Raising the Floor

The Social and Economic Benefits of Minimum Wages in Canada

by Michael Goldberg and David Green

September 1999

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CANADIAN CENTRE FOR POLICY ALTERNATIVES   BC OFFICE

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Acknowledgements

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Executive Summary

THE MINIMUM WAGE HAS BEEN THE FOCUS of considerable public debate. It has been portrayed by some as an important policy instrument for promoting greater wage equity and meeting anti-poverty goals. Others contend the minimum wage is a powerful slayer of jobs, hurting the very people it was intended to help by pricing their labour out of the market. This report assesses these contrasting opinions using the latest available data for British Columbia, Alberta, Ontario and Quebec. The report provides a profile of who minimum wage workers are. The report also examines extensive evidence to determine if increases to the minimum wage have significant disemployment impacts on the labour market.

Our overall evaluation of the minimum wage is that it is a useful tool in efforts to reduce poverty and to generate greater social justice in the distribution of wages. This latter impact appears to have been lost in the current debate, as analysts too often forget the historical reason for introducing regulations and constraints on the labour market – namely, that minimum wages and other employment standards were established to promote fairer treatment of employees.

The following summarizes the study's key findings.

Minimum wage workers are primarily adults and women

A popular misconception is that the majority of minimum wage workers are teenagers living at home in middle-class families. Our analysis, using data from Statistics Canada's Survey of Labour and Income Dynamics (SLID), show that:

- 61% are adults (19 years of age and over);
- 64% are women; and
- 48% have some post-secondary education.

Among all minimum wage earners, 36% are teenagers and 19% are young adults who live with their parents. For young adults, a higher wage could represent much desired independence in establishing their own households. Further, it appears that minimum wage work is an important source of income for many students seeking to finance their post-secondary education. According to the latest data, the vast majority of teenage minimum wage workers, over half of young adult minimum wage workers, and 12% of adult minimum wage workers were full-time students at some time during the survey year.

Minimum wages disproportionately benefit low-income families

The evidence also clearly shows that minimum wage earners are disproportionately represented among families with low-incomes. Thus, increases in the minimum wage will disproportionately benefit low-income families.

Another argument made by some policy analysts is that minimum wage workers are often secondary household earners (approximately 20% based on the SLID data), most frequently women, and thus their income does not contribute to progressive income distribution. Recent findings, however, show that, in two-parent families, the incidence of poverty is dramatically higher when there is only one earner compared to families where both parents are earners. A minimum wage job held by a secondary family earner could spell the difference between poverty and a modest family income. Similarly, a higher minimum wage could lead to greater financial independence for "married" women.

Real minimum wages have fallen

Our analysis shows that the real value of the minimum wage (after inflation) in the four provinces studied has fallen dramatically from its peak in the mid-1970s. Minimum wage increases in the 1990s in BC, Ontario, and Quebec have provided only some restoration to the purchasing power of the minimum wage, while Alberta remains far behind the other provinces.

Increasing the minimum wage has only marginal effects on employment

A major portion of this report is devoted to a comprehensive analysis of the labour market effects of increasing the minimum wage. Our analysis clearly disputes the claim that minimum wages are a major "killer of jobs." Frequently, increases in the minimum wage have been followed by increases in employment, demonstrating that other trends and movements in the economy influence employment levels to a much greater extent than do minimum wages. Econometric analysis conducted for this report shows that:

1. The immediate impact of a change in the minimum wage in terms of changes in employment is very small for all gender and age groups, and is only statistically significantly different from zero for young adult males;

2. The longer term employment impacts captured in our regression analysis of minimum wage levels are slightly negative and are similar to those found in the literature. Specifically, we find that a 10% increase in the minimum wage produces declines in the employment-to-population ratio in the range of 0 to 2%, depending on the age and gender group. This is generally interpreted as a small disemployment effect (and does not necessarily imply actual lay-offs);

3. Movements in the minimum wage account for only a small proportion of movements in employment in the four provinces studied. Attempts to place a major portion of declines in employment at the foot of the minimum wage are simply misguided. So too are claims that minimum wage cuts will lead to large jumps in employment;

4. Even taking into account "worse-case scenario" disemployment effects, an increase in minimum wages generates an increase in the total amount of money (the wage bill) going to low-wage workers.

Minimum wages should be set at the poverty line

Various options for setting the minimum wage are discussed, and we conclude that the minimum wage level should meet standards where, in a just society, individuals working full-time, full-year would not find themselves in poverty. At the same time, we recognize that increases in minimum wages do not help individuals without a job.

We believe it is appropriate to see minimum wages as one of a set of tools, complementary to others (such as Employment Insurance, child tax benefits, social assistance, and job creation initiatives) in the battle against poverty and excessive inequality. The results of this study indicate that minimum wages can play a useful role in that battle. Minimum wages are one policy instrument for raising the floor for low-income earners. Minimum wages that are set to meet or exceed Statistics Canada's Low Income Cut-Off can help ensure that all workers receive at least a fair and just wage for their labour.

We therefore recommend that the minimum wage in BC be increased to $8.00 per hour immediately, with planned increases to bring the minimum wage to Statistic Canada's Low Income Cut-Off based on a 35 hour work week (estimated to be $9.15 per hour).

We further recommend that the other three provinces examined in this study establish a timeline for bringing their minimum wages in line with the Statistics Canada Low Income Cut-Off, and adopt the LICO for updating their minimum wages.

Raising the Floor

THE MINIMUM WAGE HAS BEEN THE FOCUS of considerable public debate. It has been portrayed by some as a powerful slayer of jobs, hurting the very people it was intended to help by pricing their labour out of the market. Others have seen the minimum wage as an important policy instrument for promoting greater wage equity and meeting anti-poverty goals. The purpose of this report is to assess these contrasting opinions, using up-to-date information for British Columbia and three other provinces selected for comparison.

Our overall evaluation is that the minimum wage is a useful tool in efforts to reduce poverty and to generate greater social justice in the distribution of wages. This latter impact appears to have been lost in the current debate, as analysts too often forget the historical reason for introducing regulations and constraints on the labour market. Thus, the first section of this report provides a brief history, a critical reminder that minimum wages and other employment standards were designed to promote fairer treatment of employees.

Increases in minimum wages have only marginal employment effects, and more importantly, they lead to an increase in the total wages paid to low-wage workers.

This study presents empirical evidence to both profile minimum wage workers and to examine the relationship between changes in the minimum wage and employment in four provinces: British Columbia, Alberta, Ontario and Quebec.[1] The evidence will enable us to answer the following questions:

- What is the profile of minimum wage workers and who benefits from increases in the minimum wage?

- Do minimum wages have a "disemployment" effect? If so, how significant is the impact on the labour market?

The second section of this report presents a profile of minimum wage workers, using data from Statistics Canada's Survey of Labour and Income Dynamics (SLID). While some analysts object to increases in the minimum wage on the grounds that a higher wage allegedly benefits primarily teenaged workers from middle-class families, our findings show that 64% of minimum wage workers are women and that over 60% are adults (19 years of age and over).

Our findings also show that minimum wages have some positive impact in distributing income to those in the bottom quartile (25%) of family income distribution. We agree with those who claim that the minimum wage is a somewhat "blunt instrument," distributing income to workers from both low and higher income families. However, arguments about the "bluntness" of minimum wages ignore issues of redistribution within families. A higher minimum wage, for example, could be a key component in enabling young adults to become financially independent of their families, or for women to become more financially independent of their husbands.

Although there is ongoing disagreement over the labour market effects of minimum wages, the literature suggests that the overall impact of minimum wages on employment, either positive or negative, is minimal. The third section of this report tests this claim by presenting, for the period 1968 to 1997, annual data on the minimum wage, the value of the minimum wage as a share of average wages, and employment rates by age groupings collected for each of the four province. Periods during which minimum wages increased are then more carefully examined within the broader economic context in each province.

By considering the broader economic context during which minimum wages increase, other more critical factors influencing the labour market are identified. Our study differs from previous studies in that

we use more updated information and focus on BC and three other provinces chosen to provide a comparison. The study also provides detailed regression analysis to help us better understand the relationship between minimum wages and employment by gender and for various age groups.

Our descriptive and regression analysis of the four provinces clearly shows that increases in minimum wages have only marginal employment effects. Moreover, our results show that increases in the minimum wage lead to an overall increase in the total wages paid to low-wage workers, even when one takes into account those workers who may lose their jobs as a result of the increase. Ultimately, movements in the minimum wage account for only a small proportion of movements in employment in the four provinces studied. Changes in the minimum wage cannot reasonably be seen as being responsible for significant employment downturns, which must be attributed to the provincial economy as a whole.

Given that the empirical evidence shows that even fairly large increases in the minimum wage have little effect on employment, we then turn to a discussion in Section Four of possible criteria for setting the minimum wage. All the options explored would require that the minimum wage be raised to at least $8.00 per hour.

