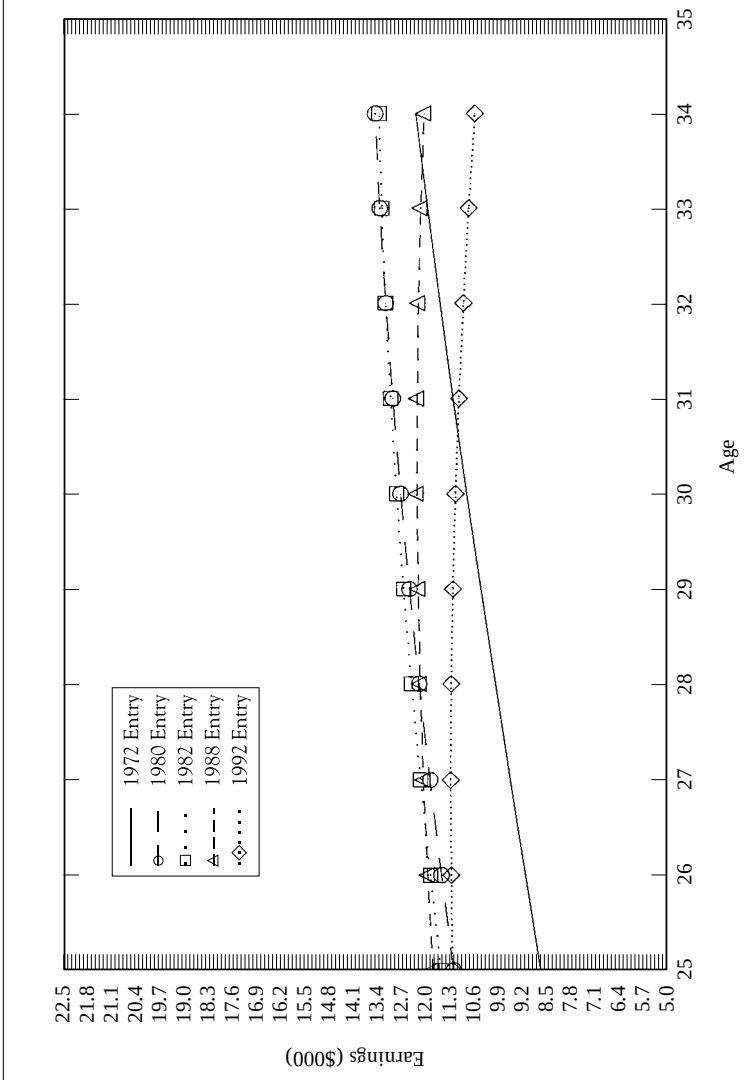


FIGURE 15c

AGE-EARNINGS PROFILES ALLOWING DIFFERING SLOPES BY COHORT, MALES, LOW EDUCATION

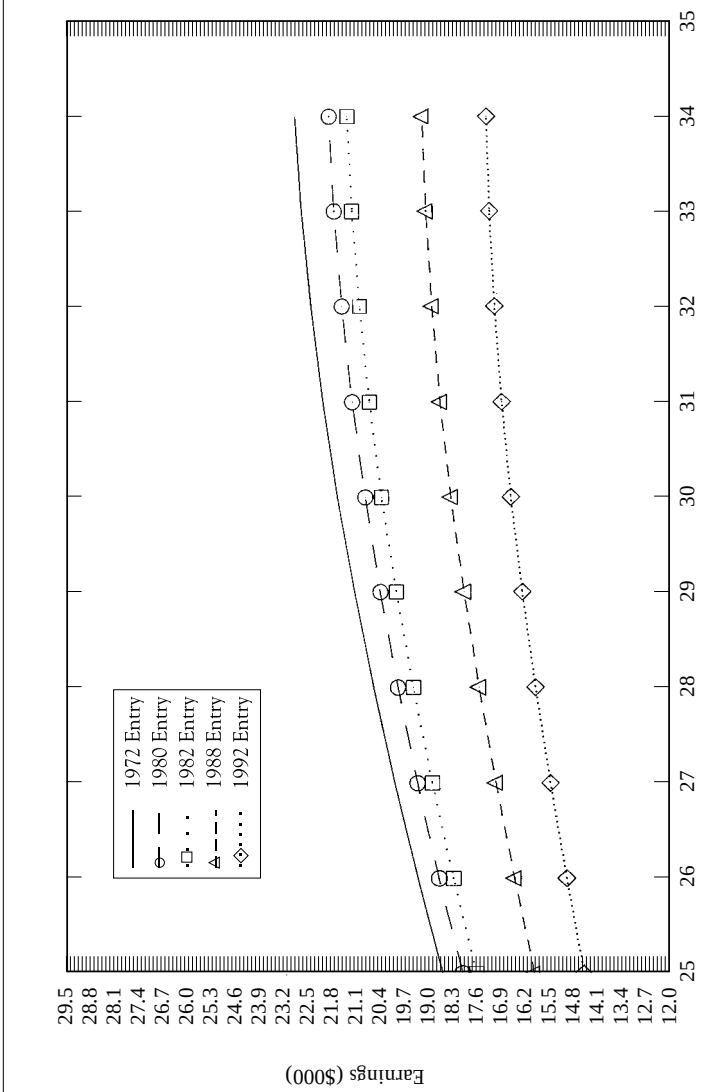
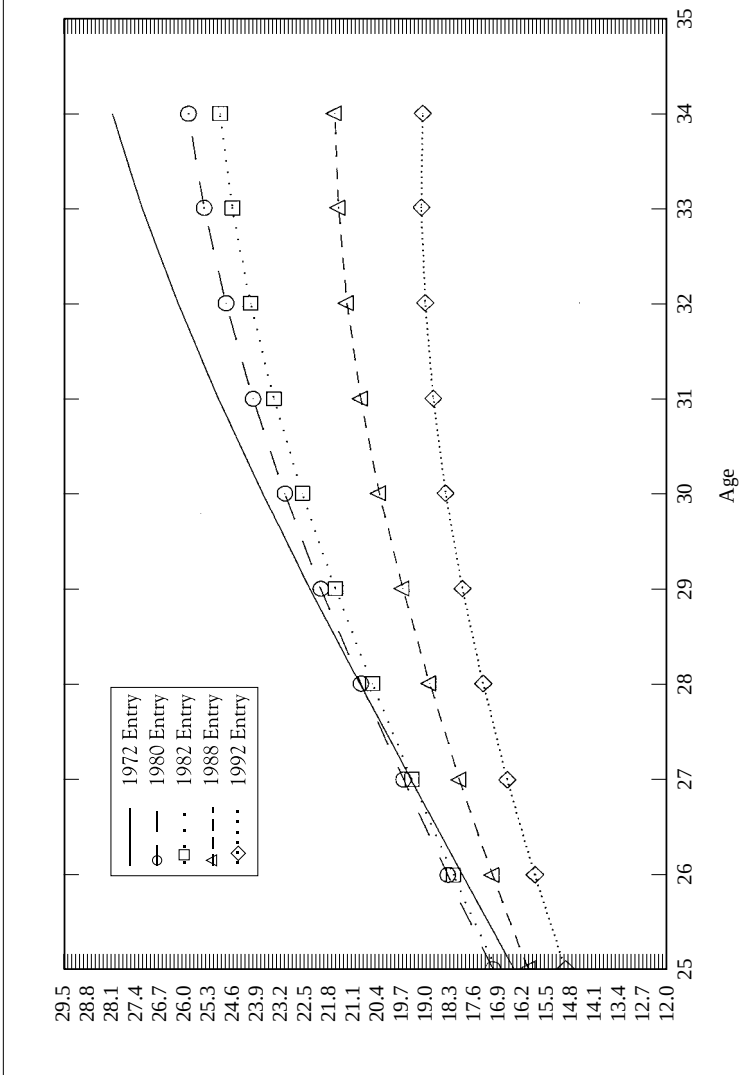


