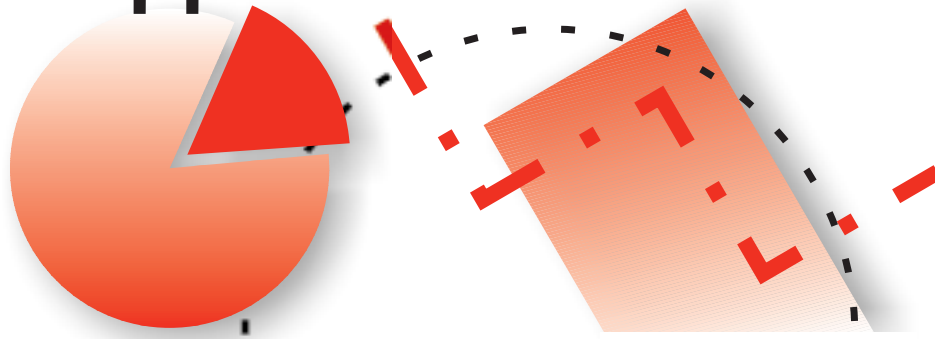


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High Risk Factors Behind Poverty and Exclusion

Several researchers have recently pointed out that poverty in Canada is by nature dynamic. The poor move in and out of poverty according to changes in family structure and labour market conditions. Some members of the press have seized on these findings to call for abandonment of the notion that the poor tend to get stuck in poverty and dependence.

But the Applied Research Branch (ARB) in ongoing research and Ross Finnie of Queen's University in a forthcoming ARB working paper find two distinct groups among the poor in Canada. One group does experience poverty as a short-term condition. However, a second group experiences poverty as a much longer-term situation and they constitute a growing proportion of the poor.

At High Risk

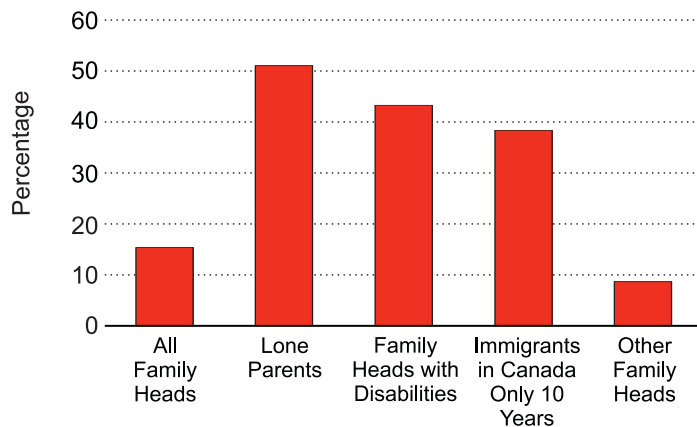
Three high-risk groups—lone parents, immigrants landed in Canada less than 10 years ago and persons with disabilities—are those most likely to head poor families in any given year. Families headed by members of these groups had an average poverty rate of 43.3 percent in 1997 compared to 8.7 percent for all other families.

Heads of families under age 30 who belong to one of the high-risk groups are even more likely to be poor. They had a poverty rate of 66.4 percent in 1997 whereas "other family heads" under 30 had a poverty rate of just 14.7 percent.



Data for aboriginal people who lived off reserves at the time of the 1996 census show that this group also had a high poverty rate (44 percent in 1995). Aboriginal Canadians on reserves are not surveyed in Statistics Canada income surveys.

Non-Elderly Families with Incomes Below the LICOs, by Characteristics of Head, 1997



Notes: A "family" is a household containing two or more people related by blood, marriage or adoption. A "family head" is the male spouse in a married or common-law couple or the spouse with the highest income in other families. LICO refers to the income level where households spend a share of their income 20 percentage points higher than the average family on food, clothing and shelter.

Source: Survey of Consumer Finances, 1998

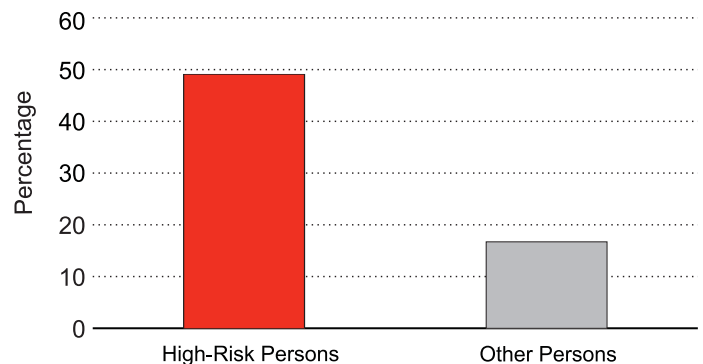
High-risk groups make up a growing proportion of the poor. By 1997, the three groups—lone parents, recent immigrants and persons with disabilities—accounted for 53.9 percent of non-elderly poor families, up from 41 percent in 1985. Demographic changes account for most of this increase: these high-risk groups represent larger proportions of the entire population of Canada as well as of the poor population. Recent immigrants have also suffered a large increase in their poverty rate.

The research demonstrated that the poverty and dependency of the high-risk groups were much more longer-term. The probability of being in a household with an income less than Statistics Canada's 1992-base Low Income Cut-off lines (LICOs) for each and every year from 1993 to 1996 was 7.0 percent for all non-elderly persons. The figure rises to 23.5 percent for the high-risk groups.

In addition, the likelihood of receiving Social Assistance at least one year between 1993 and 1996 was 5.1 percent for non-elderly Canadian residents not in high-risk groups. This figure rises to 27 percent for the high-risk groups. The probability of receiving social assistance all four years was 12.4 percent for high-risk families but only 0.9 percent for others.

However, not all the high-risk are poor. In fact, over half the high-risk individuals avoided poverty entirely during the 1993-1996 period. But their probability of at least one year of poverty was much higher than for all other persons, 49.2 percent versus 19.7 percent.

Canadian Residents Aged 16 to 64 Who Were Poor at Least One Year from 1993 to 1996



Notes: "Poor" is defined as being below Statistics Canada's 1992-base Low Income Cut-offs. A "High-Risk Person" is a lone parent, a person with a disability or an immigrant who came to Canada after 1977.

Source: Survey of Labour and Income Dynamics

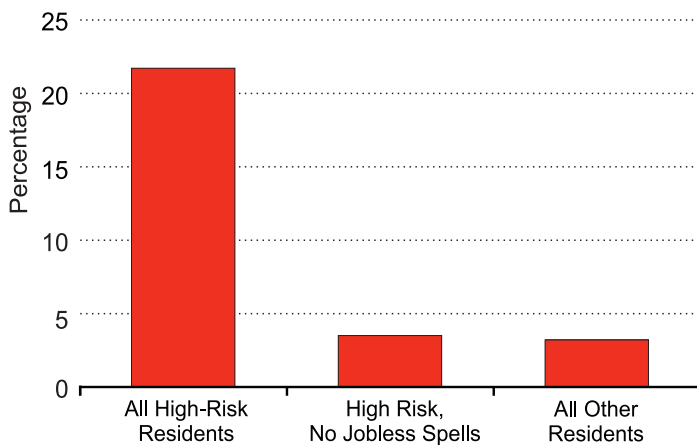
Jobless spells and low skills are major factors behind long spells of poverty

Being a member of a high-risk group is the greatest factor identified with long-term poverty spells. But since most of the high-risk are never poor, other factors must also be important. What other factors *are* associated with long spells of poverty?

The most important factor is the inability to stay employed. Members of disadvantaged groups who had no jobless spells over the four years were no more likely to be poor all four years than other people residing in Canada.

But what factors make it difficult to earn enough money to escape poverty? To identify these barriers, the researchers shifted the focus of analysis from total money income poverty to market poverty. The probability of four years of market income poverty (i.e., market income below the LICOs) was calculated as 24.8 percentage points for the high-risk as a whole. Then the researchers looked at the added risk associated with a number of factors of experiencing low market income all four years. The most significant factor, not surprisingly, was the lack of a high school diploma. Not having a high school diploma added 21.9 percentage points to the risk of being poor. A high-risk individual without a high school diploma had a 47 percent risk of being poor in all four years from 1993 to 1996. Having visible minority status or a child under 5 also added significantly to the risk of being market poor.

Canadian Residents Aged 16 to 61 Who Were Poor All Four Years from 1993 to 1996



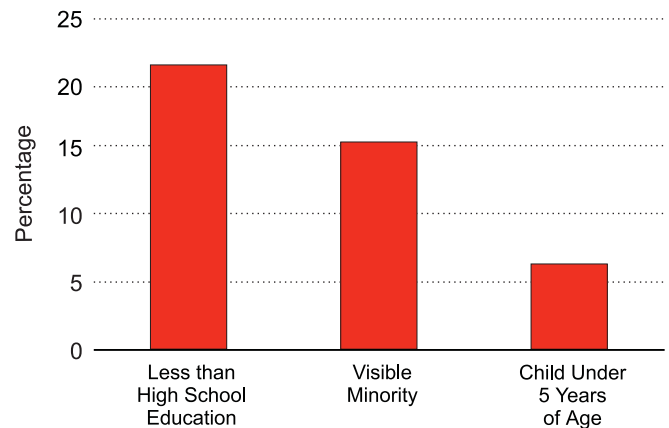
Note: Data cover all Canadian residents who were not full-time students in 1993.
Source: Survey of Labour and Income Dynamics

As the Century Turns

Significant portions of the poor population remain poor for long periods of time. Those groups most likely to experience long spells of poverty are growing as a share of the non-elderly population and becoming significantly disadvantaged in the labour market compared to other

people in Canada. These developments indicate that the problem of poverty will continue to loom large on the Canadian horizon unless the employment prospects of high-risk groups improve.

Added Risk of Long-Term Market Poverty for Non-Elderly At-Risk Canadian Residents



Note: The base risk of having income below Low Income Cut-off levels after excluding federal government transfer payments ("Market Poverty") is 24.8%.

Source: Survey of Labour and Income Dynamics

Poverty Would Be Cut by Two-Thirds if All Adults Worked Full Time

Since the 1980s, the notion that individuals and families, rather than government, should have prime responsibility for their own economic security has gained widespread currency in Canada as elsewhere.

However, the emphasis on individual responsibility and on modernizing the economic and social role of government raises a number of questions. There is concern about the ability of families to secure by themselves an income sufficient to meet their basic needs, and particularly about the distinct roles of salary and job access in achieving that objective.

Revenu potentiel et pauvreté au Canada, 1986-1996, a recent study by Stéphane Gascon of the Applied Research

Branch, paints a portrait in which poverty occurs because of the inability of families headed by an individual under 65 to earn a sufficient market income to avoid poverty in Canada between 1986 and 1996.

To this end, a measure of the capacity of each adult within a given family to generate annual earnings based on full-time, year-long employment (at least 50 weeks) was developed using data from the Survey of Consumer Finances. This measure, which attempts to take into account characteristics related to the human capital of the working-age population, was converted into potential full-time income and then compared with Statistics Canada's Low Income Cut-offs (base-year 1992). The calculations of potential family income were adjusted for certain limiting factors (e.g., disability, full-time study) affecting some of the working-age population. The predictions of potential earnings also included investment income and other non-governmental cash income.

Considerable Drop in Poverty Rates

As would be expected, poverty rates predicted using the potential earnings measure are much lower than poverty rates based on the market income actually observed in the population. From 1986 to 1996, the rates based on potential income from full-time employment were about one-third (and sometimes slightly less, depending on the year) the actual poverty rates observed based on market income.

Predicted and Observed Poverty Rates

By Family Type, 1996

	Predicted Poverty Rate (%)	Observed Poverty Rate (%)	Ratio
All families	7.0	22.5	0.31
Couples with children under 18	2.6	18.8	0.14
Couples with no children under 18	2.2	13.9	0.16
Single-parent families with children under 18	42.7	65.1	0.71
Other types of families	9.5	30.9	0.31

These preliminary findings seem to indicate that, for the vast majority of Canadian families, poverty based on market income would more likely result from problems of access to work than from salary problems.

Major Differences by Family Type...

The rate of poverty attributable to inability to earn a living varies by family type. For two-parent families, it seems poverty would be virtually eliminated in Canada. In 1996, only 2.2 percent of couples without children would not have been able to avoid poverty if both had worked full time.

The picture is quite different, however, for single-parent families. It is noteworthy that for those families, and particularly those in which the head of the family is a woman (more than 80 percent of single-parent families with children under 18), poverty rates remain extremely high for the "predicted" measure. In 1996, 46.3 percent of these families would have been poor even if the parent had held a full-time job.

This suggests that, in families with at least one dependent child, having a single breadwinner is in many cases quite insufficient to generate enough income to meet the family's basic needs. Further, we observe that, even when the parent holds a university degree, these families have a very high predicted poverty rate of 20.8 percent, compared with the actual observed rate of 24 percent.

...and by Characteristics of the Family Head

Poverty rates vary not only by family type but also by characteristics of the head of the family which have a significant influence on a family's economic status. The rate of poverty attributable to inability to earn a living, like poverty based on observed market income, tends to decline in direct relation to the age of the head of the family.