Based on our analysis, we conclude that the minimum wage is a useful tool. Increases in the minimum wage disproportionately benefit families with low employment income. The setting of the minimum wage should meet standards where, in a just society, individuals working full-time, full-year, would not find themselves in poverty. At the same time, we recognize that increases in minimum wages do not help individuals without a job.

We believe it is more useful to see minimum wages as one of a set of tools, complementary to others (such as unemployment insurance, child tax benefits, social assistance, and job creation) in the battle against poverty and excessive inequality. The results of this study indicate that minimum wages can play a useful role in that battle.

Minimum wages, in conjunction with other employment standards, are one policy instrument for raising the floor for low-income earners. Minimum wages set to meet or exceed Statistics Canada's Low Income Cut-Off can help ensure that all workers receive at least a fair and just wage for their labour.

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1 History

EARLY MINIMUM WAGE LEGISLATION IN CANADA, it has been argued, was motivated by a desire to protect women from exploitation.[2] This notion of protecting potentially vulnerable workers, Guest suggests, was rooted in the earlier British minimum wage laws, the early factory acts, and concerns about child labour.

In 1918, British Columbia and Manitoba became the first provinces in Canada to pass minimum wage legislation. In both provinces, the legislation covered only women. Most of the other provinces passed similar legislation covering women in the 1920s. BC was the first province to amend its minimum wage acts to include male employees in 1925, with most other provinces following suit by the mid-1930s.

The structure for setting the minimum wage in these initial minimum wage acts was based on subsistence living (a very restrictive notion of a poverty level). The early acts also set different minimum wages to take into account family size. A family of four or five was used in the case of a male employee, and a single person with no dependants in the case of a female employee.[3]

> In 1925, BC became the first province to pass minimum wage legislation covering both female and male employees.

The notion of a "living wage" was extensively revisited in a series of reports on social security developed during the Second World War. Leonard Marsh, in his *Report on Social Security for Canada*, identified two major categories that could affect the adequacy of family income. The first involved those situations requiring special expenditures such as births, deaths, accidents, and major illnesses. The second concerned the failure of the market to relate wages to the size of a worker's family.

For Marsh, the threat to income adequacy among the working poor would have to be addressed through minimum wage laws and worker retraining. Charlotte Whitton's proposals, in response to the March report, were also based on a "living wage policy guaranteeing every adult male a wage sufficient to support him, his wife, and two or three children."[4]

Ultimately, the concept of a "living wage" through differential minimum wages based on family size was not adopted. Instead, the Family Allowance was established to recognize the additional costs to families with children, and the provinces were eventually left responsible for "topping up" inadequate market income through provincial income assistance programs.

Minimum wage laws eventually came under federal and provincial employment standards legislation. While current employment standard legislation in Canada does not address the notion of a "living wage," the legislation is designed to protect workers. The current BC Employment Standards Act (1995) states:

> The main purpose of the Act is to ensure that employees in British Columbia receive at least minimum standards for conditions of employment and compensation, including wages, termination pay, and vacations. To accomplish this basic purpose, the Act establishes a set of rights for employees and obligations for employers.

The BC Employment Standards Act is in keeping with Canada's commitment to international agreements. As a recent *Vancouver Sun* editorial notes:

> In accordance with international agreements, we have a Canadian code that sets minimums for workplace standards to avoid Third World kinds of sweatshops. Child labour is outlawed. Minimum wages must be paid. Hours of work are regulated. Workers have the right to organize. Provincial laws build on those nationwide minimums.[5]

Various criteria for determining minimum wage standards/levels will be further examined later in this paper.

Profile of Minimum Wage Workers

IN THIS SECTION OF THE REPORT, WE PROVIDE a profile of minimum wage workers. This will enable us to test a common perception that minimum wage workers are primarily teenagers living at home.

To do this, we use data from a large representative sample of Canadians, collected by Statistics Canada in the Survey of Labour and Income Dynamics (SLID). The SLID contains information both on individual wages and job characteristics, and on family characteristics such as total family income. Our analysis follows the discussion in Fortin and Lemieux (1997) in which they investigate the redistributive power of minimum wages using 1993 SLID data for all of Canada.

The findings that follow contain a breakdown of the minimum wage population aggregated for BC, Alberta, Ontario, and Quebec, using 1994 SLID data.[6] The breakdowns are done separately for female minimum wage-earners, male minimum wage-earners, and the total minimum wage population. We define minimum wage-earners as all individuals whose wages were within 25 cents of the minimum wage in the earner's province in November 1994. It

is worth noting at the outset that minimum wage workers defined in this way made up a small percentage of the total labour force in 1994 (3.6%).[7] It should also be noted that a significantly higher percentage of females in the labour force work at the minimum wage (5.1% of all female workers) compared to males (2.3% of all male workers).

There were an estimated 228,545 minimum wage workers in the four provinces in 1994, representing 3.6% of the total labour force.

While these percentages are small, we need to remember that minimum wages affect large numbers of individuals. The SLID estimates there were 228,545 minimum wage workers in the four provinces in 1994.[8]

Table 1 provides the percentage of minimum wage workers by age groups.[9]

The face of minimum wage workers is changing. Contrary to the popular perception that minimum wage workers are primarily teenagers, this evidence

Table 1:   Percentage of Minimum Wage Workers by Age Groups

	Females	Males	All
Teenager (Age 15 to 18)	32.0%	50.5%	38.7%
Young Adult (Age 19 to 24)	37.7%	28.7%	34.4%
Adult (Age 25 and over)	30.3%	20.8%	26.9%
TOTAL	100%	100%	100%

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

shows that over 60% are adults. The findings in Table 1 also indicate that there are significant gender differences.

Females make up 64% of all minimum wage workers and males 36% in these four provinces. Another way of understanding the gender distribution of minimum wage workers is to look at the distribution between females and males in each age category. The SLID estimates that slightly more then half of the teenage minimum wage workers are females (53%). These proportions increase dramatically for young adults and adults, where females represent over 70% of the minimum wage workers in these age groups (see Appendix 1, Additional Tables, Table A1).

Table 2 shows the highest education levels of minimum wage workers at the time of the survey. As shown, almost half of minimum wage workers have

The face of minimum wage workers is changing. Contrary to the popular perception that minimum wage workers are primarily teenagers, over 60% are adults. Females make up 64% of all minimum wage workers.

Almost half of minimum wage earners have some form of post-secondary education, and over half of the young adult minimum wage workers were full-time students during some part of the year. It appears minimum wage work is an important source of income for many students financing their post-secondary education.

some form of post-secondary education, although a very small proportion (approximately 2%) have university degrees. There are few differences between females and males in terms of their levels of education. It is interesting to note that there has been a significant decrease in the percentage of minimum wage workers with less than high school graduation over the past decade (Fortin and Lemieux, 1997). Minimum wage workers have moved further up the education hierarchy. Contrary to popular perception, minimum wage workers are not primarily high school dropouts.

The SLID survey also indicates that the vast majority of teenaged minimum wage workers (91%) were full-time students during some part of the year. Over half of the young adult minimum wage workers (58%) and 12% of the adult minimum wage workers were full-time students during some part of the survey year. It appears that minimum wage work is an important source of income for many students in supporting their post-secondary education.

Table 3 provides a breakdown of the types of family situations by the three age groupings. The findings show that approximately 55% of minimum wage earners live with their parents. Among all minimum

Table 2: Percentage of Minimum Wage Workers by Highest Level of Education

	Females	Males	All
Less than High School Graduate	35%	40%	36%
High School Graduate	17%	10%	15%
Some Post-secondary *	30%	31%	31%
Post-secondary Certificate	16%	16%	15%
University Degree	2%	2%	2%
TOTAL	100%	100%	100%

Note: * Some Post-secondary refers to people who have not completed a certificate or diploma. Post-secondary Certificate includes both certificates and diplomas.

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

wage earners, 36% are teenagers and 19% are young adults who live with their parents.

The 19% of young adult minimum wage-earners who live with their parents are somewhat difficult to interpret. Examining minimum wages as a pure redistributional tool, one might want to discount any redistribution toward this group since they may live in households with good total income levels. However, as discussed in Card and Lemieux (1996), this group appears to be part of a trend toward young people living with their families longer and delaying formation of families of their own because of poor labour market prospects. Thus, for them, a higher wage could represent much-desired independence.

Similarly, higher minimum wages could lead to greater financial independence for "married" women. Regardless of the interpretation of these numbers, the fact that almost half of minimum wage-earners are either adults or young adults not living with their parents indicates that the minimum wage may play a

> **For the 19% of young adult minimum wage-earners who live with their parents, a higher minimum wage could represent much-desired independence.**

positive redistributive role.

Table 4 allows us to assess more directly which family income groups have minimum wage-earners. Table 4 shows the proportion of minimum wage-earners with total family income from employment below the bottom 5th percentile, 10th percentile, and 25th percentile of family employment income in the four provinces.