FIGURE 15d

AGE-EARNINGS PROFILES ALLOWING DIFFERING SLOPES BY COHORT, MALES, HIGH EDUCATION



Earnings Cohort Effect for Full-Year/ Full-Time Workers

As discussed earlier, the earnings measure used in the above cohort analysis reflects a wide variety of effects. In particular, movements in the measure will reflect movements in employment and hours as well as hourly wages. In this section and the next, we attempt to understand the sub-component changes that are driving the movements in overall earnings. As a first step, we present estimated cohort effects for the earnings of full-year/full-time workers. Since all of the individuals used in constructing these earnings measures work, the measure will not directly reflect changes in employment. This is particularly important in comparing men and women since, given the employment rate pattern presented in the first section, changes in employment are likely to be a very important determinant of overall earnings movements for women but not for men. The effects of movements in hours per week and weeks worked per year will also have reduced impacts on full-year/full-time worker earnings. This allows us to focus more directly on the price of labour, holding quantity movements aside. The main drawback of using earnings for full-year/full-time workers is that selection into and out of the sample caused by lay-offs, hirings, etc. will cause selection bias. Thus, full-year/full-time earnings may actually go up in recessionary periods if the least able workers are laid off first. This complicates the task of drawing precise conclusions. It should be noted that the earlier earnings measure, since it pertains to the whole population, does not suffer from selection effect problems.

Figures 16a to 16b present plots of cohort effects for average earnings for full-year/full-time workers. The estimated cohort effects come from a log earnings regression specification that is exactly the same as that used in estimating cohort-specific age-earnings profiles. In particular, it includes a quadratic in age, year-specific dummy variables with 1981 and 1988 assumed to be equal, and a complete set of cohort dummy variables. The estimated coefficients on the latter form the basis for the plots in Figure 16. The main observation from Figure 16 is that the female cohort trends are reversed relative to those in Figure 12. Females face a negative trend in cohort effects for both high- and low-educated workers. The trend for low-educated females is moderate but the trend for more educated women is similar to that for more educated men. The trends for men in Figure 16 are very similar to those for men in Figure 12. The main conclusion to be drawn from this figure, though, is that strong upward trends in visible earnings for all females are due entirely to employment growth effects. Trends in wages, holding constant hours and employment effects, are similarly negative for men and women.