Although the rate of poverty attributable to the lack of earnings is lower for all age groups than the rate based on observed market income, the gap between the two is relatively narrow for younger families; in 1996, their

predicted rate was less than 50 percent lower than their poverty rate based on observed market income. For families in the other age brackets, however, the gap widens rapidly with age, attesting to the importance of labour market experience. For families with a family head between 45 and 54, the rate of poverty attributable to inability to earn a living was 3.5 percent, well below the 15.1 percent rate based on their observed market income.

Predicted and Observed Poverty Rates

By Characteristics of Family Head, 1996

Characteristic of Family Head	Predicted Poverty Rate (%)	Observed Poverty Rate (%)	Ratio
Age			
18-24	32.3	61.7	0.52
25-34	12.2	29.1	0.42
35-44	6.6	21.6	0.31
45-54	3.5	15.1	0.23
55-64	3.3	21.7	0.15
Level of Education			
Less than 11 years of schooling	20.6	55.0	0.37
From 11 to 13 years of schooling	11.4	32.7	0.35
Partial postsecondary education	11.1	29.7	0.37
Postsecondary diploma	4.9	17.9	0.27
University education	1.6	9.9	0.16

The findings also show that education level has a significant impact on a family's economic status. Examination of the differences between poverty rates based on the two measures shows a pattern similar to the one observed for the different age groups; the gap between rates tends to widen as the education level increases. For families in which the head of the family had less than 11 years of schooling, the rate of poverty due to inability to earn a living was 20.6 percent in 1996, approximately 63 percent lower than the observed poverty rate. For families in which the head held a university degree, the predicted poverty rate was 1.6 percent, about 84 percent lower than the observed rate.

An Issue of Both Supply and Demand

This study shows that lack of work, and to a certain extent family structure, is a decisive factor in poverty in Canada. However, these findings do not negate the importance of building sufficient human capital in terms of both performance in the labour market (compare the results related to education level) and access to the labour market.

The policy implications of these results are significant. Notably, the findings underscore the importance of taking both components of the labour market into account, namely supply and demand, depending on individual and family characteristics. Initiatives such as investment in skills acquisition, continuing learning, employability programs and other policies aimed at generating better salaries are called for in order to reduce poverty among single-parent families, young families and families in which the head has a low education level. But for other types of families—couples with and without children, older families and families in which the head has a higher education level—poverty seems to result primarily from problems of labour market access rather than problems of salary related to a lack of qualifications.

A Promising Tool for Reducing Welfare Dependency

Over the last twenty years, the proportion of lone parents working full-time has declined and the proportion of Canada's lone-parent population receiving welfare has increased. Reform efforts in Canada and the United States have generally been unsuccessful in improving labour market participation for this group.

In 1992, the government of Canada, with the support of New Brunswick and British Columbia, developed the Self-Sufficiency Project (SSP) to pilot a program that encourages lone parents to leave welfare. SSP offers monthly payments to single parents who have been receiving social assistance for at least a year, on the condition that they leave social assistance for full-time work within one year of being

selected for the program. These earnings supplements are paid directly to the participants on top of their earnings from employment, and they can be received for up to three years, as long as participants continue to work full time and remain off social assistance. The idea was that the experience of working full-time for three years would lead to longer-term labour market attachment, even after the supplement ended.

Scheduled for completion in the year 2000, SSP consists of three sub-studies—the Main Recipient Study, the Applicant Study, and SSP Plus. To launch each sub-study, Social Research and Demonstration Corporation (SRDC), the project managers, randomly drew participants' names from social assistance caseloads. They then randomly divided the participants into a program group (offered the supplement) and a control group (not offered the supplement). Comparing the different outcomes for program and control group members determined the impact of the interventions.

The Main Recipient Study Produced a Strong Increase in Full-Time Work

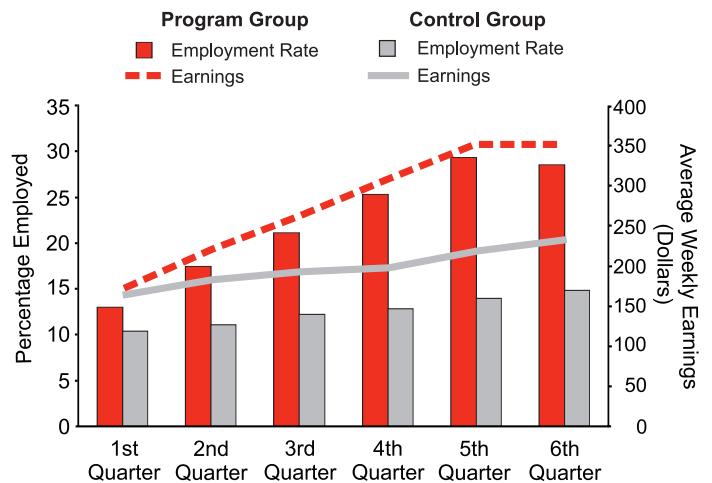
The Main Recipient Study is measuring the effects of the financial incentive *alone*. Results show that SSP's earnings supplement offer has doubled the proportion of single-parent, long-term social assistance recipients who go to work full time. Twenty-nine percent of program group members were working full time by the fifth quarter after random assignment, compared with 14 percent for the control group. This impact is among the largest ever encountered in carefully evaluated welfare-to-work programs.

The program group also had a higher average family income than the control group—about \$200 more per month. Among control group members, 90 percent had incomes below the Statistics Canada Low-Income Cut-off lines compared to only 78 percent of the program group. (The Low-Income Cut-off defines the point at which households spend on average 20 percent more than the average family of its income before tax on food, clothing and shelter.)

Despite this success, a full 65 percent of program participants never took the supplement offer. Half of these would-be

supplement recipients either could not find a job or could not get enough hours of work. A quarter of them had personal or family responsibilities and 19 percent had health problems or disabilities that intervened to prevent their securing the required job.

Rates of Full-Time Employment and Average Weekly Earnings in the Self-Sufficiency Project



Source: Winston Lin, et al., *When Financial Incentives Encourage Work: Complete 18-Month Findings from the Self-Sufficiency Project*, p. 46

The estimated impact on government budgets will depend on the number of program members sustaining full-time employment in 2001. In that year, SRDC will analyze the work history of program members two years after the withdrawal of the supplement.

The Applicant Study Had No Cost

The Applicant Study addressed the possibility that the generous supplement might encourage people to enter social assistance or stay for longer periods of time in order to receive the supplement. Over 3,000 single parents who were beginning a new spell of social assistance between February 1994 and February 1995 were randomly assigned to either a program group or a control group. Members of the program group were told that the supplement would be available to them after a year. Fortunately, the Applicant Study found only a very small impact of the earnings

supplement on length of stay on social assistance. After 12 months, the program group's size exceeded the control group's size by only three percentage points. Most people who would have left social assistance anyway did so before becoming eligible for the supplement.

An unexpected finding came out of the Applicant Study. The proportion of Applicants who stayed on social assistance for one year and found full-time work was 41 percent compared to 29 percent for the control group, an impact comparable to the Main Recipient Study. However, the Applicants earned higher wages than the Main Recipients. Higher wages led to lower supplement payments and higher tax receipts by governments. The result was that there was no cost to the government for new Applicants. Reductions in welfare payments and increases in tax revenues more than offset the cost of the supplement.

One possible explanation for the higher wages among Applicants is that the longer people stay on welfare, the more work-related skills deteriorate. The Applicant Study program group had better skills than the Main Recipients probably because the supplement intervened at a critical point in the welfare cycle. One year proved long enough to discourage people from entering social assistance to get the supplement, but short enough to prevent significant skill deterioration. Therefore, the program would eventually pay for itself even if no one remains at work when the supplement is withdrawn.

The SSP Plus Study Added Employment-Related Services

SSP Plus, in addition to offering the earnings supplement, provided a sub-group of participants with employment-related supports. These consist of resume preparation, job-finding clubs, posted job leads and job coaches. Adding supports to the original design resulted in a much larger increase in the rate of supplement take-up. Over half the SSP Plus program group left welfare for full-time work within one year compared to just over one-third in the Main Recipient program group.

Unfortunately, the SSP Plus program group also lost their jobs at a much higher rate than in either of the other two sub-studies. The full-time employment rate was 33 percent for program members and 16 percent for the control group, results similar to Main Recipient outcomes. For many lone mothers, finding a job is not as difficult as keeping a job. This finding suggests that the current emphasis on welfare-to-work should be supplemented by job retention support for lone mothers. The inability to maintain child-care arrangements contributed strongly to job loss for SSP Plus participants.

The Promise of SSP Lies Ahead

SSP has demonstrated its capacity to increase full-time work extensively among lone-parent long-term social assistance recipients. Results strongly suggest that a fully implemented program could be cost neutral or even save money for governments while improving the standards of living and well-being of participants. The project also shows that added services, particularly stable child care, might move significant additional people into the workforce.

It remains to be seen how many lone parents will maintain full-time work after withdrawal of the supplement. But even if this number turns out to be low, this type of transitional earnings supplement can serve as a promising tool to fight poverty and reduce welfare dependence for lone parents.

OECD Looks at Canada's Social Assistance Policies

In December 1992, ministers responsible for social policy in member states of the Organisation for Economic Co-operation and Development (OECD) mandated this organization to review the evolution of social policy and related policies. The goal was to analyse why, after a sharp rise in the number of income support claimants in each successive recession, the number of claimants does not return to its original level once the recession is over. Perhaps

a trend towards exclusion and long-term dependence has been developing. The members of the OECD's Employment, Labour and Social Affairs Committee therefore agreed to carry out a review of social assistance programs in certain countries.

Thus far, the OECD has conducted a thematic review of social assistance in three groups of countries. The third review is based on visits to Canada and Switzerland in September and October 1998. It covers four provinces—Alberta, New Brunswick, Ontario and Saskatchewan—and four cantons—Graubünden, Ticino, Vaud and Zürich. One feature particular to this review is that it compares two countries that have federal systems and provincial/cantonal legislative authorities with broad discretionary powers.

The review does not claim to cover the full range of social assistance and income support policies in these regions. However, it does look at the interaction between social assistance measures and other benefits or measures in the areas of social insurance, taxation, employment and housing.

Demographic and Economic Trends Determine the Evolution of Social Spending

Changing demographic and labour market conditions are the key determinants of variations in social spending and therefore lead governments to institute reforms. In Canada, for example, social spending has always focused on families and the relatively young, but under the pressure of an aging population, the proportion of spending on social programs other than health that goes to young people has been declining. The social safety net has also been put to the test by major changes in family composition. Since 1980, the percentage of separated couples has risen from 32 percent to 49 percent in Canada and from 30 percent to 41 percent in Switzerland. Today, the group with the highest poverty rate is families headed by unemployed single parents.

Certain labour market characteristics have also affected the course of social policy. For example, the proportion of people who have been unemployed for more than 12 months (the long-term unemployed) has more than doubled in both

countries since the beginning of the 1990s. Furthermore, on the basis of OECD estimates Canada has the second highest incidence of low-paying jobs among the G7 countries (second only to the United States). While most indicators of income inequality show an improvement in Canada between 1985 and 1995, slightly more progressive taxation and an increase in public transfers to low-income individuals mask the increased inequality in market income.

Canada's total public spending on social programs increased in the 1980s, then began to fall in 1993 reflecting both improved economic conditions and discretionary cuts to social programs. Spending on social programs, excluding health care, accounted for 11.7 percent of Canada's Gross Domestic Product in 1995, considerably below the OECD average of 16 percent.

Over the course of a year, 5 to 6 percent of Alberta residents and nearly 10 percent of New Brunswick and Ontario residents receive social assistance. As in Switzerland, the population of recipients is made up essentially of immigrants, single parents, young people and the chronically unemployed. In some provinces, aboriginals are strongly over-represented (39 percent in Saskatchewan). In Canada, nearly one-third of all social assistance recipients are single parents. As an example of the variations among provincial policies, it is interesting to note that in New Brunswick, to be eligible for benefits, single parents are not required to look for work until their youngest child has reached the age of majority, whereas single parents in Alberta must start looking for work six months after their child is born.

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Based on this foray into the overall social policy environment, the authors point out that governments in Canada have begun to tackle problems not previously considered priorities, such as child poverty, and policies that help people get back to work. Starting from this observation, the study

assesses the implementation of policies and their effectiveness from three perspectives—adequacy of benefits, the promotion of labour market re-integration and policy coherence.

Adequacy of Benefits

First, the study examines these countries' ability to reconcile their goal of providing the most underprivileged with the basic means for subsistence with their desire to prevent dependency. The replacement of the Canada Assistance Plan by the Canada Health and Social Transfer (CHST) has served as a catalyst. Though the CHST gives the provinces more leeway to pursue substantially different social policy approaches, increasingly there seems to be a common view that social assistance should no longer necessarily guarantee an acceptable standard of living for an extended period of time, but rather should serve as temporary support to keep people from becoming destitute until their efforts to re-enter the labour force bear fruit.

“In Canada... Comparison of benefit levels is made not to any measure of deprivation, but rather to ensure that the benefit system should not support a standard of living that exceeds or even matches that of a working household.”

energies on maintaining their subsistence rather than on looking for a job. At the same time, the growing number of soup kitchens and homeless people, despite a drop in the number of beneficiaries, suggests that the level of benefits in the provinces under review is insufficient.

In other words, social assistance should not enable people to live too comfortably in poverty, much less offer a standard of living comparable to that of those who work. This “philosophy” is primarily determined by what is politically acceptable and by the state of public finances. On the other hand, the OECD notes, this approach could induce some individuals to try to defraud the system and others to expend all their

While benefits are more generous in Switzerland, exclusion and poverty are becoming problematic. There are strong disincentives in social programs and as a result few people in that country collect social assistance.