As shown, 13% of minimum wage-earners are in families whose employment income places them in the poorest 5th percentile of all families. Approximately 34% of minimum wage-earners are in families whose employment income places them in the bottom 25th percentile by family income. This evidence clearly shows that minimum wage earners are disproportionately represented

> **The evidence clearly shows that minimum wage earners are disproportionately represented among low-income families. Thus, increases in the minimum wage will disproportionately benefit low-income families.**

Table 3: Percentage of Minimum Wage Workers by Family Situation

	Females	Males	All
Teenager (Age 15 to 18)			
Live Alone	0%	0%	0%
Live With Parents	31%	45%	36%
Other (not defined)	1%	6%	3%
Young Adult (Age 19 to 24)			
Live Alone	4%	1%	3%
Live With Parents	21%	17%	19%
Married or Lone Parent	4%	3%	4%
Other (not defined)	8%	8%	8%
Adults (Age 25 and over)			
Live Alone	2%	4%	3%
Married	21%	9%	17%
Lone Parent	3%	0%	2%
Other (not defined)	4%	7%	5%
TOTAL	100%	100%	100%

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

among low-income families. Thus, increases in the minimum wage will disproportionately benefit low-income families.

At the same time, it is clear that minimum wage increases also deliver benefits to individuals in better-off households. These distributional results are similar to those found using 1991 data in a study of the minimum wage in Ontario (Shannon and Beach, 1995).

Another argument made by some policy analysts is that minimum wage workers are often secondary earners (approximately 20% based on the SLID data). Such an argument assumes that the minimum wage income from secondary earners (most frequently women) do not contribute to income redistribution to less-well-off families. Recent findings, however, show that, in two-parent families, the incidence of poverty[10] is dramatically higher when there is only one earner compared to families where both parents are earners. The incidence of poverty in two-parent households with one earner is 27.4% compared to 7.3% in two-parent two-earner households.[11] Thus, a minimum wage job held by a secondary family earner could spell the difference between poverty and a modest family income.

We have also examined the profile of low-waged workers more broadly, defined as those earning $7/hour or less, and those earning $8/hour or less. (See Appendix 1, Additional Tables, Tables A2 - A9 for this information). This was done to provide an additional perspective on how the group affected by the minimum wage would change if the minimum wage were raised from its 1994 level of $6/hour to nearer its current level of $7.15/hour, and then to a potential higher level of $8/hour.

As expected, the percentage of teenaged workers decreased in these profiles, while the percentage of adults increased. The percentage of young adults changed very little. Somewhat surprising was that the highest levels of education completed did not change dramatically. There was only a slight decrease in those with less than high school graduation, and a slight increase in those with a post-secondary certificate.

Given the changes in age distribution, there was a noticeable decrease in the percentage of teenagers living at home, a noticeable increase in the percentage of married females and males, and an increase in the percentage of males living alone for those at wages of $8/hour or less. There were virtually no changes in the family situation of young adults, even for wages at $8.00 or less.

There was also virtually no change in the percentage of low-wage workers who were in families with incomes in the bottom 5th percentile of all families with employment income. As Table A9 shows, 12% of all workers earning $8/hour or less were in the bottom 5th percentile, a result that was similar to that for minimum wage workers. This suggests that raising the minimum wage would disproportionately benefit low-income families.

> **The incidence of poverty in two-parent households with one earner is 27.4% compared to 7.3% in two-parent two-earner households. Thus, a minimum wage job held by a secondary family earner could spell the difference between poverty and a modest family income.**

Table 4:   Proportion of Minimum Wage Workers by Family Employment Income Group

	Female	Male	All
Less than 5th Percentile	11%	16%	13%
Less than 10th Percentile	17%	20%	18%
Less than 25th Percentile	36%	30%	34%

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

Employment Effects of Minimum Wages

THE CONCERN THAT MINIMUM WAGES NEGATIVELY affect employment has received the most attention among economists and is the issue where opponents of the minimum wage, in particular, focus their attention. Opponents of the minimum wage typically argue that the minimum wage is a bad policy because it hurts the very people it is supposed to help by effectively pricing their labour out of the market. In this section, we examine evidence for whether such adverse employment effects exist, and, if so, whether they are large.

The standard model to test the impact of minimum wages on employment is captured in a simple demand-and-supply framework. In this model, the market wage adjusts to ensure that the amount of labour offered by workers just equals the amount demanded by firms. A minimum wage set above the market wage will, according to this model, have two effects. First, some individuals who did not think it was worth their while working in the market economy at the market wage will now enter the labour market looking for minimum wage jobs. Second, firms will now view workers (and in particular, low-skilled workers) as a relatively more expensive input to production. As a consequence, firms will shift away from using low-skilled workers and towards using more capital and/or more skilled workers. This shift, which may take some time to complete, will lead to fewer low-skilled workers being hired. The juxtaposition of more individuals searching for jobs and fewer jobs being offered leads to increases in unemployment. The most important part of the equation, however, is probably the loss of jobs, and that is what we focus on.

This simple model cannot on its own, however, tell us the size of any job loss. The extent of any job loss, in practice, will depend on a variety of factors, including whether the market for the final good is such that the firm can pass any wage increases on to consumers through higher prices (to the extent they can, they do not need to lay off as many workers); the ease with which firms can replace low-skilled labour with capital and other types of labour (the easier such substitution, the larger will be the low-skilled job loss); and the expense of obtaining the other inputs to production. Economists calculate these effects (along with some others) in the "elasticity of demand for labour," defined as the percentage drop in employment caused by a 1% increase in the minimum wage.[12]

Before examining direct employment effects of minimum wages, it is worth noting that, even if we were to find evidence of substantial disemployment effects, that would not necessarily imply that minimum wages are a bad policy. The benefits in terms of reducing the poverty of those with jobs may be deemed large enough to offset even relatively large disemployment costs. Further, there may be long-term dynamic impacts of increasing the minimum wage that are beneficial. With low unskilled wages, firms may find it profitable to use production methods that involve many unskilled workers in dead-end jobs. As described in the simple demand-and-supply model, increased minimum wages may induce firms to switch toward methods of production that emphasize more training and, with it, more job stability and income.

Another potential dynamic effect of increasing minimum wages is that the increased consumer

> There may be several long-term dynamic impacts of increasing the minimum wage that are beneficial. For example, increased minimum wages may induce firms to switch toward production methods that emphasize more training and, with it, more job stability and income.

spending resulting from an increase in income may provide a stimulus in certain sectors of the labour market, thus offsetting possible disemployment effects.

In the short run, however, some workers may face disemployment effects as firms adjust technologies. In that case, minimum wages may be an effective part of labour market policy as long as they are part of a package that helps redistribute income and training programs toward those facing the direct costs of the policy. Effective unemployment insurance is very important in this regard.

Whatever the potential benefits of minimum wages, we need to have a clear understanding of their costs in order to decide whether they can be part of effective labour market policy. Some claims suggest that the costs are very high and virtually eliminate the need to search for potential benefits. This indicates a very high responsiveness of employment to wages – in the language used above, a very high elasticity of demand for labour. But are these claims justified?

Changes in Minimum Wages

To assess the elasticity of the demand for labour, we examine the impact of minimum wages on employment in BC, Alberta, Ontario and Quebec. Figure 1 presents the nominal minimum wage in November of each year for the four provinces from 1968 to 1997.

Several clear patterns emerge. All four provinces had similar minimum wages in the late 1960s and through the mid- 1970s. While the provinces differed somewhat between 1976-1981 in their patterns of increasing the minimum wage, all four provinces