FIGURE 16a

COHORT EFFECT FROM LOG REAL EARNINGS, FULL-YEAR/FULL-TIME WORKERS, FEMALES, LOW EDUCATION, 1972-1992

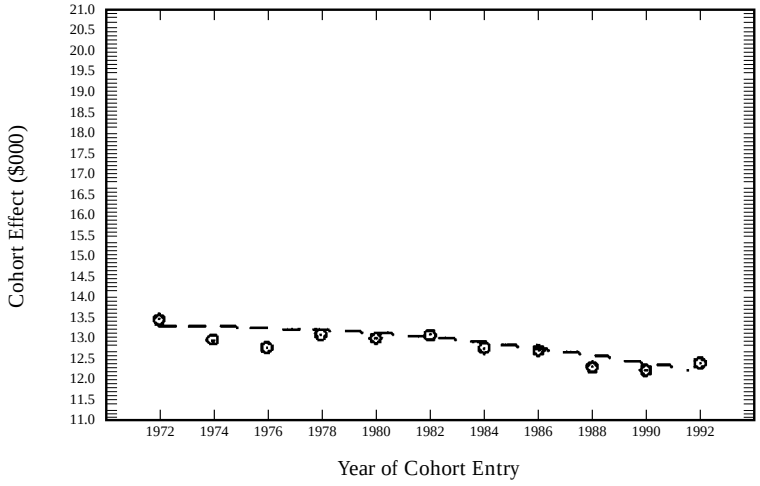


FIGURE 16b

COHORT EFFECT FROM LOG REAL EARNINGS, FULL-YEAR/FULL-TIME WORKERS, FEMALES, HIGH EDUCATION, 1972-1992

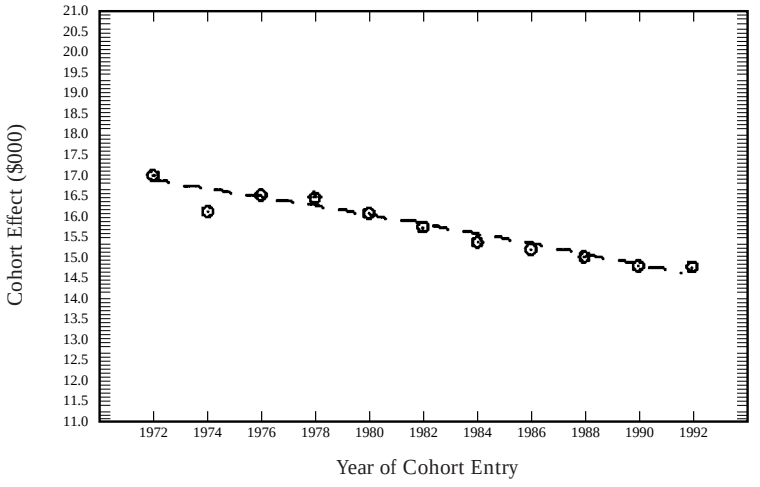


FIGURE 16c

COHORT EFFECT FROM LOG REAL EARNINGS, FULL-YEAR/FULL-TIME WORKERS, MALES, LOW EDUCATION, 1972-1992

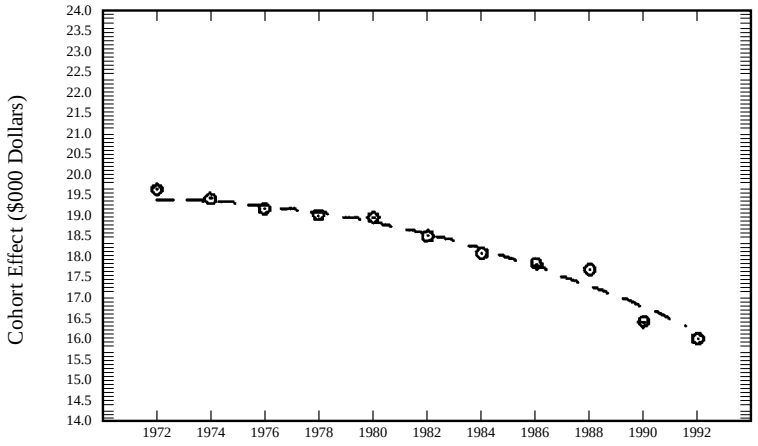
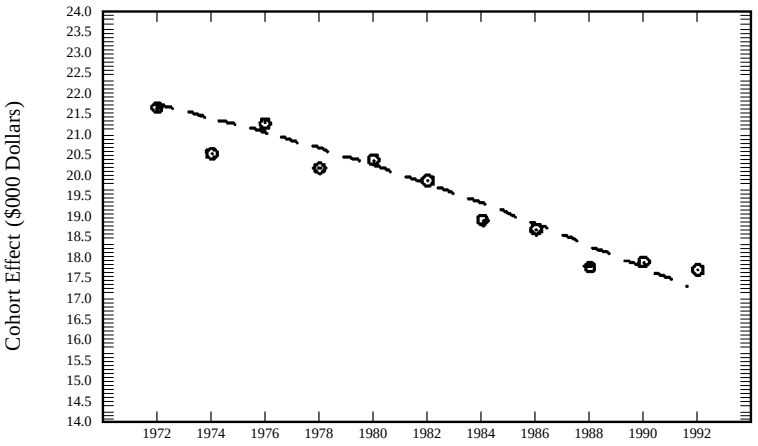


FIGURE 16d

COHORT EFFECT FROM LOG REAL EARNINGS, FULL-YEAR/FULL-TIME WORKERS, MALES, HIGH EDUCATION, 1972-1992



Cohort Patterns in Employment and Job Stability

THE PREVIOUS SECTION EXAMINED how recent cohorts fare in terms of annual labour earnings. It is useful to know whether the observed changes in earnings are associated mainly with changes in employment (as opposed to wages) in order to assess how people may find means of adjusting. Similarly, there is substantial concern in society about whether the paradigm defining relations between workers and firms is changing and how people will need to adjust to such change. It could therefore be valuable to ask whether more recent cohorts have less job stability or more part-time employment than previous cohorts. To answer these questions, we proceed in a similar manner to that used in describing cohort-specific changes in earnings. For all labour force measures examined in this section, we again estimate a regression specification that includes a quadratic in age, year-specific dummy variables with 1981 and 1988 effects restricted to be the same, and a full set of cohort-specific dummy variables.

We begin by examining the cohort pattern in employment rates, that is, the cohort pattern in the fraction of individuals employed in a given week. As before, after controlling for business cycle conditions, we seek to document how recent cohorts compare with older ones in terms of employment rates. Figures 17a to 17b plot estimated cohort dummies associated with employment rates. The value of a cohort dummy should now be interpreted as the employment rate at age 25 of a cohort if labour market conditions were similar to those in 1981. Once again, the estimated cohort pattern differs sharply by gender. For women, there is a marked increase over time, indicating that more recent cohorts have higher employment rates than older cohorts. The increase is particularly noticeable for lower-educated women. The 1992 cohort of low-educated women has an employment rate close to 30 percent higher than a cohort from the early 1970s.

The cohort pattern for men is substantially different from that for women. For higher-educated men there is essentially no evidence of a trend in employment rates across cohorts. This may seem surprising at first given the well-documented fact that young workers currently experience high unemployment and low employment rates. However, it must be emphasized that our estimated cohort effects are net of aggregate business cycle effects. Hence the evidence presented in Figure 17d suggests that recent cohorts of educated males do not fare worse than previous cohorts but that all cohorts are currently experiencing declines in employment rates.

The only group for which there appears to be a decreasing pattern in the employment rate is lower-educated males. For this group, the employment rate has dropped from 80 percent for the 1972 cohort to close to 74 percent for the 1992 cohort, a quite sizeable decline. Again, one of the interesting facts that emerges when comparing the figures is the degree of convergence between the employment rates for men and women. For higher-educated workers, the employment rate is essentially identical for recent cohorts of males and females.

To clarify the changing nature of employment relationships, Figures 18 and 19 provide information on measures related to the stability of work. In particular, Figures 18a to 18d report cohort patterns related to changes in the fraction of workers working full-time/full-year, and Figures 19a to 19d report similar information on the average duration of current jobs (average job tenure). Thus, after controlling for business cycle effects, in Figure 18 the value of a cohort dummy represents the fraction of workers from different cohorts working full-time/full-year at the age of 25.

The cohort pattern that emerges for the full-time/full-year rate is quite similar to that observed for the employment rate. For higher-educated men there is no clear trend, while for lower-educated men there is a substantial decline in the full-time/full-year rate. In contrast, for more recent cohorts of women the rate of full-time/full-year employment appears to be higher, especially in the case of more educated women. The decline in full-time/full-year employment for lower-educated males is again quite substantial. The likelihood that an individual will have a full-time/full-year job is 10 percent lower for a man from the 1992 cohort than his counterpart from the early 1970s.

Figure 19 provides a more direct look at the changing nature of employment relations since it reports information on how long jobs last for more recent cohorts. The main finding to emerge from this figure is that patterns now show similarity more by education group than by gender. For both lower-educated women and men, there appears to be a substantial decline in job tenure for cohorts entering after 1982. In contrast, for higher-educated workers there is virtually no evidence of such a trend. By itself this evidence offers little support for the idea of a profound switch in the nature of the employment relationship: if such a shift was occurring, we should observe it affecting new cohorts of highly educated workers, but we do not observe any such thing.

The overall picture that emerges from our cohort analysis of labour market outcomes is one of considerable heterogeneity. At one end of the spectrum we have recent cohorts of higher-educated women who experience increased earnings for all individuals, increased employment and increased or unchanged job stability. At the other end of the spectrum we have recent cohorts of lower-educated males with decreased earnings, employment and job stability. In between these two extremes, we have higher-educated males who experience decreased earnings but no substantial decrease in employment or job stability. Finally we have lower-educated women, who generally follow the same pattern as for higher-educated women except that they appear to be losing job stability.

Identifying the effects of a technological change is, of course, very difficult. In most studies, those effects are taken to be what is left after more easily measurable causes (such as shifts in industrial composition of employment) have been addressed. Accordingly the technological change effects reflect any measurement errors and errors arising from overly restrictive functional form assumptions.