Policies To Promote Labour Force Re-entry and Reduce Dependency

Secondly, the study examines measures taken to prevent social assistance recipients from becoming dependent, such as requiring them to participate in active labour market programs. In many OECD countries, a precarious existence is being perpetuated from generation to generation. For that reason, those countries, including Switzerland and Canada, are increasingly focusing their systems on helping people re-enter the labour market rather than simply guaranteeing an income. In Switzerland, social assistance recipients still have less access to labour force re-entry measures, than employment insurance recipients.

In Canada, as a result of changes in the characteristics of unemployed people and more stringent Employment Insurance eligibility requirements, a larger proportion of social assistance recipients are likely to have recently held a job. Therefore, services aimed at helping social assistance recipients re-enter the labour market have been more effective.

However, according to the OECD, there are still a number of problems related to administrative co-ordination between the federal Employment Insurance and provincial social assistance programs. Moreover, the provinces have had difficulty practising case-by-case management due to the large number of cases and the limited number of social assistance officers. Generally speaking, the international standard is between 80 and 120 cases per officer. But in some provinces, one officer may have to handle up to 240 cases.

Progress Towards Consistent Policy

Finally, the study attempts to evaluate the consistency of measures. The OECD applauds federal and provincial efforts

to better co-ordinate their activities, notably through labour market development agreements, the National Child Benefit and the social union agreement. Moreover, the OECD notes that the changes brought on by the CHST have resulted in an increased financial interest on the part of the provinces in reducing the number of social assistance recipients, which has prompted them to make a strong drive for reform in this area.

A Generally Positive Assessment

Though the study points to some possible improvements to be made to social policy, a number of positive points indicate that Canada's reforms are on the right track. Along with the United States, Canadian provinces are among the few jurisdictions where the number of potential social assistance recipients has indeed declined in recent years. While the drop in the number of recipients can be attributed to several factors, the study concludes it is due in large part to reforms. The authors add: "...the success of Canada in reducing social assistance benefit dependency stands out in an area of social protection where across the developed world there are remarkably few such successes."

More Than One-Third of Unemployed Workers Have Not Worked in Over 12 Months. Who Are They?

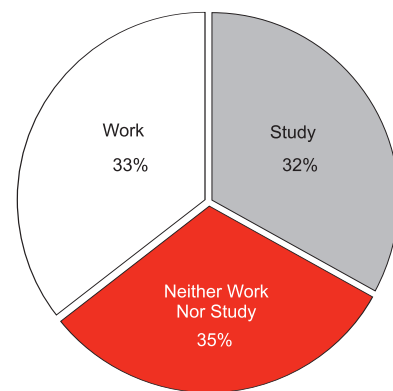
Recent research by Human Resources Development Canada and Statistics Canada has clearly shown that the main reason many unemployed workers are not eligible for Employment Insurance is that they have not worked recently. The number of unemployed workers with no recent employment, that is, who had not held a job in over 12 months, nearly doubled in the 1990s, increasing from 21 percent of the total population of unemployed workers in 1989 to 38 percent in 1997 and 34 percent in 1999.

Unemployed workers with no recent employment are not necessarily workers who have lost their jobs. They may be entering the labour market for the first time or returning to work after an interruption of over 12 months due to family or other responsibilities. What they have in common is that none has had a job for over 12 months, and the vast majority are not (or are no longer) eligible for Employment Insurance benefits.

Two-Thirds Were Not Working Before Beginning Their Unemployment Spell

In a study entitled *Chômeurs sans emploi récent*, Marcel Bédard, Jean-François Bertrand and Louis Grignon look at who these unemployed workers are and why their numbers nearly doubled in relation to the total number of unemployed workers over the 1990s. The study reveals that two-thirds of unemployed workers with no recent employment in 1998 were not working before beginning their unemployment spell. When interviewers for Statistics Canada's Labour Force Survey asked these people to indicate their main activity before becoming unemployed, only 33 percent answered that they were working. What were the others doing? Thirty-two percent answered that they were studying and 35 percent were neither working nor studying. Of that 35 percent, 26 percent were at home and 9 percent were engaged in another activity.

Main Activity Before Unemployment Spell, Unemployed Workers Without Recent Employment, 1998



Note: "Recent" refers to unemployed workers out of work for more than 12 months.

Individuals Who Were Working Before Their Unemployment Spell

The vast majority (74 percent) of unemployed workers who had no recent employment and who reported working before becoming unemployed were long-term unemployed workers; that is, they had been looking for work for longer than 12 consecutive months. The others are not considered long-term unemployed because they had withdrawn from the labour force since their last job, before declaring themselves unemployed. For example, those who received severance pay may have temporarily postponed their job search but still indicated work as their main activity before becoming unemployed.

This group of unemployed workers with no recent employment who nonetheless declared work as their activity before unemployment are more likely to suffer financial hardship. The study shows that 39 percent of households with one member in this category received social assistance benefits, and 54 percent said they did not have enough income to cover their regular monthly expenses.

In the 1990s, this category of unemployed workers grew quite substantially in relation to the total population of unemployed workers. In 1989, they numbered 81,000 and represented 7.5 percent of all unemployed workers. In 1999, this proportion increased to 10.8 percent, down from the 1994 peak of 16.2 percent.

Individuals Who Were at Home

Unemployed workers with no recent employment who were at home before their unemployment spell were generally women returning to the labour market after an absence of over 12 months. The study shows that 83 percent of unemployed workers in this category are women, and 80 percent have work experience prior to their period of unemployment. A large number of these individuals are experiencing financial hardship. Forty percent of households with one member in this category of unemployed workers were receiving social assistance, and 32 percent said they did not have sufficient income to cover their regular monthly expenses.

Individuals Who Were Studying

In 1998, 146,000 unemployed workers with no recent employment were studying before becoming unemployed. Of this number, 40 percent were still studying at the time of the survey. The other 87,000 unemployed workers who had been studying before their unemployment spell had left school, with or without a high school diploma. Unemployed workers in this category do not seem to be in as great financial difficulty as those in other categories who have not held a job in over 12 months; most (54 percent) said they receive financial support from their parents.

How Can a Student Be Considered Unemployed?

According to Statistics Canada's Labour Force Survey, a full-time student who is looking for a part-time job and *who is available* for work is considered unemployed. Similarly, a part-time student who is looking for a full- or part-time job and *who is available* for work is also considered unemployed. However, Statistics Canada does not consider a full-time student who is looking for a full-time job to be unemployed but rather as being outside the labour force.

In 1998, among students aged 15 and older, there were 118,000 full-time students looking for a part-time job and 38,000 part-time students looking for a full- or part-time job, for a total of 156,000 unemployed out of a student population of 2.6 million.

It was also found that this latter category of unemployed workers is the one that showed the greatest increase during the 1990s. In 1989, 40,000 unemployed workers with no recent employment were studying before becoming unemployed. At that time, they accounted for 3.8 percent of the total number of unemployed workers. By 1999, their numbers had more than tripled to 132,000, accounting for nearly 11 percent of all unemployed workers in Canada, a slight drop from the 1997 peak of 166,000.

The findings suggest that the growth of this category of unemployed workers during the 1990s is not primarily related to employment fluctuations in Canada but is mainly structural. In other words, the proportion of unemployed workers who were studying before becoming unemployed can be expected to remain relatively high during the coming years, even if economic conditions continue to improve in Canada.

What Is the Reason for the Increase in Unemployed Workers with No Recent Employment?

The current cyclical improvement in the employment picture is likely to help some categories of unemployed workers re-enter the labour market, particularly those who were working before their unemployment spell and, to a lesser extent, those who were studying before becoming unemployed; this improvement has begun. However, even several more years of economic recovery would be unlikely to bring long-term non-employment down to its level in 1989, before the beginning of the last recession.

The study suggests avenues for research on possible structural causes of the rise in the number of unemployed workers with no recent employment. It suggests the possibility that the increase is due to a decline in the employability of unemployed workers or even to a redefinition of the status of the unemployed worker. According to the latter hypothesis, originally advanced by David Card and W. Craig Riddell, unemployed workers in Canada are more likely now than in the past to declare that they are unemployed rather than not in the labour force (*Small Differences that Matter: Labor Markets and Income Maintenance in Canada and the United States*, Chicago, 1993, pp. 149-189).

In examining the causes of the difference between Canadian and American unemployment rates during the 1980s, Card and Riddell concluded that the discrepancy was due in part to the fact that Canadians who are not in the labour market are more likely than Americans to report that they are

looking for work. The gap between unemployed Canadians and Americans in this regard appears to have widened in the 1980s. It remains to be determined whether Canadians' increase in reporting that they are seeking work is due to a real increase in labour market attachment or to a redefinition of the status of unemployed workers who for various reasons, report that they are looking for work, without having any real attachment to the labour market. In other words, these could be people who in the past would have reported that they were not in the labour force but who now, for one reason or another, say they want to work and are looking for work without having any real hope or intention of finding work.

The stronger tendency of unemployed Canadians to look for work might be due to institutional factors. For example, changes to provincial social assistance programs in the 1990s aimed at increasing labour force participation and job search activity may have induced some social assistance recipients to seek work or to report they were available for work. The study shows that approximately 30 percent of unemployed workers who had not held a job in the previous 12 months received social assistance benefits in 1998.

Overview

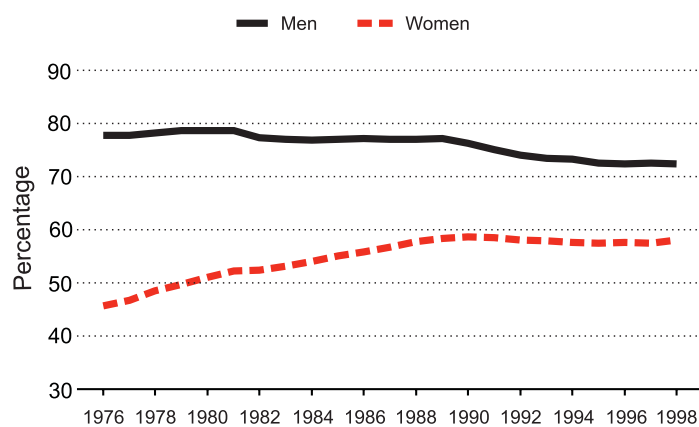
The analysis therefore does not yield a single profile of unemployed workers with no recent employment. This category of unemployed workers, the vast majority of whom are ineligible for Employment Insurance, ballooned in the 1990s. It includes people with varying levels of attachment to the labour market and with unique personal, financial and family circumstances. If the growth in this category of unemployed workers is an indication of a real increase in the difficulty of entering or re-entering the labour market for a growing number of people, rather than an artificial reclassification of "labour force non-participant" as "unemployed worker," it might be desirable to create new gateways to employment and to target for help this new category of individuals who are excluded from the labour market.

Labour Force Participation: Women No Longer Playing Catch-Up

The spectacular increase in the female participation rate is certainly one of the most striking, if not *the* most striking phenomenon in the evolution of the Canadian labour market between the 1950s and the late 1980s. The virtual stagnation of the female participation rate during the 1990s is a notable reversal of this situation.

In the mid-1970s, the female participation rate was close to 45 percent, more than 30 percentage points below the male participation rate. By the late 1980s, women's rates had climbed to 59 percent, while men's had declined somewhat to around 76 percent in 1990. Over this period, the gap between the male and female participation rates narrowed by more than 14 percentage points.

Male and Female Participation Rates



Between 1990 and 1999, the dramatic increase in the female participation rate came to a halt. The rate was 58.7 percent in 1999, exactly the same as in 1990. During this period, the gap between the male and female participation rates continued to shrink; but no longer because of a rapid rise in the female participation rate but rather because of a steady decline in the male participation rate. The gap between the two narrowed by an additional 3.6 percentage points.

The main conclusion of a study by Paul Beaudry and Thomas Lemieux, who examined the issue at a symposium on the evolution of participation rates in Canada organized by Human Resources Development Canada and the Centre for the Study of Living Standards, is that large increases in the labour force participation rate of women are clearly a thing of the past.

The authors come to this conclusion by assessing the role of three distinct factors in the evolution of the participation rates of different cohorts of women in Canada between 1976 and 1994. A cohort is made up of a group of women who entered the labour market at the same time. Let us take, for example, the case of Canadian women who were 25 years old in 1976. This cohort's participation rate depends first of all on a *macroeconomic effect* which affects all cohorts in the labour force in the same way at the same time. Economic growth and institutional factors such as changes to Employment Insurance, to the minimum wage or to social assistance are examples of macroeconomic effects that can cause participation rates to rise or fall. The second factor, called the *age composition effect*, indicates how the cohort's participation rate changes with time. The third factor, the *cohort effect*, captures the differences among cohorts at a given age or macroeconomic effect. For example, if the cohort that entered the labour market in 1976 has a participation rate 10 percent higher than the cohort that entered in 1966 at the same age and under similar macroeconomic conditions, the cohort effect is 10 percent in relation to the 1966 cohort.