Figure 1:   Nominal Minimum Wages
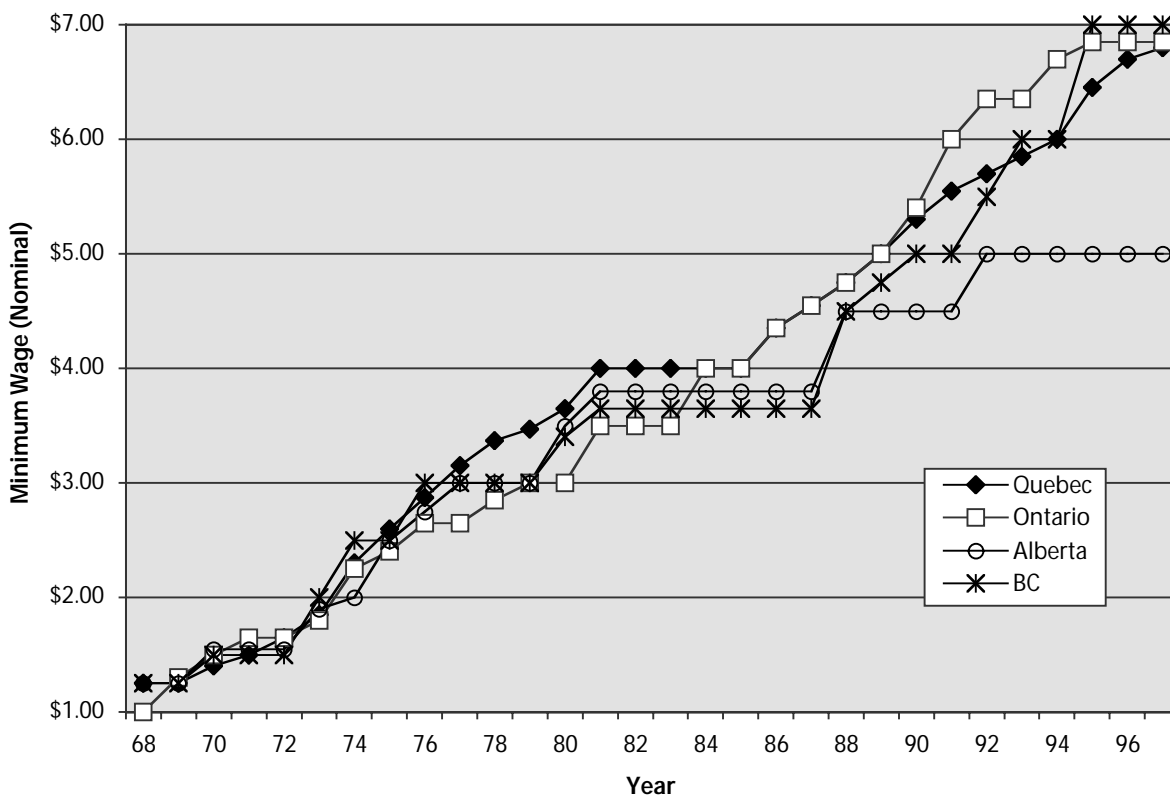
Note: Quebec and Ontario had the same minimum wage between 1984 and 1989.

Sources: *Canadian Master Labour Guide.* 1985-1993. Commerce Clearing House (CCH) Canadian Ltd. North York, Ontario.

Employment Standards Legislation in Canada. 1995-96 Edition. Human Resources Development Canada. Minister of Supply and Services Canada. 1996.

Labour Notes. No. 1050 (October 10, 1995) and No. 1075 (October 15, 1996). CCH Canadian Ltd. North York, Ontario.

had extended periods during the early 1980s in which the nominal minimum wage did not change. This was followed, in the case of Alberta and BC, by discrete and somewhat large jumps in the minimum wage, most notably between 1987 and 1988. Thereafter, BC parts company with Alberta and follows a pattern more similar to that in Ontario with more continual increases in the minimum wage, interspersed with some quite large jumps in the minimum wage such as occurred between 1994 and 1995.

Figure 2 redraws the minimum wages, but with the wage levels in each year converted to 1997 dollars. Not surprisingly, the extended periods with flat nominal minimum wages in the early 1980s imply declining real minimum wages: a minimum wage that remains at $3.50 for several years in a row buys less and less as prices rise. In the post-1985 period, the nominal minimum wage increases in Ontario and Quebec were clearly designed to maintain a constant minimum wage in terms of purchasing power. In-

creases in BC since 1987 more than matched price increases.

Nonetheless, all provinces have minimum wages in 1997 that are substantially below those in the late 1970s, in terms of purchasing power. In the case of BC, the minimum wage in 1997 was $1.50 lower in real terms than it was in 1976.[13]

Matching changes in the minimum wage to changes in consumer prices is useful for understanding whether minimum wages have kept up with the cost of living. Comparing the value of the minimum wage to Statistics Canada's Low Income Cut Off lines (LICO) is another way of examining if the minimum wage is a "living wage," at least for a single person with full-time, full-year employ-

All provinces had minimum wages in 1997 that were substantially below those in the late 1970s, in terms of purchasing power. In the case of BC, the minimum wage in 1997 was $1.50 lower in real terms than it was in 1976.

Figure 2: Real Minimum Wages
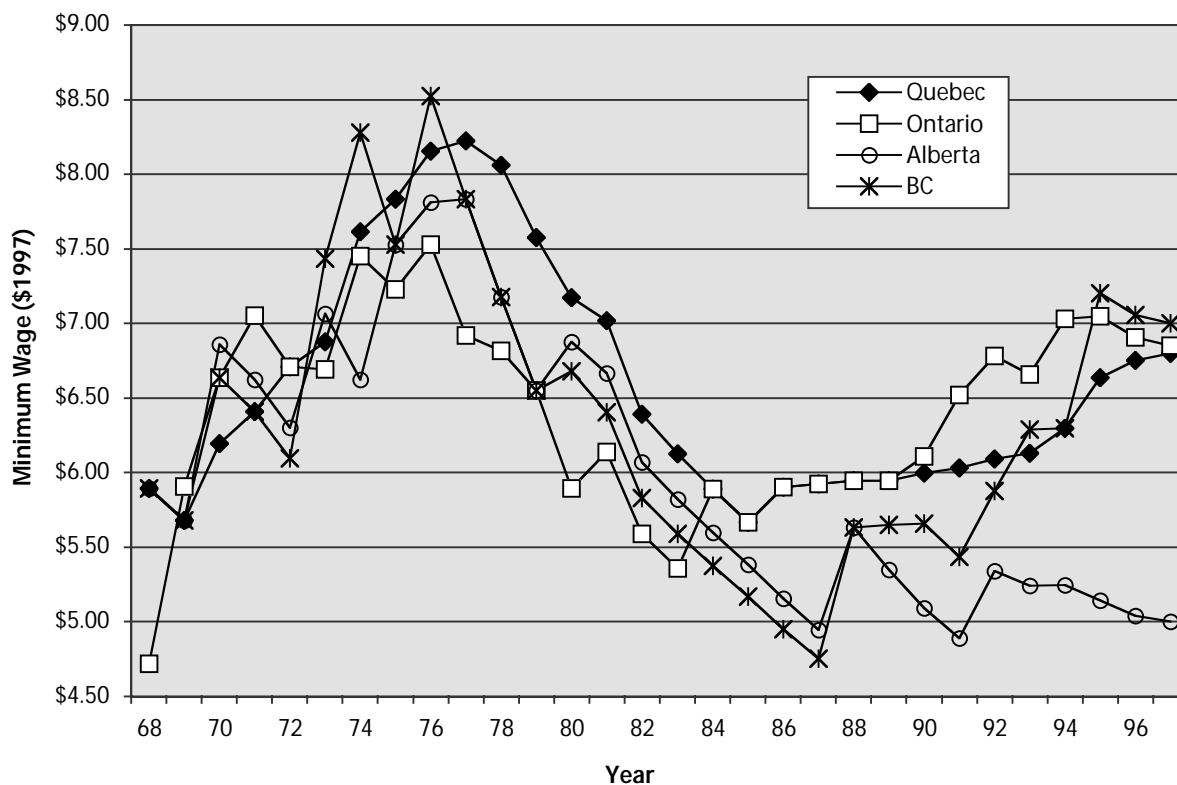
Note: Quebec and Ontario had the same minimum wage between 1984 and 1989.

Sources: See Figure 1 and authors' calculations using Statistics Canada's Consumer Price Index.

ment at that wage. Not surprisingly, the pattern is similar to that shown in Figure 2. In 1976, the BC minimum wage equalled 113% of the LICO for a single person employed at the minimum wage for 40 hours per week.[14] By 1987, this fell to 63%, and then rose to 89% by 1997.

> **In 1976, the BC minimum wage equalled 113% of the Low Income Cut Off for a single person employed at the minimum wage for 40 hours per week. By 1987, this fell to 63%, and then rose to 89% by 1997.**

Comparisons with the cost of living, however, are less useful for understanding the impact of minimum wages on employment. For employment decisions, firms will compare the wages of unskilled workers to prices of other inputs. Thus, in considering changes in employment over time, it is more useful to know how the minimum wage has changed in comparison to the wage for other workers. Figure 3 provides a graph of the minimum wage divided by the average hourly wage for the four provinces. Since the average hourly wage is likely to reflect wages of semi-skilled and skilled workers, this represents an interesting comparison for the minimum wage paid to unskilled workers.