FIGURE 17a

COHORT EFFECT FOR EMPLOYMENT-TO-POPULATION RATIO, FEMALES, LOW EDUCATION, 1972-1994

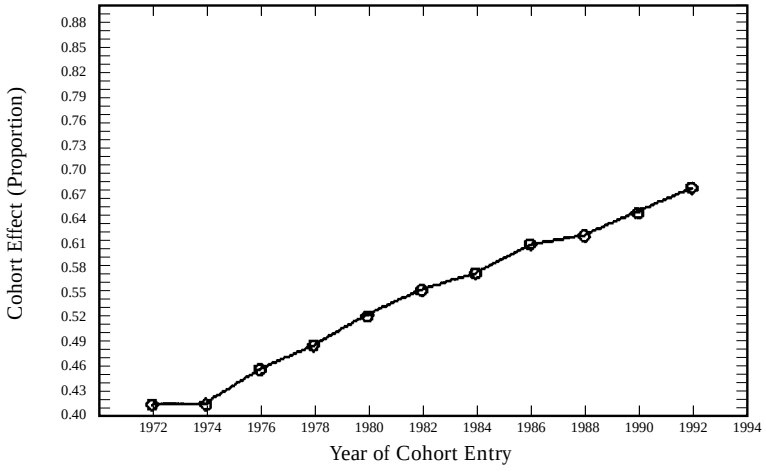


FIGURE 17b

COHORT EFFECT FOR EMPLOYMENT-TO-POPULATION RATIO, FEMALES, HIGH EDUCATION, 1972-1994

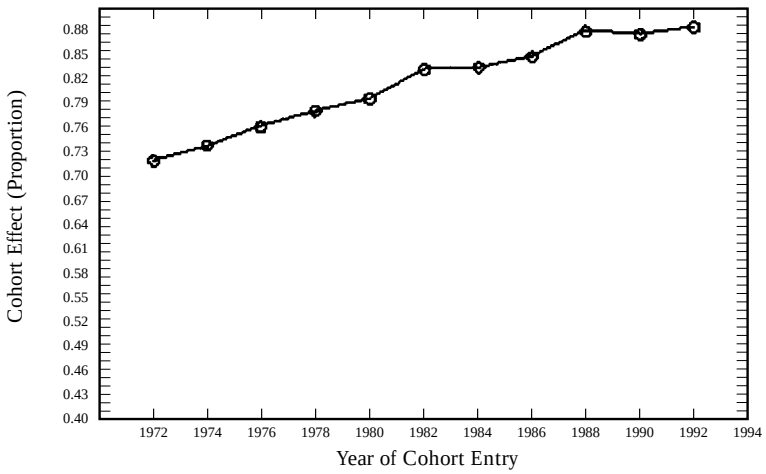


FIGURE 17c

COHORT EFFECT FOR EMPLOYMENT-TO-POPULATION RATIO, MALES, LOW EDUCATION, 1972-1994

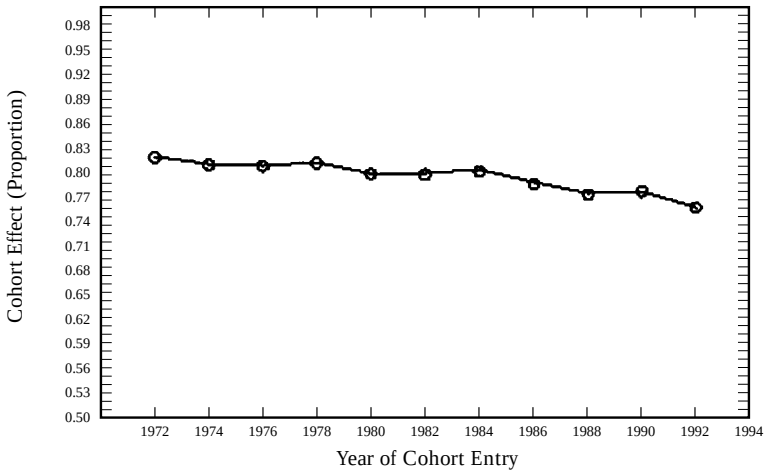


FIGURE 17d

COHORT EFFECT FOR EMPLOYMENT-TO-POPULATION RATIO, MALES, HIGH EDUCATION, 1972-1994

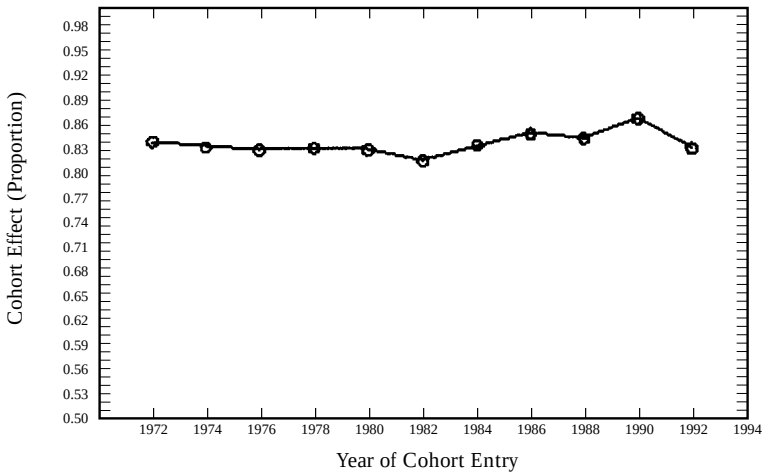


FIGURE 18a

COHORT EFFECT FOR PROPORTION OF FULL-YEAR/FULL-TIME WORKERS, FEMALES, LOW EDUCATION, 1972-1992

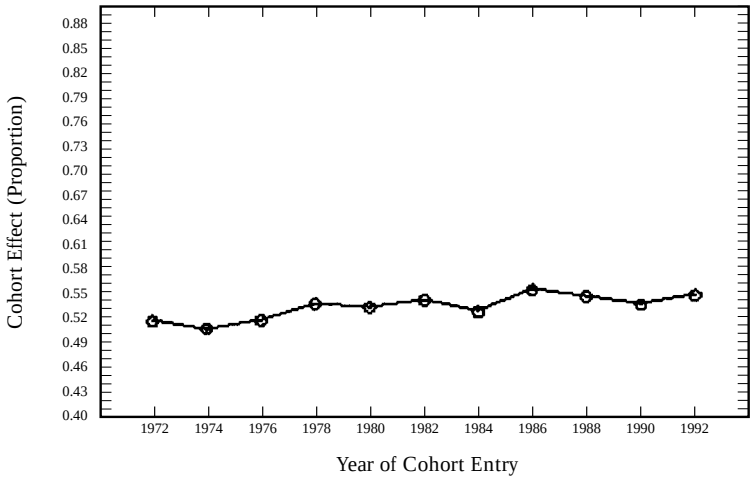


FIGURE 18b

COHORT EFFECT FOR PROPORTION OF FULL-YEAR/FULL-TIME WORKERS, FEMALES, HIGH EDUCATION, 1972-1992