The Gap Among the Participation Rates of Women of Different Generations Is Diminishing

What characterized the increase in the female participation rate in the 1970s and 1980s was that every cohort entering the labour market had a higher participation rate than the previous one. According to the study by Beaudry and Lemieux, for recent cohorts of women the gap between the participation rates of one cohort and the one immediately following is disappearing, which explains the levelling-off of the female participation rate in the 1990s.

For example, the participation rate of the cohort of women who entered the labour market in 1992 is comparable to that of women who entered the labour market in the 1980s.

Macroeconomic Developments Partially Explain the Slowdown

The levelling-off of women’s participation rates is above all a structural phenomenon related to the stabilization of cohort effects, which were at the root of the spectacular rise in female participation rates in the 1970s and 1980s. Unfavourable macroeconomic conditions magnified the trend but did not cause it. From 1981 to 1983, the drop in female participation rates attributable to macroeconomic effects was offset by the cohort effects that caused the participation rate to increase by 1 percent a year at the time. But with the stabilization of cohort effects from 1989 to 1994, comparable macroeconomic effects in the early 1990s caused a drop in participation rates.

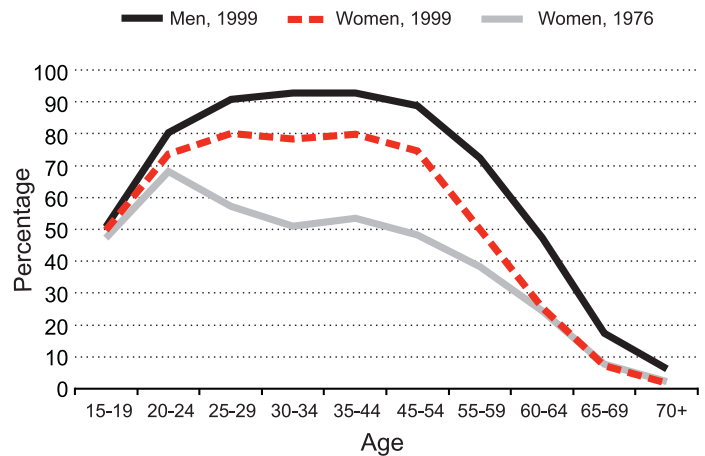
Women’s Participation Rates More Closely Resemble Those of Men

Another finding that supports the study’s conclusion that large increases in women’s participation rates are not likely to occur again is that women’s participation profiles by age have flattened out. As the graphic “Participation Profiles by Age” shows, men’s participation rates increase with age until about age 30. Between the ages of 30 and 54, men’s participation profiles are flat. After the age of 55, their participation rates drop as men retire from the labour market. Today, women’s participation profiles by age are similar to those of men. This pattern emerged as women’s participation rates caught up with those of men in the 1970s and 1980s. In 1976, for example, the female participation profile did not level off between the ages of 30 and 54 but at a younger age.

According to the Beaudry/Lemieux study, the period of dramatic increases in participation rates is therefore over. The rates can be expected to hold relatively steady in the future. There will still be room for a two- to three-percentage point rise in women’s participation rates if

macroeconomic conditions continue to improve. However, it would be unrealistic to expect an increase of 5 to 10 percentage points in future periods of growth, as was seen from 1983 to 1989. The cohort effects that prevailed at the time are simply not present today.

Participation Profiles by Age



Occupational Segregation and the Gender Wage Gap

In a report sponsored by Human Resources Development Canada and Statistics Canada, Michael Baker and Nicole Fortin found that the overall wage disadvantage or for women penalty, in female jobs in Canada, is generally much smaller than in the United States. On average in Canada, according to the study, the link between female wages and the gender composition of occupations is small and not significantly different from zero. These findings apply to the late 1980s, a period that is considered largely free of any significant effects of pay equity policies in Canada.

Femaleness of Jobs

Three employment categories are used in the study: female jobs, mixed jobs and male jobs. Predominantly “female jobs,” clerical and health care work for example, are those with a femaleness rate of 60 percent or higher. Female jobs represented 57 percent of female employment in Canada

in 1988 and 61 percent in the United States in 1987. “Mixed jobs” have a relatively equal proportion of males and females. These jobs represented 33 percent of female employment in Canada and 30 percent in the U. S. Typical mixed-job workers are managers, financial officers and food processors. Predominantly “male jobs,” such as truck driving and mechanical repair, are those with a maximum femaleness rate of 30 percent. Male jobs represented 9.8 percent of female employment in Canada and 8.5 percent in the U.S.

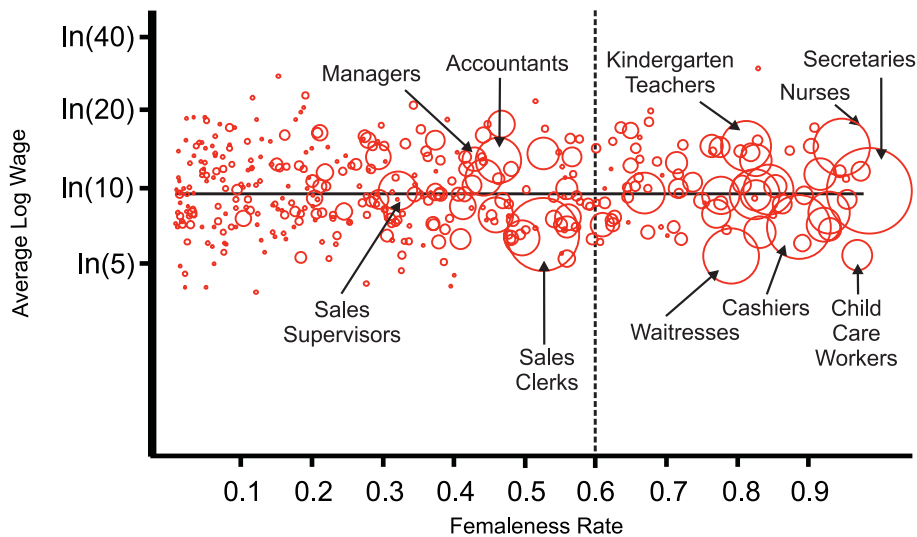
Female Jobs Don’t Always Pay Less

Although the distribution of female jobs is quite similar in Canada and the United States, the report finds little overall wage penalty for female workers working in Canadian “female jobs” compared to a large wage penalty for American Women. The relationship between women’s wages and the degree of femaleness of occupations is essentially “flat” in Canada, while the corresponding relationship in the U. S. is negatively sloped.

The findings are based on multivariate econometric analysis using data from the Canadian Labour Market Activity Survey and the U.S. Current Population Survey Outgoing Rotation Groups for 1988 and 1987 respectively. The analysis controls for many individual and family characteristics (e.g. marital status, visible minority status, number of pre-school children and number of older children) and human capital characteristics as well as for the industrial sector. Moreover, the addition of detailed occupational characteristics has no effect on the results.

The graphic “Effect of Femaleness of Jobs on Average Women’s Wages” illustrates the relationship between wages and the degree of occupation femaleness for Canada. The horizontal line going through the cluster of circles suggests no apparent relationship between the degree of femaleness of occupations and the wage rate. The impact of low-paid predominantly-female occupations (below the horizontal line) on the relationship is offset by the existence of high-paid predominantly female (above the horizontal line).

**Effect of Femaleness of Jobs on Average Women’s Wages,
All Occupations
Canada, 1988**



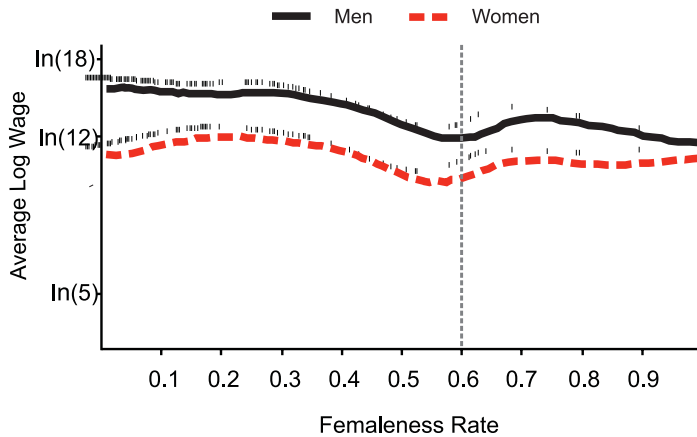
Notes: The size of the circle indicates the relative weight of the occupations (number of women in such jobs): the larger the circle, the greater the number of women. The relationship between women’s wages and the degree of “femaleness” of occupations in Canada is shown clustered along the horizontal line. Femaleness refers to the number of women employed in an occupation. The vertical line at 0.6 represents the level beyond which occupations are considered female occupations.

Another finding relates to men. Whereas little penalty is associated with women working in female jobs in Canada, the contrary is true for men working in female jobs. Males who do work in female jobs in Canada face a penalty comparable to that faced by females in the U.S.

The authors also show that in 1988 female wages in some public-goods sector occupations (teaching, nursing assistance, and social work) were higher relative to other occupations in Canada than in the United States.

Smoothed Estimated Effect of Femaleness of Jobs on Average Occupational Wages

Canada, 1988

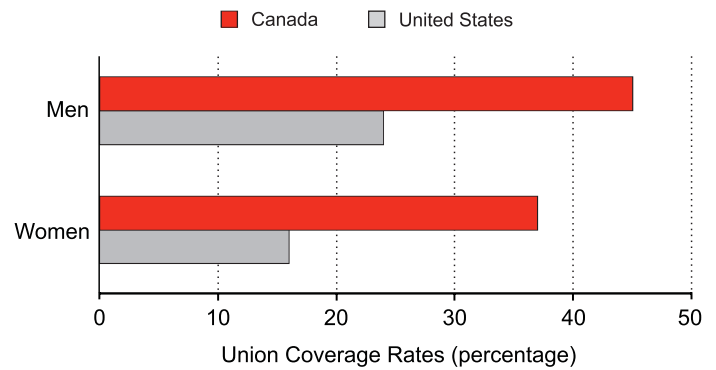


Notes: The distance between the two curves indicates the gender gap at each "femaleness" rate. Femaleness refers to the number of women employed in an occupation. The vertical line at 0.6 represents the level beyond which occupations are considered female occupations.

Unionization in the Two Countries

Higher unionization rates in Canada may explain the more advantageous relative position of women in female jobs. Union-coverage rates in Canada are almost double the U.S. rates. The Canadian union-coverage rates among women in 1988 were 35 percent for male jobs, 26 percent for mixed jobs, and 43 percent for female jobs. In contrast, union coverage among women decreased with the femaleness of employment in the U.S. There, the corresponding rates for the male, mixed and female jobs were 19 percent, 16 percent and 15 percent.

Differences in Union Coverage in Canada and the United States, 1988



The difference in unionization rate by job type among women is well illustrated by the situation for two female occupations—health care work (approximately 10 percent of female workers) and teaching (approximately 5 percent of female workers). The unionization rate in health occupations ranged between 60 and 85 percent in Canada compared to less than 20 percent in the United States. In teaching, the unionization rate ranges between 75 and 90 percent in Canada compared to 25 to 60 percent in the U.S.

Conclusions

Higher unionization and the relatively higher wages for certain public sector jobs work to the advantage of females in Canada compared to the U.S. This explains why occupational segregation is not the leading explanation for the persistence of the gender wage gap in Canada. Wage differentials across firms and industries are also important contributors to the wage gap.

The results do not deny the existence of low-paid female jobs, such as waitressing and cashier work. However, since low-paid female jobs have counterparts in mixed and male jobs for which women are equally low paid and since there are female jobs that are relatively higher paid, such as nursing and teaching jobs, the gender composition of employment does not appear to have a strong consequence for female pay at the overall level.

Nor do the results deny that some groups of women may face an occupational wage penalty. Analysis at a fine level of aggregation reveals some differences in the penalty across groups. For instance, women working in non-unionized jobs face a significant wage penalty in female-dominated occupations, whereas women working in unionized jobs do not. University-educated women and women working in full-time jobs face a penalty whereas women working in part-time jobs appear to experience a significant wage premium from working in female-dominated occupations. The findings of this study and others will contribute to the ongoing debate over the equal pay issue among men and women.

Wage Penalty in Female-Dominated Occupations and the Wage Gap

The gender wage gap is the difference in earnings between men and women. The study reports that among full-time, full year employees, the wage gap between men and women was 24 percent in Canada in 1988 and 28 percent in the United States in 1987.

The wage penalty faced by women who work in predominantly female occupations is more complicated to arrive at. It is an estimate of the impact on women's wages of working in a predominantly female occupation. Its estimation requires a well-specified earnings model accounting for broad ranges of possible influences on wages.

The gender wage gap and the wage penalty women face for working in female-dominated occupations can be very different. A large gender wage gap does not imply that the wage penalty women face for working in female-dominated occupations will be large. Indeed, the study finds that the 24 percent wage gap between men and women in Canada in 1988 should be attributed primarily to other sources of earnings differences between men and women.

Literacy Skills: Young Canadians Outperform Americans

The winter/spring 1998 issue of the *Applied Research Bulletin* presented the key findings of a study by J. Douglas Willms on the literacy skills of young Canadians. That study showed that the provinces where young people aged 16 to 25 obtained the highest average scores on the International Adult Literacy Survey (IALS) in 1994 are also the ones where literacy skills vary least according to parents' socio-economic status.