As in Figure 2, there is a clear fall in relative minimum wages from 1974 through to the early 1980s. Thereafter, Ontario, Quebec and BC show gradual and continuous increases interrupted by a few sudden jumps. As Figure 3 shows, Quebec had a much higher ratio of minimum wage to average hourly wages throughout the 1970s, but showed the same trend as the other provinces. By the mid-1980s, Quebec's pattern became more similar to BC and

Figure 3: Ratio of Minimum Wage to Average Hourly Wage
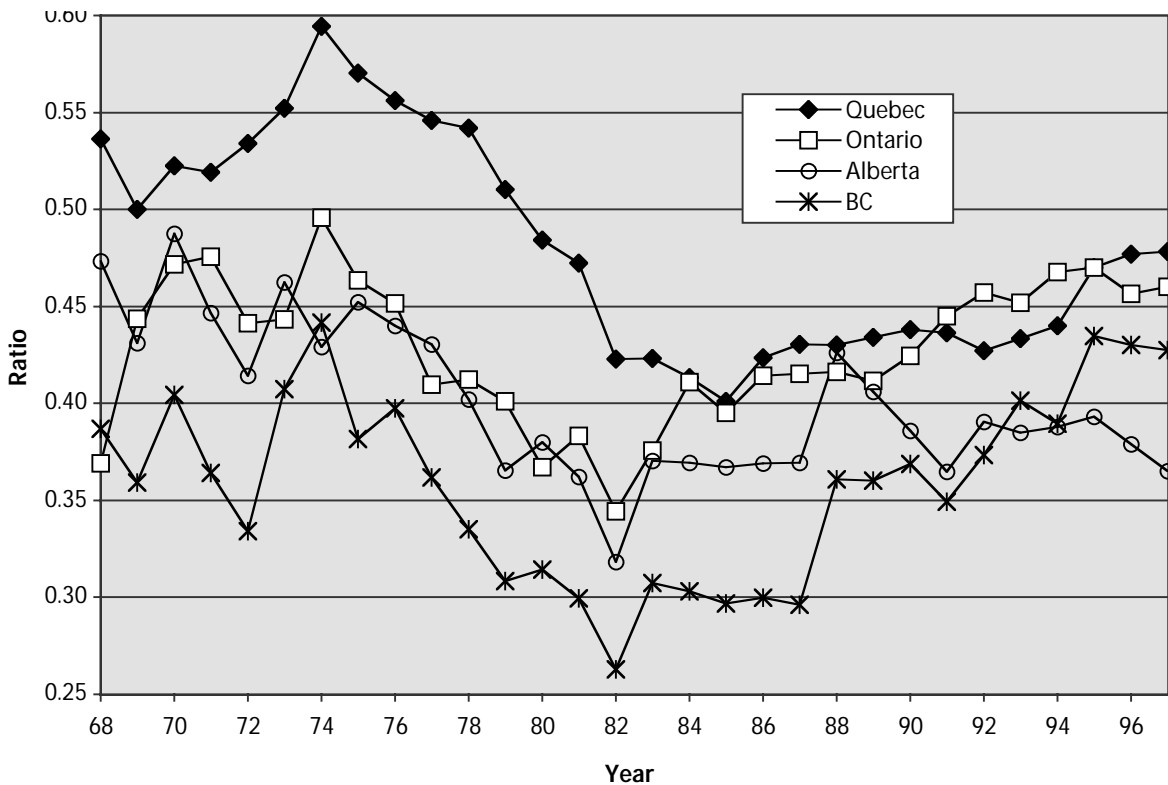
Note: Survey methods changed between 1982 and 1983. For 1982 and prior, figures on average hourly wage are for large manufacturing firms. For 1983 and after, figures are for all firms, industrial aggregate. Hourly wage rates are annual averages for both samples.

Sources: See Figure 1 and authors' calculations using Statistics Canada data.

Ontario. For Alberta, the ratios are much flatter through the '80s and '90s, other then for a "spike" in 1988. For Ontario and BC, the ratios return to levels comparable to those in 1976.

This suggests that minimum wage workers in these provinces are neither more nor less expensive to firms compared to 20 years earlier. Notice, though, that this does not change the conclusions from Figure 2; the minimum wage has been allowed to fall to a level that implies workers earning it can purchase much less than in the mid-1970s. The relative price of minimum wage workers facing firms has not changed because wages of high school educated workers have also fallen steadily in the last 20 years.[15]

Have changes in the minimum wage induced substantial drops in employment in these four provinces over the last 20 years? To answer this question, we first focus on the largest minimum wage changes depicted in Figures 1 to 3. In Figures 4 to 7, we plot employment to population ratios by age and gender group for BC, Alberta, Ontario, and Quebec, respectively. The employment-to-population ratio is simply the number of individuals in a particular age/gender group employed in the fourth quarter of a given year divided by the total number of individuals in that age/gender group. This allows us to see the employment trends for various age and gender group, set against years with significant minimum wage increases.

Examining the BC plots in Figures 4a (males) and 4b (females), several common patterns emerge. For males, the employment-to-population ratio went up in the late 1970s, then fell during the recession in 1982-1983. Employment-to-population ratios then rose for each age group up to age 54, but fell for those over age 55. For females, the employment-to-population ratio for those aged 20 to 24 and 25 to 54 are quite similar, with the latter showing a rising trend, indicative of the large movement of women into the labour market during the '70s and '80s.

One can also see clear evidence of recessions in the dips in the employment-to-population ratios in the 1982/83 era and in the early 1990s. The female participation rate for 25 to 54-year-olds plateaued in

the 1990s and the trend in participation rates of both males and females 20 to 24 years old has been in decline, most noticeably for females.
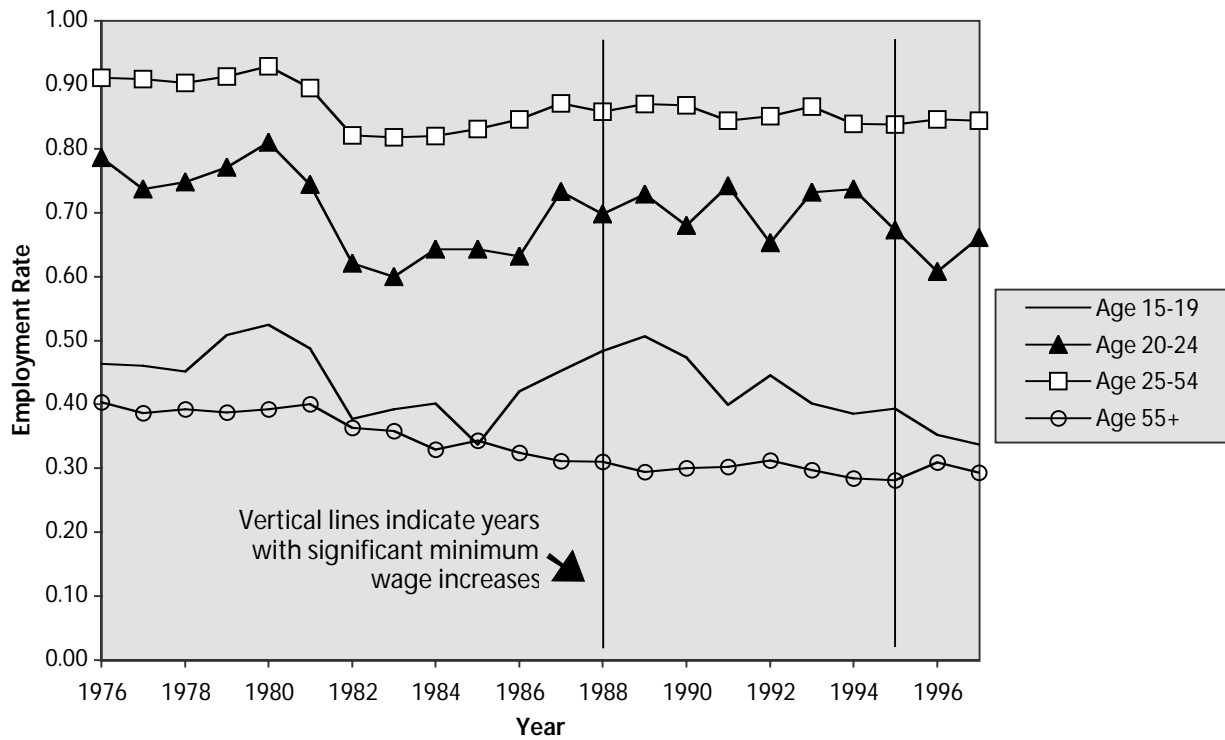
The vertical lines drawn in each of Figures 4 to 7 mark years containing substantial increases in the real minimum wage. Thus, in the case of BC, the lines mark 1988, when the minimum wage increased by $.88 in 1997 dollars, and 1995, when it increased by $.90. Examining employment changes in the year following large minimum wage changes reveals some mixed patterns. For 20 to 24-year-old males, the employment-to-population ratio increased in 1988, but fell in 1995. A similar pattern occurred for teenaged males, but with a smaller decrease in 1995. For females, 1988 contains an increase in employment for all but those 55 and over. There were also increases in all age groups for women following the minimum wage increase in 1995.

Simple statements indicating large damage from increases in the minimum wages cannot be supported. Put another way, other trends and movements in the economy influence employment levels to a much larger extent than do minimum wage changes.

The patterns in other provinces have more mixed results. For example, minimum wage increases in Ontario were associated with rising employment trends for all age groups for both males and females in 1984, and with some declining employment trends following minimum wage increases in 1992.

As the charts show, attempting to uncover minimum wage effects on a year-to-year basis is difficult. One must contend with filtering out the impacts of the business cycle and broad trends such as the general rise in employment for women over time. The fact that it is not easy to uncover clear employment impacts even in years with very large minimum wage increases is of interest, however. It suggests that simple statements indicating large damage from increases in the minimum wages cannot be supported. Put another way, other trends and movements in the economy influence employment levels to a much larger extent than do minimum wage changes.