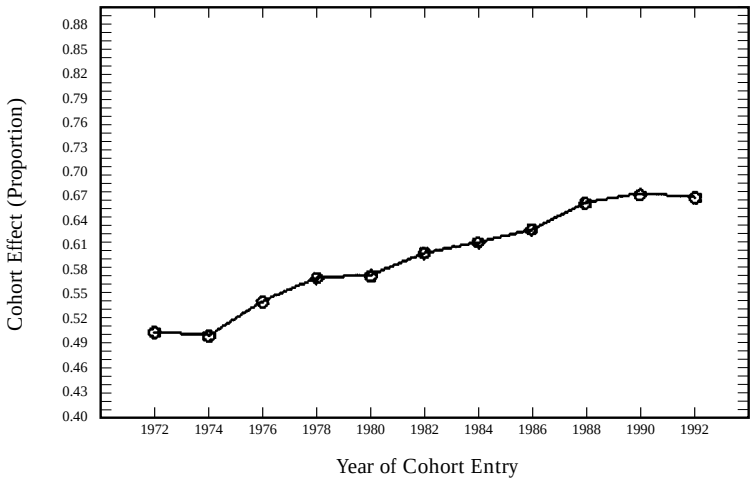


FIGURE 18c

COHORT EFFECT FOR PROPORTION OF FULL-YEAR/FULL-TIME WORKERS, MALES, LOW EDUCATION, 1972-1992

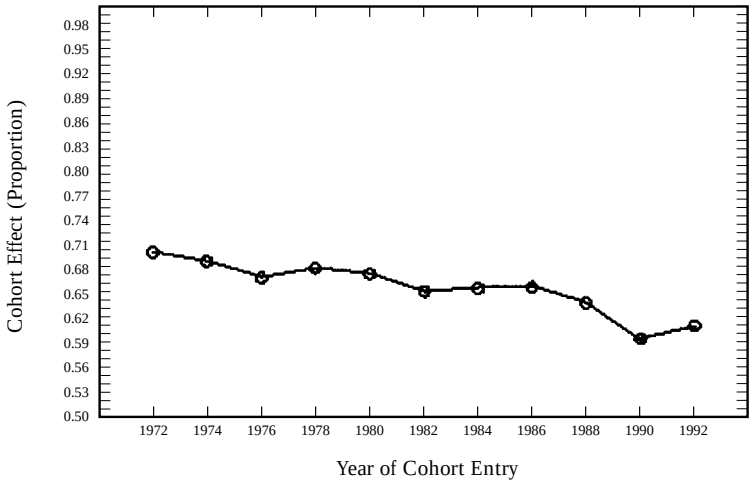


FIGURE 18d

COHORT EFFECT FOR PROPORTION OF FULL-YEAR/FULL-TIME WORKERS, MALES, HIGH EDUCATION, 1972-1992

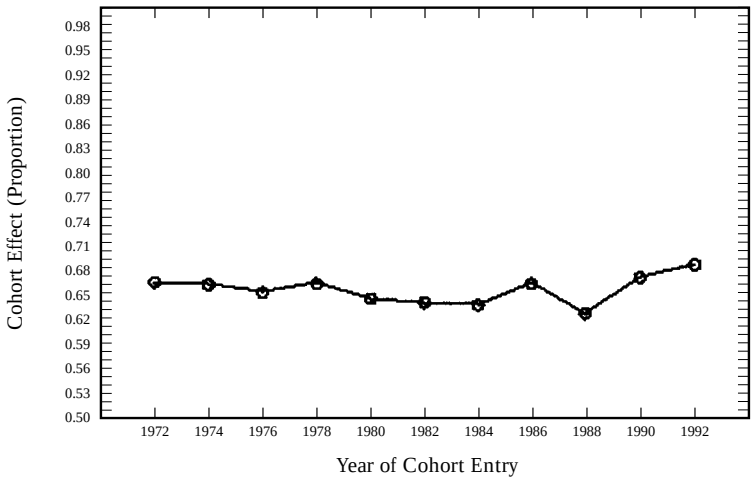


FIGURE 19a

COHORT EFFECT FOR AVERAGE JOB TENURE, FEMALES, LOW EDUCATION, 1972-1992

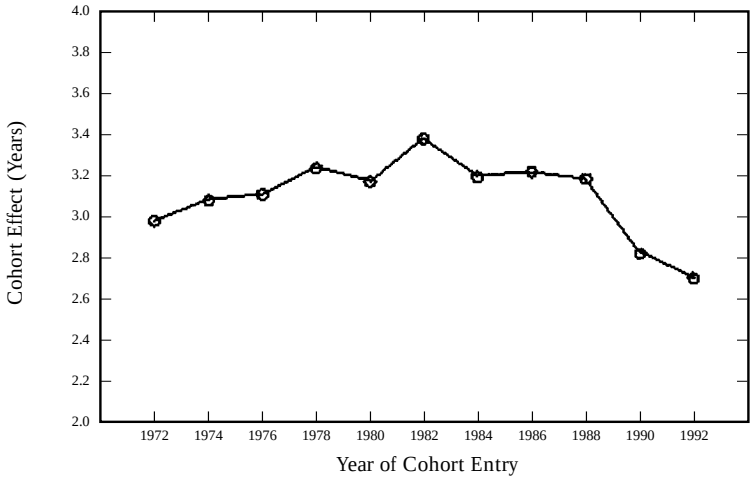


FIGURE 19b

COHORT EFFECT FOR AVERAGE JOB TENURE, FEMALES, HIGH EDUCATION, 1972-1992

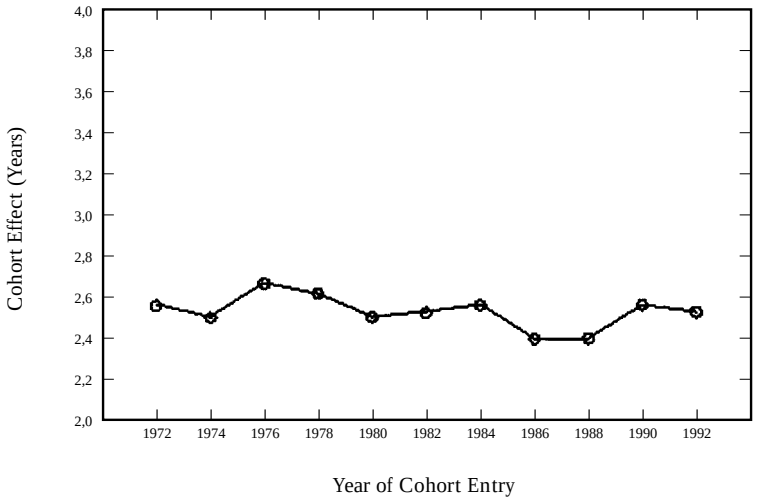


FIGURE 19c

COHORT EFFECT FOR AVERAGE JOB TENURE, MALES, LOW EDUCATION, 1972-1992

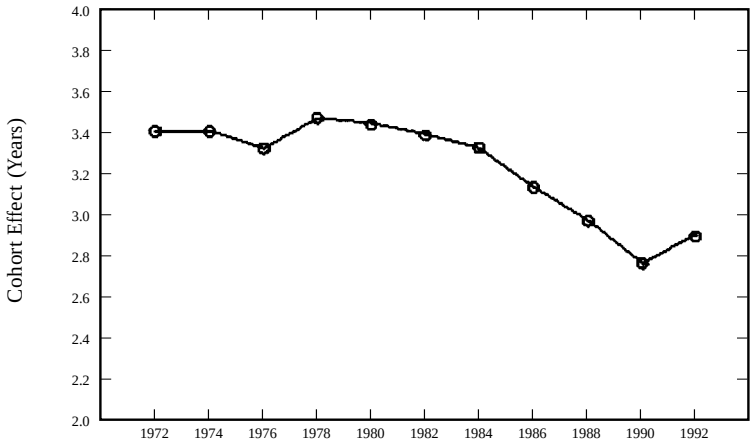
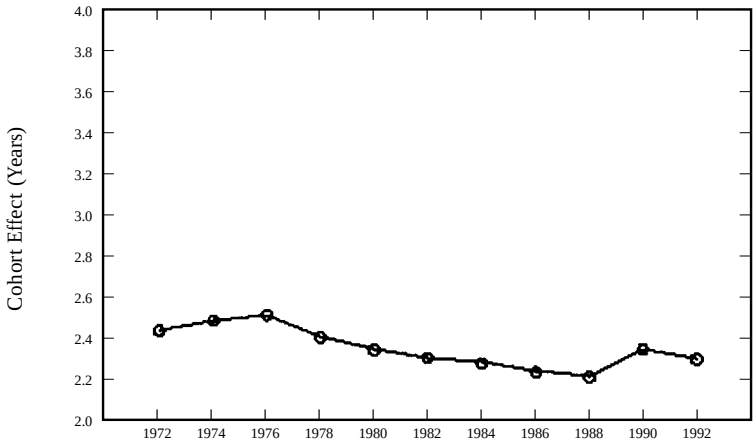