Inequalities in Literacy Skills Among Youth in Canada and the United States, a new study by Willms (published like the earlier one as part of the IALS monograph series) comes to similar conclusions after comparing the scores of young Canadians with those of youth in the five European countries that participated in the IALS in 1994 and young Americans who participated in the National Adult Literacy Study (NALS) in 1989.

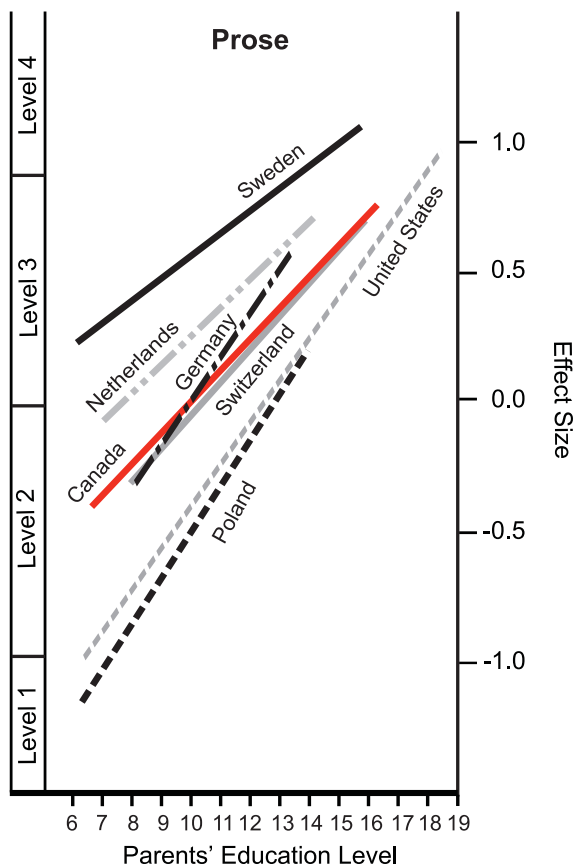
Correlation Between Average Results and the Parents' Level of Education

Willms shows that, in all the countries covered by the study, young people whose parents have a high level of education generally have higher literacy levels than young people whose parents have a low level of education. Willms also shows that the countries where young people obtained the highest average scores on the literacy tests are often those where results vary least according to parents' socio-economic status (determined here by the parents' level of education). For example, with respect to prose literacy (comprehension of such material as newspaper or magazine articles) and document literacy (comprehension of documents like schedules and information tables), young people in the Netherlands and Sweden obtained the highest average scores, while the United States and Poland had the lowest scores. In the Netherlands and Sweden, the gap between the literacy levels of young people whose parents had a higher level of education and those whose parents had a

lower level of education is smaller than in the U.S. and Poland.

According to the author, these findings clearly demonstrate that the success of some countries on the literacy front is largely due to their ability to bring less privileged youth to higher levels of literacy. The quality of education in each country and the amount of time young people spend on reading activities in their daily lives could explain the differences.

Literacy Test Results for Youth Aged 16 to 25 by Country



Note: "Prose" refers to newspapers and magazine text. Level 1 represents the ability to accomplish simple tasks and Level 4, the ability to accomplish complex tasks

Canada Outperforms the United States

Examining the results for Canadian and American youth more closely, the author reports that based on data from the literacy tests, young Canadians are ahead of young Americans. Canada's lead is equivalent to about one year of schooling. However, this result was biased by major differences between the two countries in terms of parental education levels and the proportion of immigrants in the population under study. By adjusting for these differences using econometric techniques, the study shows that young native-born Canadians whose parents have an average of 12 years of schooling have a lead of about two years of schooling over young Americans with the same characteristics. The gap is much wider among males (nearly three years of schooling) than females (about one year and a half of schooling).

In Canada as in the United States, immigrants score lower than non-immigrants. In both countries, the negative effect associated with immigrant status declines with the number of years spent in the country and almost disappears among immigrants who have lived in the country for 10 years or more. However, among young immigrants whose mother tongue is not one of those used in the achievement tests (English or French in Canada), a literacy deficit equivalent to about two years of schooling still remains after 10 years of using one of the languages used in the tests.

Significant Intranational Variations

Literacy test results for youth vary widely among Canadian provinces and American states. In the U.S., unadjusted data show a gap of three-and-a-half years of schooling among the states with the best and the poorest results. (The U.S. comparison is limited to the 11 states that oversampled their population in the National Adult Literacy Survey.) In Canada, the unadjusted data show a smaller gap of slightly more than two years of schooling between the top-scoring and low-scoring provinces.

However, when the results are adjusted for parents' level of education, immigration status and (in the case of the U.S.) ethnic origin, the gap between the top-scoring and

low-scoring jurisdictions is wider in Canada, at approximately two years of schooling, than in the U.S., where the estimated gap narrows to approximately one year of schooling.

Interstate comparisons in the U.S. yield the same conclusion as interprovincial comparisons in Canada and international comparisons, namely, that the states with the best literacy test scores also have the most even distribution of scores by parents' education level.

Finally, the analysis revealed significant effects related to reading in the home. Youth who regularly read or write letters show significantly stronger literacy skills. There was also a negative correlation between watching television and literacy level.

International Adult Literacy Survey

The International Adult Literacy Survey (IALS) was conducted in 1994 by Statistics Canada and sponsored by Human Resources Development Canada. The Survey measured skills levels in three domains: prose literacy (reading the news, magazines), document literacy (job applications, timetables, information tables) and quantitative literacy (checking bank balances, invoices and basic calculation tasks). These skills are considered to be the ones adults use in their daily lives, both in and out of the workplace. Each competency was assessed in terms of five performance levels, where level 1 was the ability to accomplish simple tasks and level 5, the ability to accomplish complex tasks.

Seven countries participated in the first round of the IALS: Canada, Germany, the Netherlands, Poland, Sweden, Switzerland and the United States. The author of the IALS monograph *Inequalities in Literacy Skills Among Youth in Canada and the United States* notes that the sample of youth selected for the IALS in the U.S. was relatively small and probably biased. The author therefore prefers to use data from the National Adult Literacy Study (NALS) of 1989. The NALS was based on a broad sample of young Americans and used the same literacy tests as the IALS.

Does It Always Pay To Invest in a Postsecondary Diploma?

While pursuing postsecondary studies is generally a financially profitable decision for most individuals, its profitability varies considerably with the economic cycle, the type of diploma earned, the field of study and some individual factors. Those are the main conclusions of two recent studies published by the Applied Research Branch (ARB).

Few Canadian studies have looked into the evolution of the financial return on education over time or attempted to determine whether that return varies significantly among individuals in the same field of study. These two new ARB studies aim to fill that gap and improve our understanding of the factors affecting the decision to pursue postsecondary studies.

The Decision To Advance One's Education Is Similar to the Decision To Invest in a Financial Asset

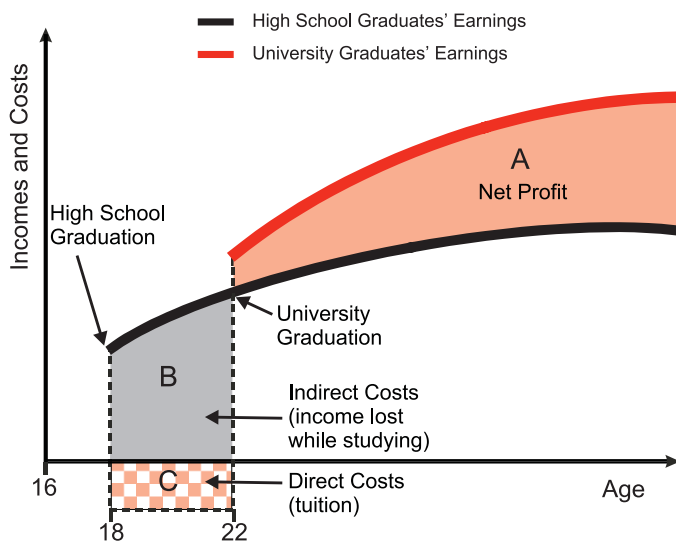
To determine the profitability of a postsecondary diploma, the two ARB studies use a methodological framework which considers the decision to invest in education in much the same way as the decision to invest in a financial asset. Thus, individuals weigh both the additional benefits they will derive from postsecondary studies (higher anticipated earnings) and the costs (tuition fees, loss of earned income while studying).

According to this approach, the decision to invest in a postsecondary diploma is financially profitable insofar as the anticipated benefits (area A on the graphic "Profile of University Graduates' Earnings") exceed the costs (areas B and C) over a person's entire working life.

Interpretation of the rate of return figures is very simple. A 10 percent return means that, over his or her working life, the holder of a postsecondary diploma will derive a net financial gain of 10 percent over and above what he or she would have earned with only a high school diploma.

Profile of University Graduates' Earnings

Alternative Income and Costs



Note: Data are hypothetical.

Source: Graphic adapted from *Labour Market Economics*, Morley Gunderson and W. Craig Riddell, McGraw-Hill Ryerson, p. 453

However, the methodological framework takes only monetary return into account. Non-monetary benefits, such as personal fulfilment, recognition by others and the ability to make choices, have not been factored into the calculation of the rate of return.

Investing in a Postsecondary Diploma Is Financially Profitable for the Majority of Individuals

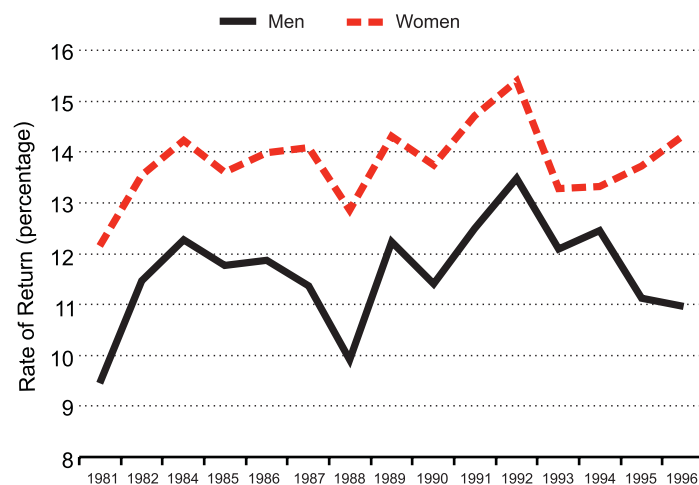
In the first of the two studies, authors John Appleby and Manon Rouleau of the ARB constructed time series of the return on education for the diplomas listed below, based on data from the Survey of Consumer Finances:

- ▶ a university degree (including undergraduate, Master's and Doctoral degrees) received between 1981 and 1996;
- ▶ an undergraduate degree received between 1989 and 1996; and
- ▶ a non-university postsecondary diploma (1981 to 1996).

Unlike previous studies, which considered the profitability of education in only a given year, the Appleby/Rouleau study looks at the evolution of the profitability of a postsecondary diploma over time.

The findings suggest that regardless of the type of postsecondary diploma in question (university degree, undergraduate degree or non-university postsecondary diploma), it is generally financially profitable to invest in education. For example, over the course of his or her working life, a university graduate can expect to realize an average financial gain of 10 to 15 percent over and above what he or she would have earned with only a high school diploma, based on the rates of return observed during the 1981-1996 period.

Profitability of the University Degree



Source: Data from Statistics Canada—Survey of Consumer Finances and Centre for Education Statistics

Rates of Return to Education Are Higher for Women Than for Men

The Appleby/Rouleau study also points to significant differences in the return to education for men and women. Over the entire period under consideration, the profitability of a high school diploma was higher for women than for men. The gender gap is approximately 2 to 3 percentage points. For example, the return on a university diploma over the 1981-1996 period fluctuated between 12 percent and

15 percent for women and between 9 percent and 13 percent for men. This phenomenon is not exclusive to university diplomas; it is also observed for other types of postsecondary diplomas.

This difference between rates of return for men and for women may be explained by significant differences in the indirect costs which men and women incur during their studies. Though women are increasingly present in the labour market, their average earnings are still below those of men. Women generally sustain a smaller loss of income during their studies than do men, which then translates into a higher rate of return.

The Economic Cycle Has a Slight Effect on the Rate of Return

The economic cycle also seems to have some influence on the evolution of the return on education in Canada. The profitability of a university diploma seems to have increased during the last two economic slowdowns (1980-1981 and 1990-1991).