Figure 4a: Male Employment/Population Rates, British Columbia

Vertical lines indicate years with significant minimum wage increases

Legend: Age 15-19, Age 20-24, Age 25-54, Age 55+

Source: Authors' calculations using Statistics Canada data.

Figure 4b: Female Employment/Population Rates, British Columbia

Legend: Age 15-19, Age 20-24, Age 25-54, Age 55+
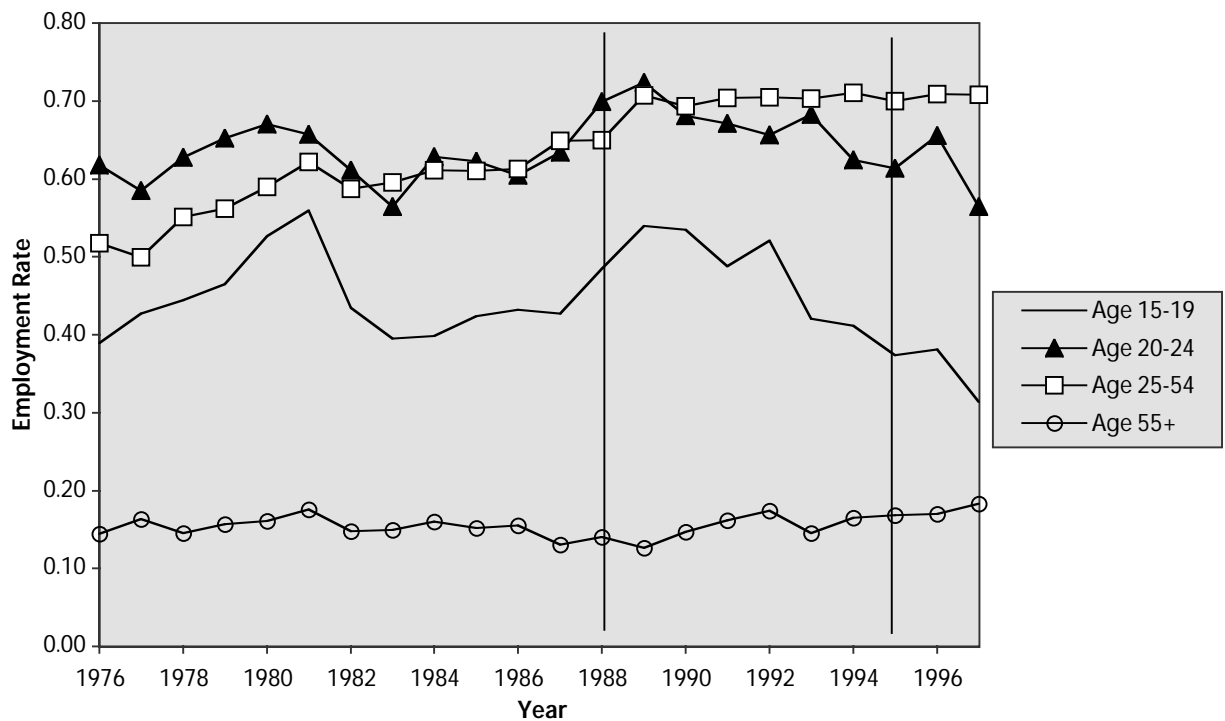
Source: Authors' calculations using Statistics Canada data.

Figure 5a: Male Employment/Population Rates, Alberta

Employment Rate (y-axis: 0.00 to 1.00)
Year (x-axis: 1976 to 1996)

Legend:
- Age 15-19
- Age 20-24
- Age 25-54
- Age 55+

Source: Authors' calculations using Statistics Canada data.

Figure 5b: Female Employment/Population Rates, Alberta

Employment Rate (y-axis: 0.00 to 0.80)
Year (x-axis: 1976 to 1996)

Legend:
- Age 15-19
- Age 20-24
- Age 25-54
- Age 55+

Source: Authors' calculations using Statistics Canada data.

Figure 6a: Male Employment/Population Rates, Ontario

Source: Authors' calculations using Statistics Canada data.

Figure 6b: Female Employment/Population Rates, Ontario

Source: Authors' calculations using Statistics Canada data.

Figure 7a: Male Employment/Population Rates, Quebec

Source: Authors' calculations using Statistics Canada data.

Figure 7b: Female Employment/Population Rates, Quebec

Source: Authors' calculations using Statistics Canada data.