FIGURE 19d

COHORT EFFECT FOR AVERAGE JOB TENURE, MALES, HIGH EDUCATION, 1972-1992



A more direct attempt to measure technological change impacst will depend crucially on the definition of technological change. In the broadest sense, we can define an economy's technology to include not only the technical specifications embodied in physical capital but also work arrangements, institutions, etc. Such a broad definition fits with treating technological change impacts as the residual in an empirical analysis, but it provides the analyst with little of value for understanding the source of trends. Authors who have attempted to provide a more focussed definition of technological change have tended to concentrate on the computer revolution as the source of change in the 1980s and 1990s.

It would obviously be desirable to have a unified explanation of all recent changes in the labour market. Three main theories seem potentially reasonable, though none appears to us to provide a complete explanation for all or even most of the patterns discussed in the first section. The two most common interpretations in the existing literature revolve around the idea that what we are observing is the outcome of a shift in demand, and particularly a shift in demand favouring more skilled workers. The basis for this claim comes from what is sometimes called the "Econ 1" test: both earnings and employment outcomes have worsened for less skilled compared with more skilled workers. In a simple demand-and-supply framework, such a common movement in both price and quantity results only from a demand shift. The two main explanations differ in their identification of the cause of the relative shift: according to one, it is a "skilled-biased" technological change, while according to the other it is increased trade-related competition from low-wage countries. Whatever the underlying cause, the outcomes are mainly in terms of changes in employment as opposed to changes in hourly wages. The limited response of wages is potentially due to institutional rigidities as well as labour supply responses in the form of prolonged education. In particular, the large increase in the supply of educated workers helps explain why there has not been substantial wage increases for highly educated workers in response to favourable demand conditions.

A third possible explanation for observed changes over the last 25 years focuses on the substantial increase in the labour market attachment of women. This additional transformation of society provides the basis for understanding the divergent pattern of outcomes by gender. In fact, for the female labour market, the effects of changes in attachment appear to dominate any effects resulting from changes in skills-related demand patterns. The dominant pattern that emerges for women, once cyclical effects are disregarded, is mainly one of rather successful integration.

LOOKING FORWARD

WE TURN NOW TO THE TASK OF USING THE INFORMATION presented earlier in order to project into the future. We do this in two stages. In the first stage, we discuss predictions for the short run of about five years. These are short-term predictions of what we feel are the dominant trends in the labour market, and we believe that the predictions are plausible under a variety of scenarios and do not depend heavily on the actual underlying cause of change. Predicting further into the future requires assumptions about the underlying causes of the observed trends and how individuals are likely to adjust. Unfortunately, there is no clear consensus on the underlying causes. Accordingly, in the second stage of our analysis we set out two scenarios for the longer run, based on different hypotheses about the fundamental forces currently driving the economy.

SHORT-TERM PREDICTIONS

ONE OF THE MOST STRIKING THEMES EMPHASIZED in the previous two sections is the collapse of earnings levels for younger workers. Declines in average real earnings are observable in particular for men under the age of 35. The rise in female participation and hours worked over this period partly masks similar patterns for women. As previously noticed, however, if we focus on full-year/full-time workers, the same pattern of decline in real earnings is noticeable for young females. These declines are relatively continuous throughout the 1980s and appear to have accelerated in the 1990s.

To predict whether these earnings declines will continue, we need to separate apparently permanent negative outcomes for more recent labour market entrants from the general effects of the recession of the 1990s. Without such a separation, we are in danger of creating too gloomy a prediction simply because the most recent observations we have to work with occurred during a prolonged recession. In our analysis presented in the third section, we carried out an empirical exercise that permits such a separation for workers aged 25 to 38. In that section we argued that this is an interesting group on which to focus because it represents a crucial period in the life cycle, when we expect individuals to make a transition into a stable, long-term work pattern. If outcomes for this group are poor, predictions for new labour market entrants are indeed grim. We find a continual decline in the earnings levels of successive cohorts of male labour market entrants over the last 15 years, even after holding constant earnings changes associated with the business cycle and movements along a natural life cycle earnings path. For females, cohort effects estimated from average earnings numbers that include zero values for non-workers show the opposite pattern: a continual rise. Once we focus only on full-year/full-time workers, however, females also show a continual drop in cohort-specific earnings levels over time.

One might predict or hope that these sharply negative patterns apply only to the least educated workers. In fact, the decline affects more educated as well as less educated males; the only difference is that it seems to be accelerating for the latter while the former experience a smooth, continual decline. For female full-year/full-time workers, the decline is faster for more educated rather than less educated workers. This situation reflects the fact that in Canada (unlike the United States), there has been no substantial rise in returns to education in the last 15 years.

How would we project these trends into the future? For the least educated workers in particular, we see no evidence in the data to suggest that the earnings trends will slow down. Indeed, as mentioned above, the trends seem to be accelerating. For the more educated there is some slight evidence that the decline might have slowed for the most recent entry cohorts but this may only be a wishful reading of our graphs and certainly has no sound statistical basis. It seems reasonable to predict that real earnings levels will continue to decline for young workers in the short term. Having a higher education level may moderate the decline, but only slightly. Note that this is a discussion of cohort effects, i.e., long-term average earnings levels for a group of workers entering the mature labour market at the same time. If the current poor labour market conditions continue, the predicted declines for future new cohorts will be amplified by negative effects for all workers. If the Canadian labour market recovers from its depressed state, new entrants may generally have higher earnings than did their counterparts in the early 1990s but they will have lower earnings than cohorts at a similar point in the business cycle. Finally, we find no evidence that declines in entry-level earnings for new cohorts will be offset by faster earnings growth in the first part of their career. On the contrary, we find that newer cohorts suffer both in their initial earnings level and through a slower rate of growth of earnings.

The sharp decline in earnings levels across cohorts leads us to question whether there has been a general collapse in the labour market for young workers, showing up in employment outcomes and types of employment relationships, as well as in earnings. In our view, there is a popular notion that the Canadian economy is undergoing a so-called paradigm shift in employment relations. This presumably takes the form of a shift toward more short-term, part-time jobs and more self-employment. We do not find evidence to support such a general shift. If such a shift has occurred, it should show up in the cohort-specific component of the employment rate, job tenure and the proportion of workers who are full-year/full-time in our analysis in the third section. Further, to claim that something as substantial as a paradigm shift has occurred, we believe that one would have to witness significant changes for all types of workers. For low-educated males there are, in fact, substantial negative trends in the cohort effects estimated from employment rates, job tenure and the proportion of workers who are full-year/full-time. This indicates that more recent low-educated male entrants can expect poorer outcomes in these aspects over

the long term than those who entered the mature labour market in the 1970s or 1980s. However, there is no evidence of a significant negative trend in these measures for more educated males, and there are persistent positive trends in several of the measures for females. We do not deny the poor performance in terms of employment outcomes experienced by young workers in the 1990s. The benefit of our analysis is that we can assess whether these difficulties are the result of general problems associated with an economic downturn, the natural high turnover experienced among young workers, or more permanent negative effects for more recent entrants. Our assessment is that, apart from low-educated males, the recent poor performance does not signal permanently poorer outcomes for newer entrants in terms of employability and job stability. Accordingly, our second main short-term prediction is that we do not foresee a paradigm shift in the nature of labour market relations. Note that for males, the implication of our analysis is that there is an important increase in the return to a higher education in Canada; however, this increased return comes in terms not of earnings but instead improved prospects for stable work arrangements.