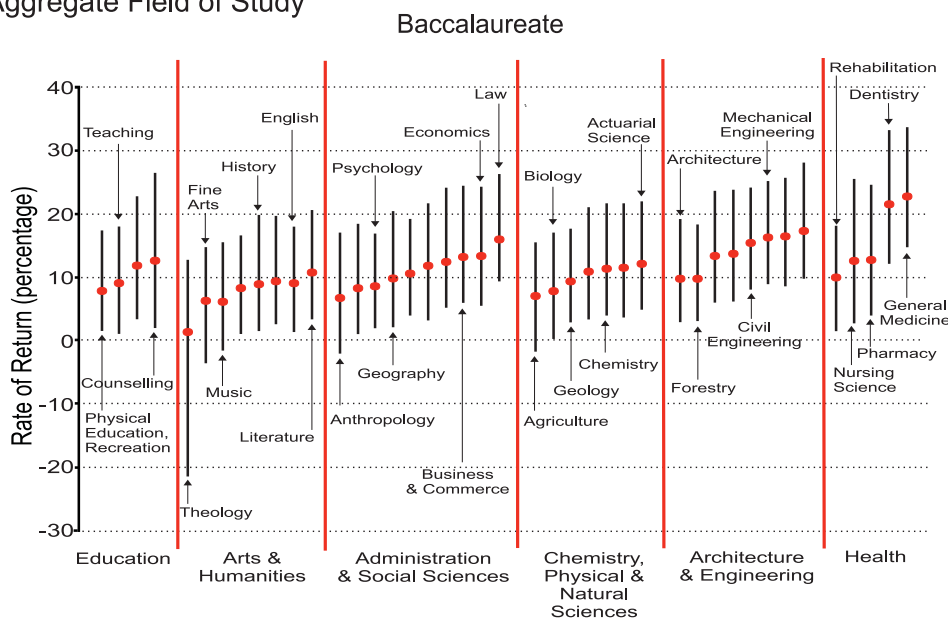
This finding may be explained by the fact that the most qualified and experienced workers tend to be the personnel who are retained during economic slowdowns. Since recruitment and training costs are higher for more experienced and better qualified workers, firms tend to lay off recently hired and less qualified employees when demand for their goods or services decreases. The larger number of layoffs of less qualified workers during economic slowdowns would lower their average incomes, increasing the earnings gap between the best and least educated. The profitability of a postsecondary diploma therefore appears greater when the economy is sluggish.

The Rate of Return Varies Significantly by Field of Study and Among Individuals

The first ARB study focuses on the impact of the type of postsecondary diploma, the economic cycle and gender on the return on education. The second study, conducted by John Appleby, Daniel Boothby and Manon Rouleau of the ARB and Geoff Rowe of Statistics Canada, examines differences in the return on education: (i) among different

Distribution of Rates of Return

By Aggregate Field of Study



Notes: The red dots indicate the median rate of return for each field of study. The length of the vertical lines indicates the variation in rates of return among individuals in the same field of study.

Source: John Appleby, et al., *Distribution by Rate of Return by Field of Study and Level of Education in Canada*

fields of study, at the same level of schooling; and (ii) among individuals in the same field of study.

To do so, the authors compare the career paths (and hence the costs and benefits) of individuals with a postsecondary degree (undergraduate diploma or community college degree) with the career paths they hypothetically would have followed had they entered the labour market after graduating from high school. The results are based on simulations produced using Statistics Canada’s LifePaths model.

The results obtained from the simulations show substantial differences in profitability for diplomas in the diverse fields of study and areas of specialization at both the undergraduate and community college levels.

The median return on an undergraduate diploma varies from slightly more than 1 percent for religious studies; to a little over 6 percent for fine arts, music, anthropology and agriculture; to just over 20 percent for some health care

disciplines, such as medicine and dentistry. There are also significant differences in the rates of return within aggregate fields of study (health, engineering, natural sciences, social sciences, arts and humanities and education). For example in social sciences, the rate of return is about half as high for anthropology (6.8 percent) as it is for law (16 percent) or economics (13.3 percent).

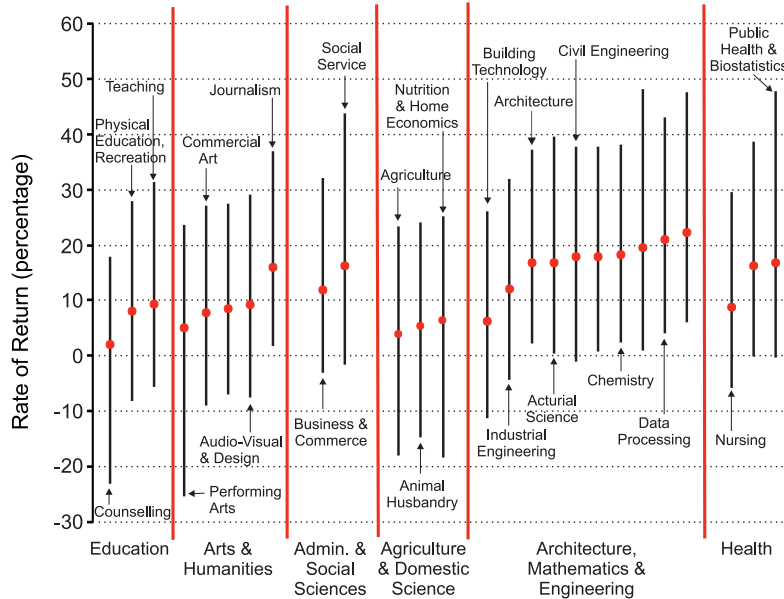
The same applies at the community college level, where the variation in rates of return on different fields of study is in fact similar to what it is at the university level. While the median return varies between 1 percent and 23 percent for different fields of university study, it ranges between 2 percent and 23 percent at the community college level.

The two “Distribution of Rates of Return” graphics also show that the return on education may vary considerably for different individuals in the same field of study. The position and length of the vertical lines indicate the range of variation in rate of return among individuals.

Distribution of Rates of Return

By Aggregate Field of Study

Community College



Notes: The red dots indicate the median rate of return for each field of study. The length of the vertical lines indicates the variation in rates of return among individuals in the same field of study.

Source: John Appleby, et al., *Distribution by Rate of Return by Field of Study and Level of Education in Canada*

For undergraduate degrees, the widest variations are found in the arts and humanities, specifically fine arts (from -3.5 percent to 14.9 percent), music (-1.5 percent to 15.7 percent) and theology (-21.3 percent to 12.8 percent). For some graduates (the bottom 30 percent of the distribution) the rate of return is even negative. Negative rates of return are also observed for a proportion of graduates of other fields of study in the natural sciences (agriculture) and the social sciences (anthropology).

For community college diplomas, the differences in rates of return for individuals in the same field of study are still greater than for undergraduate degrees. In addition, at the community college level there are more fields of study for which the return on a diploma is negative.

The wide variation in rates of return within the same field of study at both the undergraduate and community college levels suggests that in some cases a postsecondary degree does not by itself guarantee success or a brighter financial future.

Work now in progress will attempt to describe with greater precision the roles of socio-economic and personal characteristics (for example, number of dependent children, ease of entry into the labour market, age at graduation and family structure) in explaining the wide variation in rates of return within the same field of study.

The Effects of Computerization on Employment Structure in Canada

In a 1998 Applied Research Branch (ARB) study entitled *Employment in the Knowledge-Based Economy: A Growth Accounting Exercise for Canada*, Marie Lavoie and Richard Roy put forth evidence of a growing tendency to hire more highly skilled workers, since the early 1970s. Since the use of computers spread quickly over the same period, one might conclude that computerization played a

significant role in transforming the employment structure. Marie Lavoie and Pierre Therrien examine that hypothesis in a new ARB study released in 1999, *Employment Effects of Computerization*.

Is There a Relationship Between Increased Hiring of Highly Qualified Workers and Computerization?

Using econometric techniques to determine the effect of computerization on employment, the authors analyze the results in terms of occupational characteristics such as the nature of the knowledge used (tacit or codified) and the importance of the tasks in question for the job (core or complementary). They demonstrate in detail that those characteristics—that is, tacit or codified knowledge and core or complementary duties—considered in conjunction with computer use, help determine general trends among structural changes in employment.

Because of its ability to codify knowledge, the computer has assumed a key role in performing what were once painstaking tasks (mathematical calculations) or routine chores (data processing). However, the computer's codification capacity is limited when it comes to tacit knowledge. For example, the computer cannot effectively process (codify) tasks that require judgement or skills acquired primarily through practical experience. By taking into consideration the computer's codification ability and the capabilities and coding skills involved in the work itself, Lavoie and Therrien are able to explain the unequal effect of computerization on different types of employment.

The authors use a classification first developed by Edward Wolff and William Baumol (in *The Information Economy: The Implications of Unbalanced Growth*, L. Osberg et al, Eds., 1989) and adapted by Lavoie and Roy (1998). The new classification method reflects the heterogeneity of jobs and limits the number of categories. It allows for the organization of occupations into five categories: *knowledge workers*, whose duties consist of generating knowledge or providing expert advice; *management workers*, who plan corporate strategies and manage employees; *data workers*, who manipulate and use the information developed by

knowledge workers; *service workers*, who provide personal services; and finally, *goods workers*, who produce and handle goods.

The Computerization Process Has Tended To Increase the Demand for Labour

One of the study's central conclusions is that, contrary to common belief, the computerization process has been labour-adding, not labour-saving, when all job categories are considered. Of course, some occupational categories have benefited from the massive switch to computers while other occupations have been eliminated.

The study shows that data workers (e.g., technicians and operators of electronic equipment) and not knowledge workers are the category that has increased the most as a result of the advent of computers. Computers and data workers display strong complementarity. The pervasive use of computers in these workers' tasks may be explained by the highly codifiable nature of these workers' knowledge. With the assistance of the computer, data workers have become the driving force in the codification process.

In the case of knowledge workers, who display weaker complementarity with computers than do data workers, the

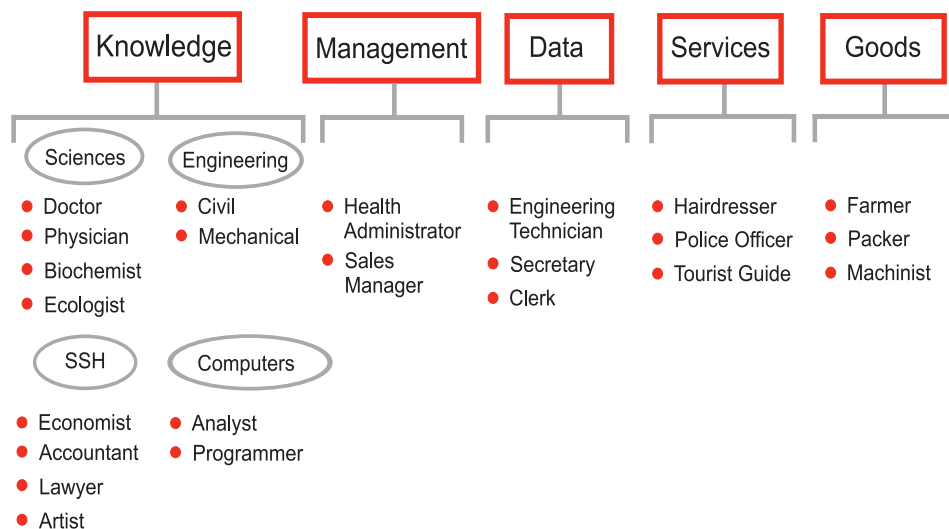
computer has become an important tool which helps them perform complementary duties (calculations, etc.) but is of no use in the performance of their core duties, which are becoming increasingly complex and tacit. Similarly, the weak complementarity between computers and management workers attests to the tacit nature of their knowledge; in their case, only a few complementary tasks have been supplanted by computers.

Goods work is the only category in which the number of jobs has declined over the past two decades. The widespread use of software for the production and handling of goods has certainly contributed to the job losses. Finally, service workers have a neutral relationship with computers: their jobs require highly tacit knowledge which cannot be codified by computers.

The Employment Effects of Computerization Have Increased Considerably

The study also yields significant conclusions about the changing role of computers in the employment structure. A comparison of the influence of physical capital and of computers between 1971 and 1991 demonstrates that the impact of computerization on employment has increased

Occupational Classification



Note: This table gives examples of the occupations that make up each group. SSH=Social Sciences and Humanities.

Source: Adapted from Marie Lavoie and Pierre Therrien, *Employment Effects of Computerization, 1971-1991*, May 1999

considerably over time. By 1986, the impact of computers on employment had increased to the point where computer impact generally exceeded that of physical capital. This finding reflects the accessibility, power and increased flexibility of computers since the mid-1980s. Advances in electronic technologies and improvements to software have thus contributed to more radical transformations in the employment structure.

More detailed analysis by industrial sector shows that computers have had a particularly strong impact on data workers in the service sector. Jobs in the manufacturing sector generally have weaker complementarity with computer technologies than do jobs in the service sector, suggesting that changes in the employment structure of that sector are being driven by other technologies more specific to manufacturing. The Applied Research Branch has therefore launched a study to assess the role of advanced manufacturing technologies in the changing structure of employment in the manufacturing sector.

In summary, the study by Marie Lavoie and Pierre Therrien shows that while the number of knowledge workers and management workers has ballooned over the last 20 years, the complementarity with computers has been strongest among data workers. It is important, consequently, not to exaggerate the role of the computer in the change in the structure of employment. Given its pervasiveness and its capacity to merge with other technologies, the computer has certainly been a catalyst in this revolution, but it cannot be considered the only factor.

Transition to the Knowledge Society: Policies and Strategies for Individual Participation and Learning

Canada and other industrial nations are undergoing a period of economic and social transformation in which knowledge and information are becoming the foundation for the organization and development of

economic and social activity. In this knowledge-based economy and society (KBES), the capacity to learn and accumulate skills and competencies is increasingly becoming an imperative—for individuals, to access employment and adapt to changing circumstances and for an economy, to innovate and achieve growth. While the emerging KBES holds the promise of increased economic growth and improved living standards, there are concerns that those who do not have the requisite competencies face the prospect of exclusion or marginalization. In this context, governments are seeking to develop policies and strategies that foster innovation and economic growth while promoting adaptation and inclusion for individuals.