Further Analysis on Employment Impacts

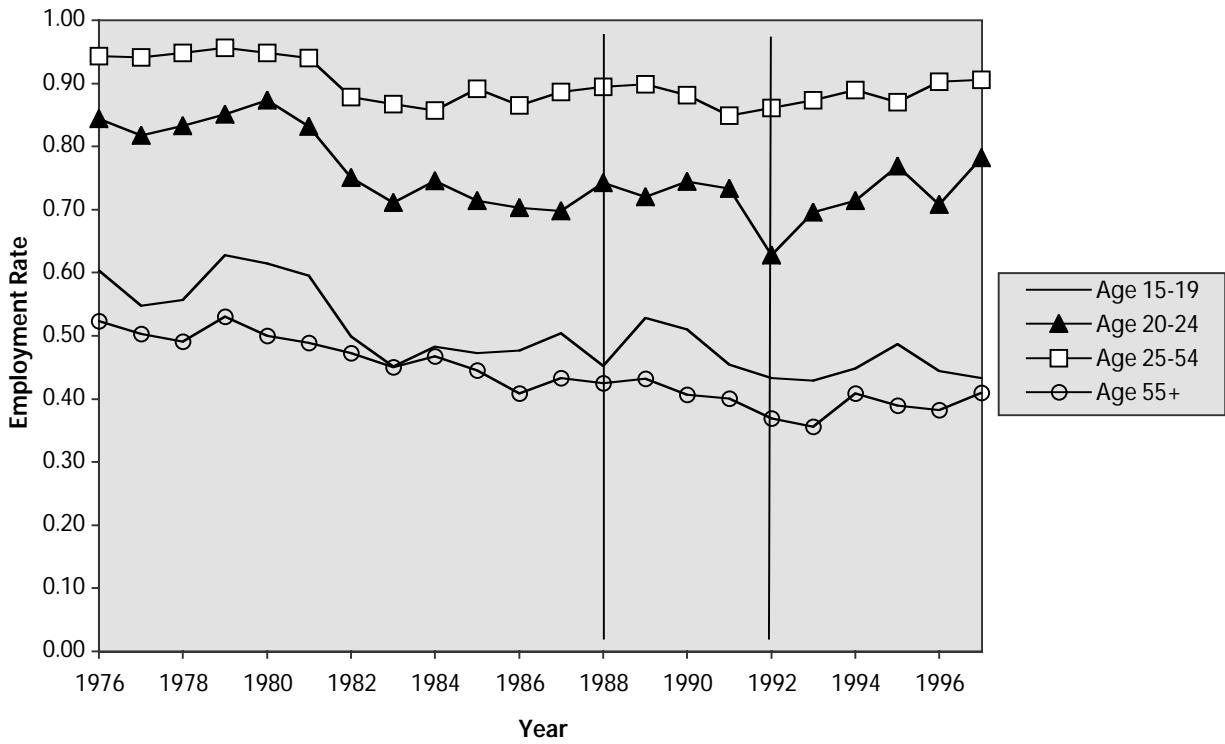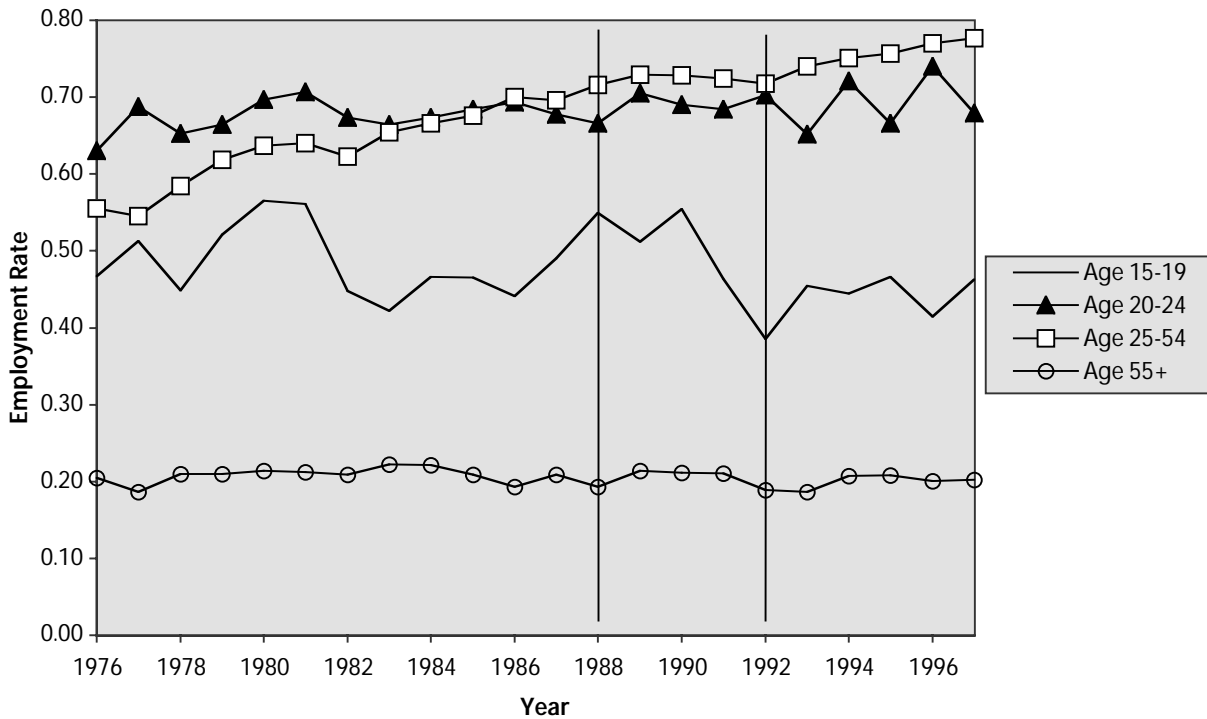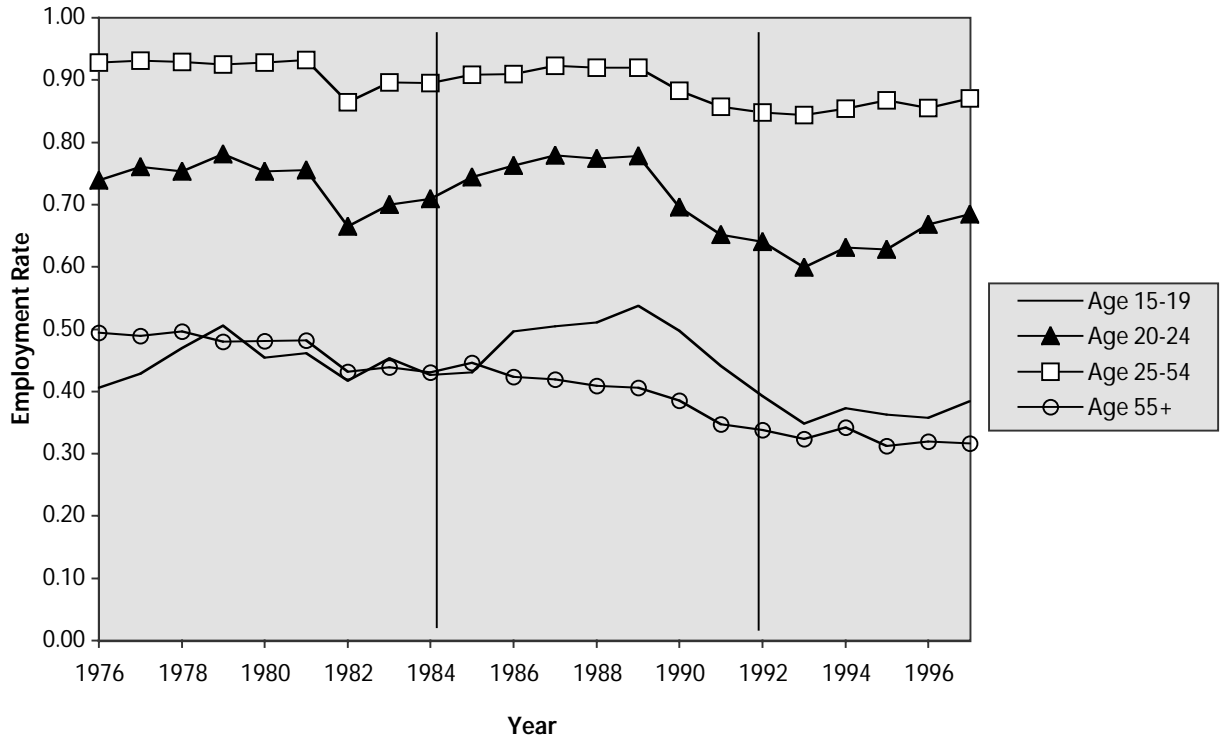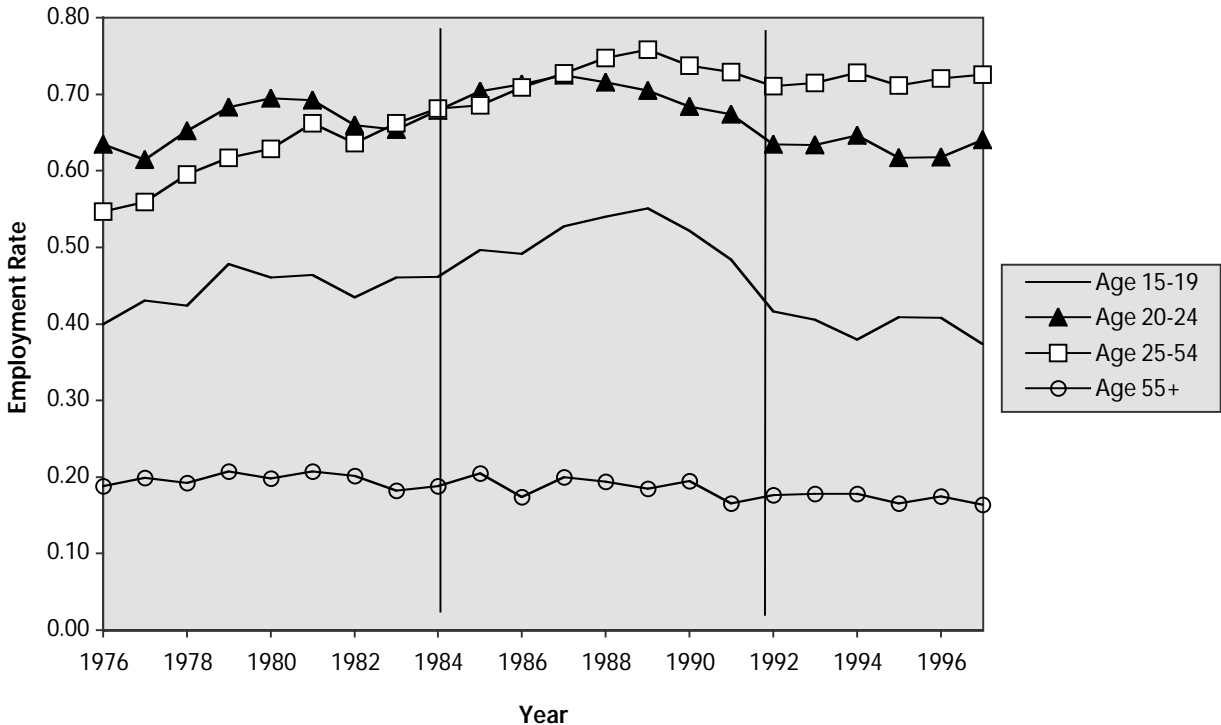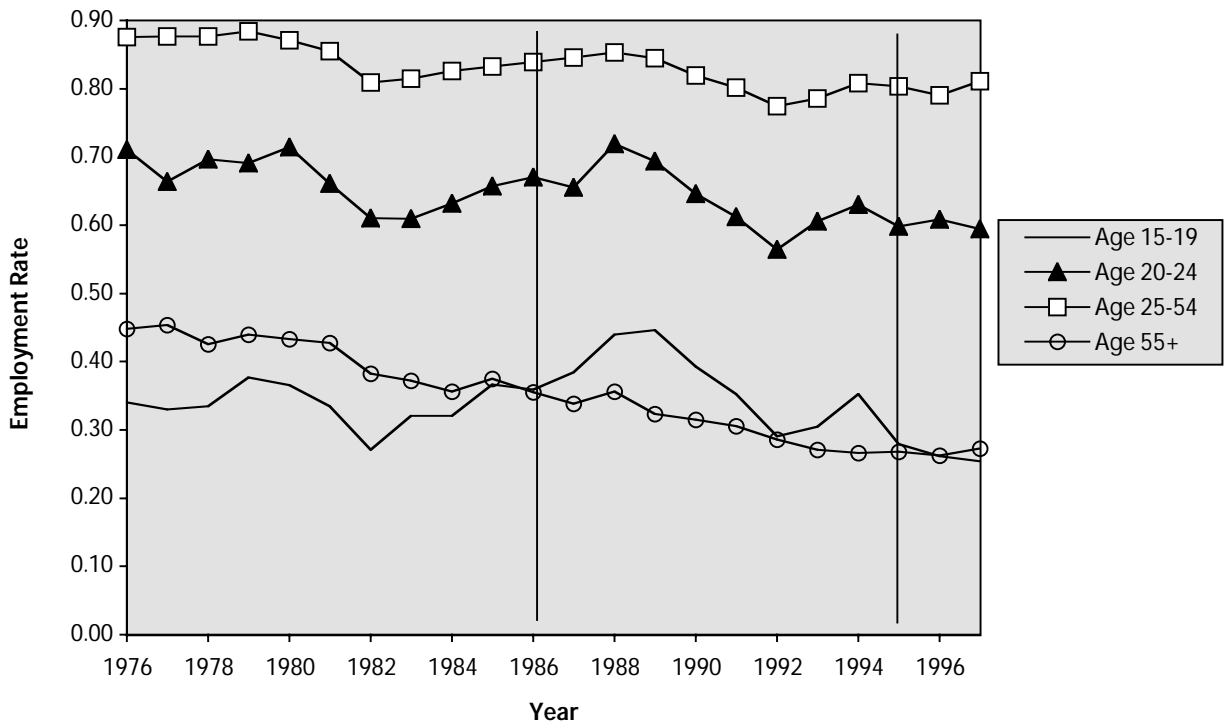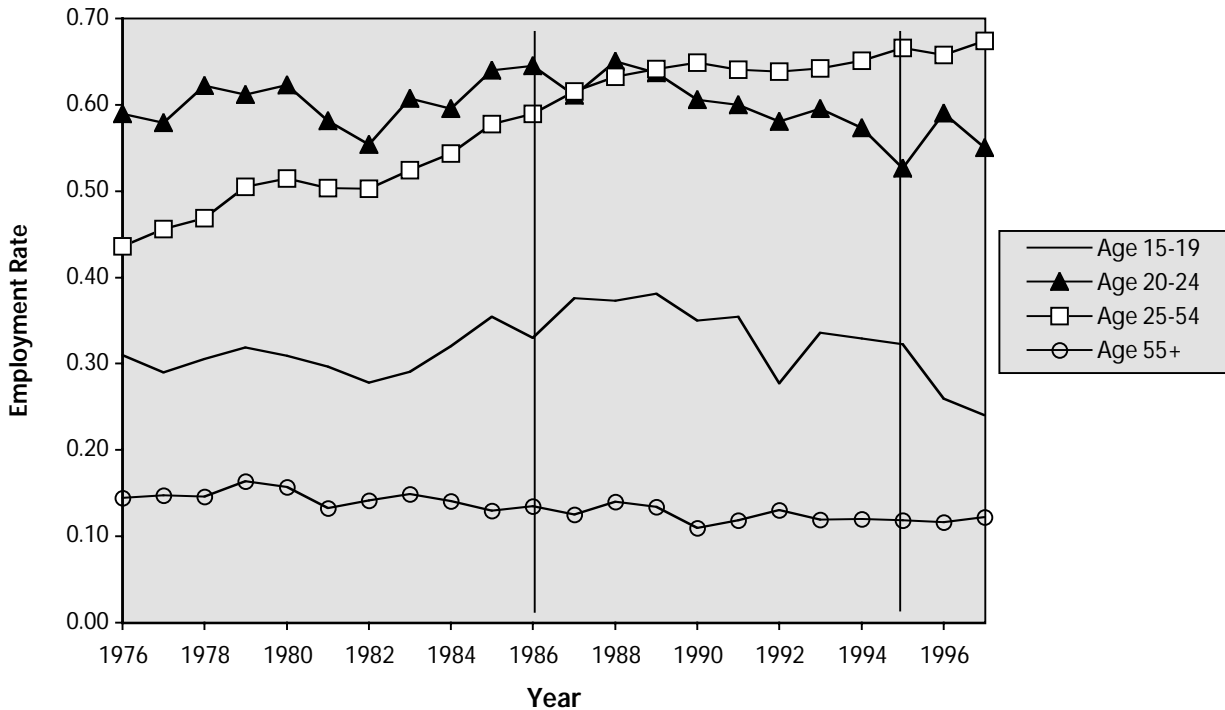We turn now to an econometric analysis of the impact of minimum wages on employment-to-population ratios. Our goal is to attempt to uncover any potential impact while controlling for the sort of trend and cyclical factors that make the previous figures somewhat difficult to analyze. If it were possible, what we would like to do is run an experiment in which we changed the minimum wage while not allowing any other conditions in the economy to change. Then any observed change in employment-to-population ratios following the minimum wage change could be attributed solely to the minimum wage. Since we cannot run such an experiment in the real world, we use statistical methods to "hold constant" other effects.