In light of the trends facing new cohorts (i.e., reduced earnings propects for all and decreased prospects for traditional employment relationships for lower-educated males), how may youth be expected to behave? First and most obvious, we believe that the recent increases in educational enrollment are likely to continue. In the past, the enrollment level has performed like a ratchet, with intermittent sharp increases followed by periods of slow growth or relative stability but never by decreases. This one-way movement suggests a process in which increases in enrollment "up the ante" in the labour market and all future generations are forced to meet that new, higher level. There is no reason to suppose that current increases in enrollment will be any different; and given our predictions for other trends in the low-educated labour market, there is every reason to believe that the increases will continue. Accordingly, we expect continual pressure for postsecondary education to expand and especially to maintain accessibility given the more limited resources of new cohorts. Second, there will be further postponement of family formation for a large segment of the youth population as a result of reduced earning capacity. Third, the poor labour market propects for young lower-educated males are likely to limit their social integration, with the possibility of significant negative side-effects such as increased crime rates and homelessness for this segment of the population. The increasingly poor outcomes for this group, plus continued polarization in earnings and employment, are also likely to generate increased social tensions between generations as well as within younger generations in the near future.

LONGER-TERM PREDICTIONS

TO MAKE LONG-TERM PREDICTIONS, it would obviously be desirable to have a unified explanation of the recent changes in the labour market. Three main theories seem potentially reasonable, though none seems to provide a complete explanation for all of the patterns discussed in the second and third sections. The two most common interpretations revolve around the idea that we are observing a shift in labour demand, and in particular a shift in demand that favours more skilled workers. The basis for this assertion comes from a very simple supply-and-demand interpretation. Since both earnings and employment outcomes have worsened for less skilled relative to more skilled workers, in a demand-and-supply framework one can explain such a common movement as the result of a demand shift. The two main causes given for this demand shift are (1) skill-biased technological change and (2) increased globalization of markets and, especially, increased competition from low-wage countries.

A third possible explanation for the observed changes over the last 25 years focusses on the substantial increase in the labour market attachment of women combined with the passage of the baby boom generation through the age structure. This explanation of change is based on increased labour supply and its associated general equilibrium repercussions. The attraction of the explanation is that it potentially offers a unified approach for understanding the extremely gender-divergent pattern of outcomes. In fact, for the female labour market, the effects of changes in attachment appear to outweigh any effects resulting from changes in skills-related demand patterns. The dominant pattern that emerges for women, once cyclical effects are eliminated, is mainly one of rather successful integration.

Which of these scenarios appears most relevant? In our view, there is very little evidence in the Canadian data supporting the skills-biased technological change explanation. Studies that emphasize this explanation use it to predict that there should be an increase in returns in terms of earnings to skills of all kinds: education- and experience-related skills as well as skills that are not observable in a standard data set. We find almost no evidence of increased earnings differentials across education groups over time. While we find some evidence of increased earnings differentials across very broad age groups (i.e, workers over age 35 versus youths), when following a particular cohort we find no evidence of increased returns to experience. This again reflects the advantage of our empirical approach of separating out cohort, age and time effects. It is true that there are increasing differentials between older and younger workers at particular times but the increase is due to declining cohort effects, not increasing age profiles. For skill-biased technological change to explain the patterns we observe, one would have to argue that the new technologies favour workers who entered the mature labour market in the early 1980s, and that newer entrants cannot reach the more favoured status as they gain experience.

This is clearly not what is meant by skill-biased technical change as discussed in the existing literature. Further, the technical change is often attributed to the impact of the computer revolution. It seems particularly dubious to claim that older cohorts have an advantage over new cohorts in their ability to adapt to and use computer technology. Finally, the point at which trends in inequality and changes in the earnings structure begin in our estimates is the early 1980s. Again, this seems a particularly bad fit with the computer revolution.[7] Hence, we choose to dismiss this explanation and concentrate on contrasting the predictions implied by the two alternative explanations.

If we interpret recent changes as mainly the result of increased international competition in both capital and labour markets, it appears reasonable to predict that the trends defined in the second and third sections will continue and possibly even accelerate – largely because globalization shows no sign of abating within the next 10 to 15 years. The opening up of China and the rebuilding of Eastern Europe are in themselves sufficiently important to ensure that it continues. In this case, our predictions for the longer term are very similar to those we discussed for the short term. Ongoing competition with low-skilled overseas labour will continue to generate poor outcomes for young and low-skilled Canadian workers, showing up in continued absolute declines in real earnings for this group and continued deterioration of employment outcomes for the least skilled. We again foresee high demand for postsecondary education as the only means for youth to slow down their relative decline. The net outcome will be increased polarization of earnings and of total income as the returns to capital, and more particularly to firm ownership, are bid up by the international competition. This polarization is likely to create enormous tensions between generations and social classes, and to place new demands on the Canadian redistribution system. In brief, under this scenario Canada will probably have an income distribution more like that of the United States within 10 to 15 years.

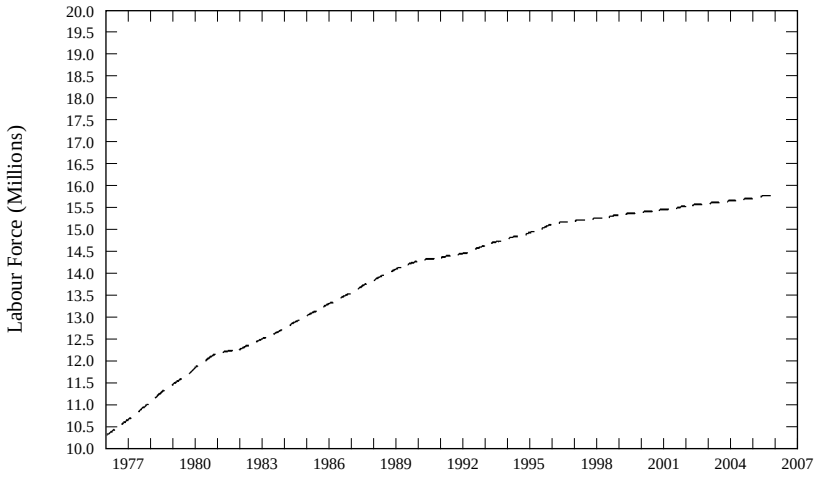
The second scenario identifies a different main determinant of the pattern observed for earnings and employment over the last 15 years: the large labour force increases generated by the entry of the mass of the baby boom into labour force ages and also by the strong rise in female participation. The increase in the labour force could have general equilibrium effects leading to increased labour demand and making possible the strong upward trends in employment rates among females. At the same time, the new entrants compete most directly with low-skilled males and could cause the relatively poor outcomes for that group, playing the same role as competition from overseas unskilled labour in the first scenario. It should be noted that, in general, a supply-based explanation such as this one is rejected in the existing literature because we observe both declining earnings and employment. While this holds true for unskilled males, for unskilled females we find a pattern of declining earnings but increasing employment. It should also be noted that more educated males and females in Canada face a pattern of decreases in earnings across successive