These are the broad issues addressed in the recently published proceedings of a major conference entitled *Transition to the Knowledge Society: Policies and Strategies for Individual Participation and Learning*. Sponsored by Human Resources Development Canada and organized jointly by the Applied Research Branch, the European Commission's Directorate General for Employment, Industrial Relations and Social Affairs and the University of British Columbia's Institute for European Studies, the conference brought together over 120 researchers and policy advisors from Canada and Europe in Vancouver in November 1998. One of the key topics of the conference was the adjustment challenge facing individuals in the emerging KBES and its implications for policy in areas such as employment, skills development, work arrangements and social protection. The conference also examined the broad forces underlying the transformation to the KBES and their implications for economic policy more generally. Some of the main conclusions regarding these issues are summarized below.

Skill Shortages, Inequality and Exclusion

The transition to the KBES has given rise to two types of policy concerns for human capital development. The first is the need to continue developing a highly skilled and adaptable workforce to support economic growth and increasing living standards. The second is related to evidence showing growing income inequalities along a number of

dimensions (e.g., skills, gender, age, region). Establishing clearly the key labour market trends and understanding the forces behind them are crucial to identifying which policies and strategies governments might best adopt to foster adjustment to the KBES. Identifying these was a core theme of the conference.

Certainly one of the most striking labour market developments occurring in industrialized economies has been the shift in employment toward occupations that require high levels of education and competencies such as literacy, cognitive, and communications skills. Technological change, particularly that related to new information and communication technologies, is seen by many researchers as a major factor behind the increase in the demand for more skilled workers.

The Canadian economy is adjusting well to the requirements of the KBES...(but) some groups are at risk of exclusion.

highly educated workers appears to have been sufficient to offset the growth in demand. It therefore seems that, in general, the Canadian economy is adjusting well to the requirements of the KBES. Indeed, Canada has invested heavily in education over the past 50 years and compares very well internationally in terms of educational attainment and average literacy levels.

While the pace of growth in the accumulation of skills of the Canadian population has been adequate overall, some disadvantaged groups are increasingly at risk of exclusion from the labour market. For example, individuals who have only primary schooling have seen their employment situation

Unlike some other countries, such as the United States and the United Kingdom, Canada has not experienced a significant increase in inequality in income and employment opportunities between high- and low-educated workers over the past 15 to 20 years. This fact suggests that Canada is not experiencing a broad-based shortage of skilled workers: increase in the supply of

deteriorate substantially in recent years and this, across all age groups. Persons with poor literacy skills also face limited access to jobs that provide means to sustain reasonable living standards.

A significant proportion of the adult population does not possess the basic literacy skills to meet the requirements of many low-skilled jobs. Low-skilled individuals who are displaced from their current job are less likely to be able to meet the entry-level requirements of new job openings and are therefore increasingly at risk of being excluded from the labour market. Low-skilled individuals are also less likely to participate in education and training, further increasing the risk of long-term exclusion.

The combination of high spending on education and poor literacy outcomes for a significant proportion of adults raises some concerns regarding the quality of initial education in Canada. There is debate regarding whether a lack of financial resources is the principal problem. For some, finding ways to achieve better outcomes with existing resources is the main challenge. Of course, not all the responsibility lies with the education system. According to some scholars, many low-skilled individuals do not work in "literacy rich" environments that provide them with opportunities to develop or even maintain their existing skills. Part of the solution to low adult literacy skills may therefore lie in promoting the creation of jobs and workplaces demanding higher literacy skills.

Lifelong Learning Policy

Lifelong learning is seen as fundamental to meeting both growth and equity objectives. The concept of lifelong learning recognizes that learning takes place through all stages of life and occurs in a number of formal and informal settings. Given the amount of time over the life cycle which individuals spend working. Adult education and training is an area where policy is seen as having a key role; it was therefore a topic which received considerable attention at the conference.

Changes in working arrangements as well as changes in labour market participation patterns (due to factors like

increased participation by women, changing family structures, and changing retirement patterns) are altering training investment incentives for employers and heightening individual responsibilities for training. For example, the rise of self-employment implies that a growing number of workers must now rely on their own means and motivations to upgrade their skills. As a consequence, some researchers see a need for governments to adopt measures and incentives that will help individuals invest in their

The workplace is a key link in the learning chain.

human capital. These measures include developing better financial vehicles and mechanisms, providing better information and decision tools, implementing systems to improve the recognition and

portability of skills, and helping address constraints related to the lack of time available to undertake training. Much emphasis was also placed on the government's role as a broker of more collaborative relationships between employers and labour market intermediaries such as sector councils, unions and the community sector.

There is still debate regarding whether or not there is under-investment in lifelong learning and employer-based training in Canada. The lack of concrete evidence on rates of returns to investment in these activities was seen as an important knowledge gap. Ensuring that clear signals are available to individuals and firms regarding the returns to investment in human capital was mentioned as an area where governments may have an important role to play.

Targeted policies aimed at the low-skilled population were deemed a crucial element of a lifelong learning strategy. The evidence indicates that participation in training and education is very uneven, being much lower among populations with low skills because they often lack the basic skills required for further learning. The low-skilled

are also less likely to identify themselves as requiring skills upgrading. Because policies aimed at the general population are more likely to benefit those who already have the skills and the motivation to learn on a continuing basis, targeted policies are required if concerns over equity are to be adequately addressed.

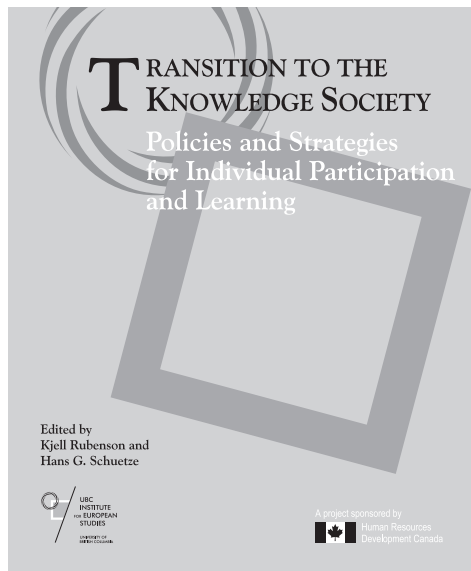
Finally, it was recognized that for many low skilled individuals, exclusion from the labour market does not necessarily result from an inability to access employment. Rather, it often reflects a rational choice based on an evaluation of the potential income that can be obtained from employment. In this context, earnings supplementation programs which have the effect of increasing the benefits of working, i.e., "making work pay," were seen as a promising response to rising exclusion and income inequality. Governments were encouraged to continue to experiment with such schemes in the future.

Concluding Thoughts

It is possible to draw out broad conclusions regarding some of the key roles for governments in supporting adjustment to the knowledge-based economy and society. One key

role is that of provider of information to ensure that economic agents make well-informed choices about opportunities and prospects. Another key role is encouraging experimentation to foster innovative solutions to increasingly complex policy problems. Perhaps the most important role for government is that of brokering partnerships between stakeholders across a number of areas. The importance of building collaborative relationships was certainly seen as central to both planning and implementing a successful lifelong learning strategy. With respect to adjustment by individuals, there is

consensus regarding the importance of developing policies for those at risk of being left behind.



Lifelong Learning: A Reality for Six Million Adult Canadians

One of the most important economic assets a nation has is the skills of its workers. In the face of rapid technological and structural change, a competitive workforce must adjust these skills to meet the shifting requirements of the economy.

To what extent are adults in Canada engaged in continuing learning? What kind of training do they take and how relevant is it to their work? How important are employers to the training decision? What barriers prevent participation? The 1998 Adult Education and Training Survey (AETS) provides elements of a response to these questions.

The AETS, conducted by Statistics Canada for Human Resources Development Canada, covers formal education and training activities undertaken after the period of initial schooling that are structured and directed by a teacher or trainer. These courses and programs often lead to recognition of performance in the form of diplomas, degrees or certificates. The survey covers education and training activities taken either for job-related reasons or for personal interest.

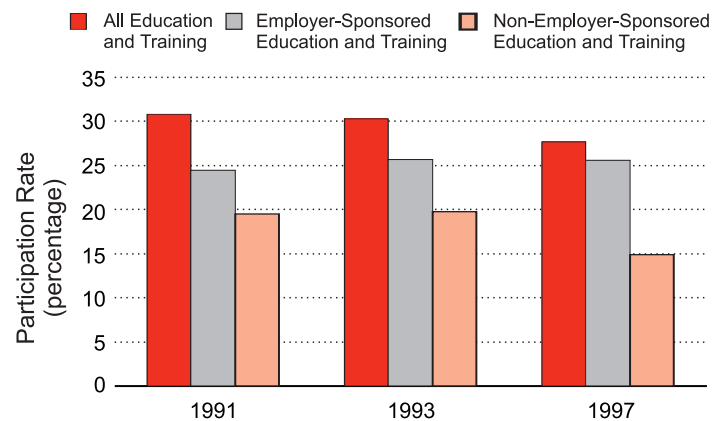
As the third in a series of comparable surveys, the 1998 AETS allows us to measure changes in the rate and intensity of education and training. The 1998 AETS covers education and training taken in 1997. The two previous surveys collected data for 1991 and 1993.

Participation in Formal Learning Declines Slightly...

Results showed that 28 percent of adults, approximately 6 million individuals living in Canada, participated in formal learning in 1997. These figures represent a small decline relative to the rates of participation recorded in earlier surveys.

Fully 60 percent of all adult learners received some form of employer support in 1997, an increase of ten percentage points from 1991. By way of contrast, through the 1990s the proportion of adult learners sponsoring their own skills development has decreased – from 57 percent of the total in 1991 to 51 percent in 1997. (Some learners engaged in both employer- and non-employer-sponsored training.)

Participation in Formal Adult Education and Training



The decline in overall participation in formal adult learning and the small increase in employer-supported participation in view of changing skill requirements appears paradoxical. A number of factors may have contributed to these results. The growth in self-employment over the period 1991-97 has contributed to lowering the incidence of formal learning. Indeed, a rise in the rate of self-employment tends to reduce the overall rate of participation in formal education and training, since the self-employed typically do not take part in such activities as much as employees.

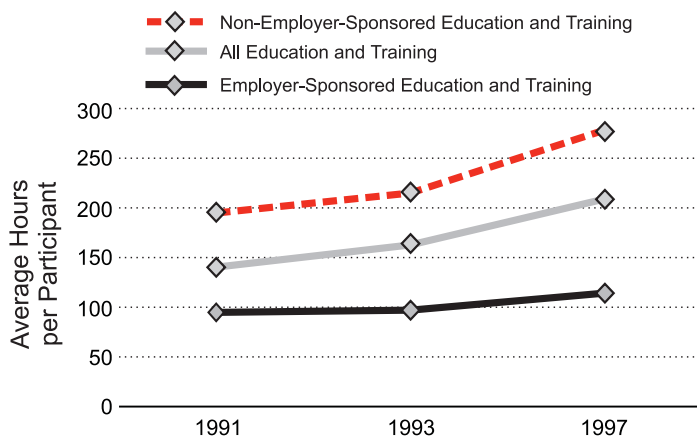
Furthermore, evidence suggests that employers and individuals are opting for less formal, more flexible, methods of skills development, and they are taking advantage of developments in information and communication technologies and improved self-learning techniques. Finally, situational barriers to learning participation, such as inability to take time from work, financial constraints, and inconvenient course times or locations may have contributed to the decline in the rate of participation in non-employer-sponsored education and training.

...but the Number of Hours People Train Is Increasing

While the overall incidence of training is declining slightly, the average number of training hours per participant has increased substantially. The average number of adult learning hours in 1997 (209 hours) was 55 percent greater than the total for 1991 (140 hours). Taken together, the total number of hours adults spent in formal instruction in 1997 – almost 1.27 billion – equaled the total number of hours spent in full-time study by youth aged 17 to 24.

There are distinct differences in the intensity of training supported by the employer and that paid for by workers themselves. In 1997, the average length of each employer-sponsored learning event was 114 hours. The average for non-employer-sponsored training was 278 hours – almost 2.5 times greater.

Formal Adult Education and Training Hours by Sponsorship

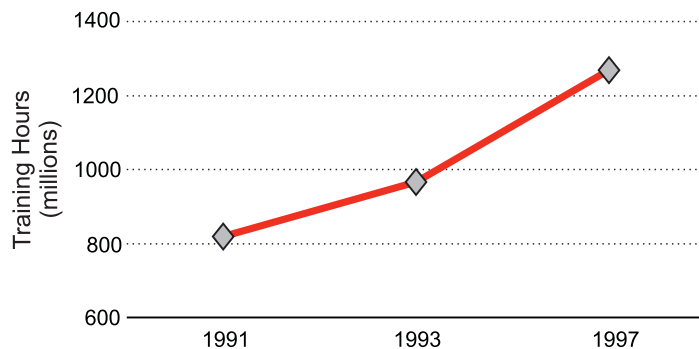


What's more, this difference in training duration has increased over time. In 1991, the average duration of non-employer-sponsored training was only about twice that of employer-sponsored training. The time commitment made by individuals who invest in their own human capital development has risen substantially.

To some extent, this increase in training duration may be attributed to a shifting balance between program and course participation, with individuals on their own increasingly opting for completion of a formal diploma,

certificate or degree. Such learning programs involve more average hours of study than a single course.