cohorts, along with stable or increasing employment. This finding fits with a supply shock varying by entry cohort. Indeed, under the most generous interpretation of our estimates, the decline in earnings levels for educated males has stopped for the three most recent entry cohorts, coinciding with the educated cohorts for whom the upward trend in employment has stopped. In contrast, employment rates for unskilled females continue to rise across recent entry cohorts, and the earnings levels of unskilled males continue to fall for recent cohorts. All of these findings fit well with results in Fortin and Lemieux (1996) for the United States; they note that increased earnings inequality is evident in the male labour market but that once male and female outcomes are combined, the often-studied trend toward more inequality is not so evident.

While this second scenario shares with the first the assumption that large increases in competition among unskilled labourers is the source of poor outcomes for unskilled males, there is an essential difference in the level of optimism associated with predictions generated from each scenario. Predictions from the first scenario are pessimistic because there is no reason to believe that the competition from overseas will abate. In contrast, we see evidence that the upward trend in female participation is slowing or stalling. In particular, participation rates for young females are already very close to those of males and therefore are unlikely to continue increasing substantially. If this is true, we

FIGURE 20

LABOUR FORCE, AGE 15 TO 64, 1976-2006



would predict that earnings for new cohorts are likely to stop falling relative to older cohorts, and that employment prospects for younger less-educated males may improve. This shift in turn could indicate a slowing increase in school enrollment rates and in delayed family formation. We do not, however, predict an absolute turnaround and recovery in the fortunes of new entrants, to the extent of a return to the levels of cohorts who entered in the early 1970s and 1980s. Society thus must still adjust to a situation with more inequality, delayed family formation and higher school enrollment than in the 1970s and early 1980s – even though many of our current redistributive and labour market institutions were created under quite different conditions in those earlier times. Nonetheless, such a challenge seems much easier to tackle than one of continually increasing polarization.

The truth probably is a combination of the two scenarios. Canadian workers will continue to be affected by competition from unskilled labour overseas, but domestic sources of increased supply will dry up. If that is true, then (to the extent that foreign competition is focussed on the least skilled) employment and earnings outcomes for more educated males and females will be more favourable, or at least no less favourable, compared with what was observed in the 1990s. Less-educated males, and perhaps less-educated females, will continue to face deterioration in their outcomes. The results could be continuing polarization across education groups and continuing increases in demand for education.

CONCLUSION

IN OUR ANALYSIS OF THE LABOUR MARKET, we have attempted to provide a useful summary of past trends and a discussion of how to project the trends into the next decade or more. We find five defining features of changes in the labour market over the last 15 years:

- First, there have been strong and persistent declines in earnings potential for virtually all types of workers. These trends are masked by increases in employment and hours worked among females; but once one focuses on full-year/full-time workers, the declines are evident for females as well. There is no evidence of the type of sharp increase in returns to education visible in the United States in this period.
- Second, the declines are partly due to a depressed labour market in the 1990s but they also reflect a relative decline in longer-term outcomes for recent labour market entrants. New entrants in the 1990s face a 20 percent to 30 percent lower level of real earnings over their lifetime than individuals who entered the mature (i.e., over age 25) labour force in the 1970s.
- Third, up to 1989 there has been a prolonged increase in participation and employment rates among females over the age of 25, but those trends have stalled in the 1990s.
- Fourth, employment outcomes for men differ sharply by education level: for the least educated, employment rates, average job duration and the proportion working full-year/full-time fall across successive entry cohorts, but for the more educated they stay constant. Given the lack of pervasive movement toward more unstable work patterns across age, education and gender groups, we regard as overstated the claims that there has been, or will soon be, a paradigm shift in the labour market.
- Fifth, perhaps in response to some of the above changes, there have been very substantial increases in school enrollment among youths plus delays in family formation. Overall, we derive a very heterogeneous picture of the last 15 years. Youths have suffered declines in real earnings. Young males have, in addition, suffered strong negative trends in employment outcomes. More education has helped young males escape negative employment outcomes but has not alleviated the negative real earnings trend. For females, the picture is dominated by the successful integration of large numbers of new entrants into the labour force.

In forming predictions, we divide our analysis into short- and longer-run forecasts. In the short run, we see continued negative trends in earnings for all young workers and in employment for the least skilled males. The increase in school enrollment levels will probably also continue. On the other hand, the long historic rise in female participation and employment rates appears to have stalled, especially for more educated females. In the longer run, it is necessary to explain the underlying causes of existing trends and how those causes will themselves change in order to make useful predictions. To this end we discuss two main theories. According to the first, increased competition from foreign unskilled labour has driven the trends, especially the negative trends for unskilled males. If that scenario is true, we predict a continuation of the trends we forecast for the short run, because there is no reason to believe there will be any abatement in overseas competition. The second scenario attributes observed trends to substantial increases in the labour force generated by the ageing of the baby boom and the increase in female participation rates over the last 15 years. If this scenario is true, many of the observed trends may moderate or stop since the baby boom entry into the labour force has stopped and we believe the female participation rate may have reached a plateau. With less competition from new labour market entrants, unskilled males may see an end to the substantial fall in their earnings and employment outcomes. We view this as a more optimistic scenario for the future. The truth is probably a combination of the two, with unskilled labour in Canada continuing to be affected by overseas competition but being relieved of the competition from increasing domestic sources of labour supply.

NOTES

1 Figures 1 through 3 are based on data from CANSIM.

2 The variance of weekly hours actually decreased for women, reflecting the fact that more part-time workers worked more hours.

3 The gender mix of university students has also changed. In particular, by 1994 the graduating class was composed of four women for every three men (see *Education Quarterly Review*, spring 1996).

4 Our calculation of inactivity rates is derived from the Survey of Consumer Finances.

5 For related work on cohorts aged 25 to 34, see Susan Crompton, "Employment prospects for high school graduates," in *Education Quarterly Review*, Vol. 3, No. 1 (spring 1996).

6 More precisely, we modified the previous specification to include an interaction term between age and cohort in order to allow the slope of the age-earnings relationship to change in a linear fashion over time. To estimate this effect as precisely as possible, we also restricted the cohort-level effects to be a quadratic function of cohort time.

7 In the broadest sense, an economy's technology can be defined to include not only the technical specifications embodied in physical capital but also work arrangements, institutions, etc. Such a broad definition fits with the common empirical practice of treating technological change impacts as the residual after competing measurable effects are addressed, but it provides the analyst with little of value for understanding the source of trends. Using such a broad approach to technology, it is always possible to define technological change in a way that fits the observed data. We focus on what we perceive to be the main, more narrow definition of technical change in the literature: a change, possibly related to the computer revolution, which is complementary to skilled labour and a substitute for unskilled labour.

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