Total Hours Spent in Formal Adult Education and Training



Employer-Sponsored Training Remains Unevenly Distributed

Education and training activities supported by employers are generally better targeted to the needs of the job. Some 87 percent of employer-sponsored participants in job-related training reported in the 1998 AETS that they had acquired skills or knowledge used at work. The proportion was 68 percent among non-employer-sponsored learners engaged in job-related training.

But just whom do employers train? In 1997, workers with a university degree were more than five times as likely to receive employer support for skills development as individuals with some high school or less. Employees in the public sector were almost twice as likely as workers in the private sector to participate in employer-sponsored training.

Higher levels of employer support were also available to full-time workers, to professional and managerial employees, and to workers in large firms. The odds of employer support for training are fairly stable through early and mid adulthood, but they fall off sharply for older adults. The AETS records little gender-related differences in employer-sponsored training. However, women are about 60 percent more likely than men to participate in learning activities that are not supported by the employer. In 1997, the degree to which adults participated in employer-

sponsored training varied from a high of 29 percent in Prince Edward Island to a low of 15 percent in New Brunswick. (See also "Employer-Sponsored Training: Those Who Got, Get?" in the *Applied Research Bulletin*, Vol. 2, No. 2, p. 7-8, for a discussion of distribution of employer support in the AETS covering 1993.)

Controlling for gender, age, education, industry and occupation tends to reduce participation differences between groups, but it does not eliminate these differences altogether. Take, for example, that public sector worker who, at first glance, was almost twice as likely as a private sector colleague to receive employer-sponsored training. When the analysis controls for such basic labour force characteristics as gender, age, occupation and firm size, the differential falls to 40 percent.

Our Picture of Adult Learning Remains Incomplete

Though the AETS provides a wealth of information regarding who participates in formal adult education and training, the survey pictures only part of the Canadian training landscape. Informal learning is not measured by the 1998 AETS. Informal learning consists of skills and workplace knowledge acquired on the job by, for example, watching a co-worker or self-instruction.

Traditionally, informal learning is important to smaller firms and for workers employed in occupations requiring lower levels of initial education. Research conducted for the OECD suggests that informal learning is an increasingly important component of ongoing skills development, particularly in larger firms and in occupations requiring higher skill levels (*OECD Manual for Better Training Statistics—Conceptual, Measurement and Survey Issues*, 1997).

More information on the incentives and disincentives that individuals face with respect to investing in human capital is also needed to better understand participation in adult formal learning. Although workers and firms undertake considerable skills development, little is known about their training goals and expectations, their familiarity with training options or the training outcomes. Without this

information, it is very difficult to design effective policies to foster more investment in adult learning.

Is Canada Losing Its "Best and Brightest" to the U.S.?

The movement of skilled workers to the United States has been receiving a great deal of attention lately. A large part of the "brain drain" debate concerns the loss of Canada's recent graduates to the U.S. Are those graduates who leave for the U.S. our "best and brightest?" Are they leaving key fields of study such as engineering and applied sciences? Do they move because of the availability of jobs in their field? Are they attracted by higher salaries and lower taxes in the U.S.? Does their move pay off relative to those who decide to remain in Canada? How many ultimately return?

In a recently released report titled *South of the Border: Graduates from the Class of '95 Who Moved to the United States*, Jeff Frank of Statistics Canada and Éric Bélair of the Applied Research Branch shed light on these questions. The authors analyze the results from the Survey of 1995 Graduates Who Moved to the United States (SGMUS), which was conducted by Statistics Canada on behalf of Human Resources Development Canada. This survey covers postsecondary graduates from the class of '95 who moved to the U.S. between graduation and the summer of 1997. These graduates were surveyed to obtain information on their characteristics, reasons for relocating, education and work experiences, and plans for the future.

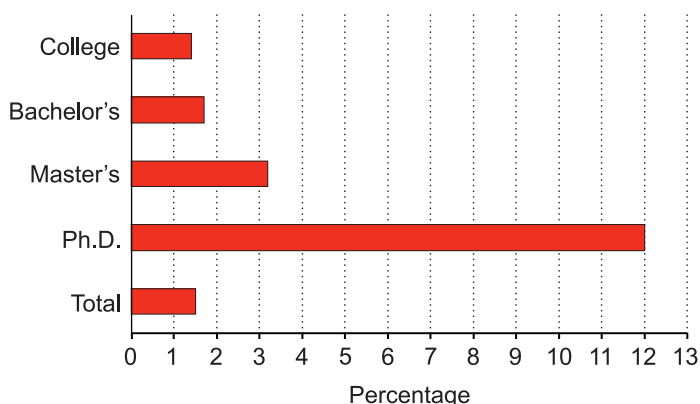
Graduates Likely To Move

According to the report, just over 4,600 postsecondary graduates from the class of '95 moved to the U.S. between graduation and the summer of 1997. The proportion of the 1995 graduating class who relocated was small (1.5 percent). Within this group, however, master's and Ph.D. graduates were over-represented. About 12 percent of the 3,000 Ph.D. graduates from the class of '95 moved to the U.S. University

graduates in engineering and applied sciences represented 13 percent of all university graduates who moved but only 7 percent of all university graduates who stayed in Canada.

Proportion of Graduates Who Moved to the United States

By Education Level



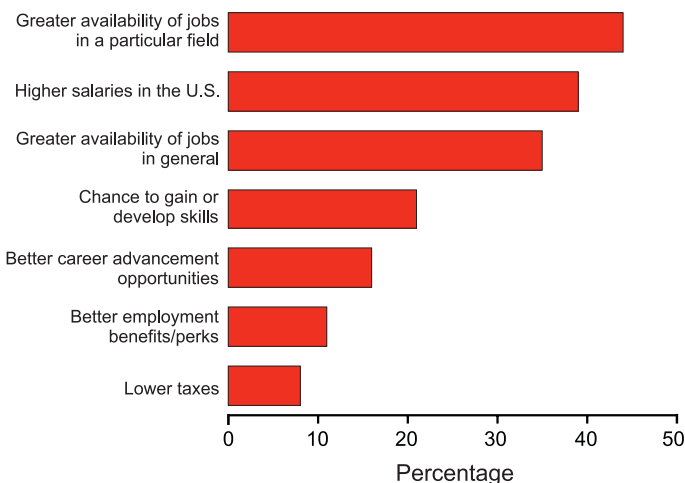
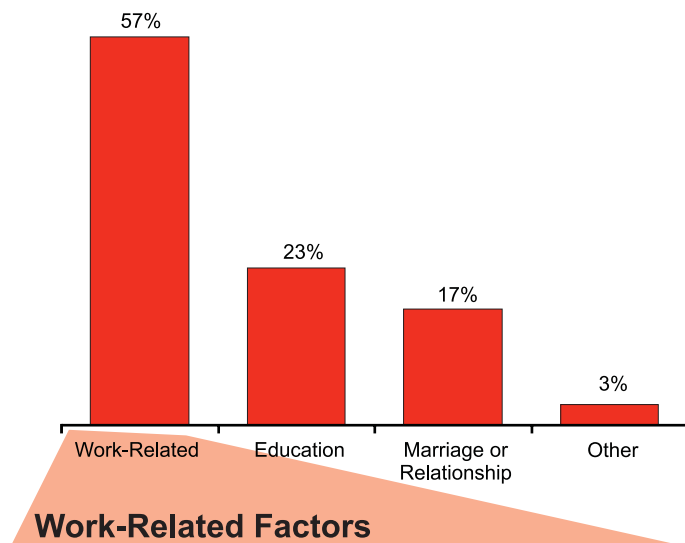
Sources: Survey of 1995 Graduates Who Moved to the United States and 1997 National Survey of 1995 Graduates

Health graduates compose the largest component of those who moved. Over 1,300 of Canada's health graduates took up residence in the U.S.—nearly 30 percent of the total number of graduates who moved. Almost one in five of the departing graduates worked as a nurse upon arrival in the U.S. The health sector in Canada had undergone major restructuring over the last few years and the resulting deterioration in the labour market situation may explain why some recent graduates decided to seek employment opportunities and better working conditions in the U.S.

Results of the survey show that those who moved did tend to have been high-quality students. Those who relocated to the U.S. reported above-average grades. About 44 percent ranked themselves in the top ten percent of their graduating class in their field of study. Moreover, even after taking level of study into account, those who moved were more likely than their counterparts who remained in Canada to have received scholarships or other academic awards.

Main Reasons for Moving to the United States

1995 Graduates



Notes: Multiple responses to questions on work-related factors were allowed. Estimate for "lower taxes" is subject to high sampling variability.

Source: Survey of 1995 Graduates Who Moved to the United States

Why They Left Canada

More than half of the 1995 graduates who relocated (57 percent) did so mainly for work, and another 23 percent left for educational purposes. Another 17 percent relocated for marriage or other relationships, and by far the majority of these "movers" were women.

Among the 2,600 or so graduates who moved primarily for work, better opportunities most often drew them to the U.S. Greater availability of jobs in a particular field or industry was cited by 44 percent, 35 percent mentioned greater availability of jobs in general, 21 percent noted the chance to gain or develop skills, and 16 percent cited better career advancement. Better compensation was also a common element that attracted graduates who moved for work. Nearly four in ten graduates mentioned higher salaries in the U.S.—making pay the second most commonly cited factor. Also, about one in ten noted that better employment benefits or perks attracted them to the U.S.

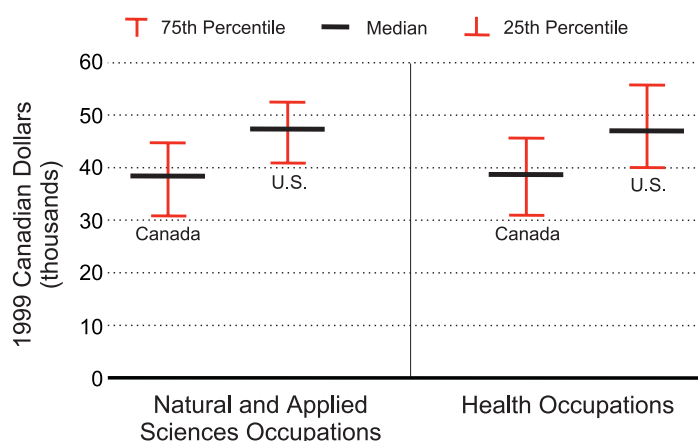
Somewhat surprisingly given the debate and media coverage of this issue, only an insignificant proportion of graduates explicitly said that lower taxes in the U.S. were a factor that attracted them to work there. However, lower taxes may have been implicit for those mentioning higher salaries as an attraction. Also, differences in Canadian and U.S. personal income tax tend to be smaller at lower income levels, where most of these graduates were situated. At this early stage in their careers, it makes sense that these graduates would have been more concerned with finding work in their field than with avoiding higher Canadian tax rates.

How They Located A Job

About 3 000 graduates had a job pre-arranged when they arrived in the U.S. These individuals were asked further questions about how they had found their jobs. Most acquired work through their own initiative: by responding to job advertisements (28 percent), through personal contacts (21 percent), or by sending out résumés or applications (20 percent).

Finding a job through on-campus recruitment programs or job postings (12 percent) was less common. Contrary to common perceptions, very few graduates were contacted directly by a U.S. employer or head-hunter, were transferred to the U.S., or found their job through an employment agency.

Annual Earnings of Bachelor's Level Science and Health Graduates By Location of Job



Note: "Canada" denotes graduates who remained in Canada. "U.S." denotes graduates who moved to the United States for pre-arranged employment. The rate is adjusted for inflation and purchasing power, \$1 US = \$1.25 CAN, based on the difference in costs of private consumption in 1995.

Sources: Survey of 1995 Graduates Who Moved to the United States and 1997 National Survey of 1995 Graduates

A Truly Golden Door?

Graduates who moved to the U.S. realized a high degree of success in the U.S. labour market. They secured work closely related to their studies, largely in health, natural and applied sciences occupations, and in social science and related jobs. In addition, they more often worked in occupations that required high skill levels and that paid high salaries than their counterparts who remained in Canada.

The median annual earnings of bachelor's graduates working in natural and applied sciences jobs upon arrival in the U.S. was \$47,400. This salary is considerably higher than the \$38,400 earned by such graduates in Canada. The U.S.-Canada gap in salaries of bachelor's graduates in health occupations was similar.

Graduates working in the U.S. at the time of the survey in natural and applied sciences occupations had the highest salaries of all those who moved. Made up largely of scientists, engineers, computer systems analysts and programmers, this group was earning a median annual salary of \$76,300 by March 1999.

By March 1999, about 830 or 18 percent of the graduates had returned to Canada, one half of them for work-related reasons. Among the graduates still in the U.S., about four in ten planned to return to Canada to live. Three in ten did not plan to come back and about the same proportion did not know if they would return.

The Challenge for Employers

In short, the survey findings indicate that there was no massive exodus of graduates from the class of '95 to the U.S. On the other hand, there is evidence that those who leave are among the better educated and the best students. The evidence suggests that to help retain these graduates in Canada, employers must offer better pay and more interesting career opportunities.

About the SGMUS

Statistics Canada, in partnership with Human Resources Development Canada, conducted the Survey of 1995 Graduates Who Moved to the United States (SGMUS) in March 1999. This survey was possible because while conducting the National Survey of 1995 Graduates (NGS). Statistics Canada isolated a number of graduates living in the U.S. These individuals were considered out of scope for the NGS, and were not interviewed for it. But they later formed an appropriate sample for the SGMUS.

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