Specifically, regression methods compare the movement of a variable of interest called the dependent variable (the employment-to-population ratio, in this case) to movements in other variables called co-variates. By using the fact that the employment-to-population ratio is observed in different years and provinces, we can detect the individual impacts of each of the co-variates. We chose a regression specification suggested by Baker et. al. (forthcoming). They use a specification that is in broad accord with much of the rest of the literature estimating minimum wage effects.

The variables are intended to allow us to "hold constant" permanent differences between provinces, long-run trends in the labour force, economic growth, cyclical factors, and movements in labour supply. The minimum wage we use is the one represented in Figure 3 – the minimum wage divided by the average hourly wage. We argued above that this is the relevant measure for examining employment impacts. We also estimated all specifications presented here using the real minimum wage series presented in Figure 2 and, in each case, obtained smaller negative employment impacts.

More details on the regressions, including rationales for each of the variables included in the regressions, are provided in the technical appendix (Appendix 2). For our current purposes, it is sufficient to know that our estimates allow us to see the effects of changes in minimum wages on the employment-to-population ratio cleansed of confusing movements in economic growth and the business cycle.

We begin our investigation by looking at whether changes in minimum wages generate changes in employment. To do this, we regress changes in the employment-to-population ratio in each year for each province on changes in the co-variates. In running this regression, we pool data from all four provinces over the period 1976 to 1997, but run separate regressions by gender for the age groups: 15 to 19, 20 to 24, and 25 to 54. The results of the first set of regressions are presented in Table T1a and T1b in Appendix 2. As one would expect, the unemployment rate is statistically significant, and increases in the unemployment rate lead to decreases in the employment-to-population ratio.

Our main focus, however, is on the impact of changes in the minimum wage. For each age group of males, the estimated employment impact of increases in the minimum wage are negative, but very small, and statistically are only significantly different from zero for 20 to 24-year-old males. Increases in the minimum wage had a small, but positive effect for females 20 to 24 years of age, and a small negative effect for the other two age groups.

The results from the first regression analysis are consistent with other studies. In particular, studies looking for impacts just after minimum wage changes typically find very small negative or even positive impacts of minimum wage increases on employment (e.g., Card and Krueger, 1995). The results just mentioned support conclusions in Baker et al. that these immediate responses in Canada are negligible.

> **Studies looking for impacts just after minimum wage changes typically find very small negative or even positive impacts of minimum wage increases on employment.**

Baker et al. argue very convincingly, however, that estimated impacts of minimum wages on employment depend crucially on the time period over which one is looking for a reaction. It may take time for firms to respond fully to minimum wage changes. Estimating the impact of the minimum wage level on the level of the employment-to-population ratio (rather than changes in each) captures some longer-term impacts. In particular, it can capture permanently lower employment-to-population ratios that may take a while to be established after a minimum wage increase. Baker et al. argue that even longer-term impacts may be captured if one also includes the previous year's (lagged) minimum wage in the regression analysis. We turn now to results from estimates using minimum wage levels both without and with the lagged minimum wage.

As shown in Table T2a and T2b in Appendix 2, the unemployment rate variable has the anticipated effects on employment-to-population ratios. This suggests that the regression is performing as we might hope. Our main focus is on the minimum wage effects for each of the gender and age groups. As predicted from the Baker et al. findings, incorporating minimum wage levels rather than yearly changes leads to larger minimum wage impact estimates. For example, for 15 to 19-year-olds, the estimates imply that a 10% increase in the minimum wage creates a 1.4% decrease in the employment-to-population ratio for males and a 1.6% decrease for females. This is still not a large effect and statistically is not significantly different from zero.

The estimates for 20 to 24-year-olds and the 25 to 54-year group are even smaller. For males, the estimates imply that a 10% increase in the minimum wage would result in a 1% decrease in the employment-to-population ratio for 20 to 24-year-olds, and virtually no effect (-0.1%) for 25 to 54-year-olds. For females, there is a very slight positive effect for 20 to 24-year-olds (0.2%), and a small negative (-0.9%) effect for 24 to 54-year-olds. The findings provide a strong indication that there is only a marginal impact on employment with changes in the minimum wage.

A third regression analysis was undertaken using the lagged minimum wage level in an attempt to uncover possible longer-term effects. The results, however, were not different from those reported above.[16]

The regression results presented in the technical appendix are also useful in understanding the role that minimum wage variations have played in overall employment-to-population ratio movements. The findings show that, for the majority of minimum wage workers, the minimum wage effects are estimated to be not statistically significantly different from zero. It is, therefore, reasonable to conclude that minimum wage changes had limited impact on movements in employment-to-population ratios for these groups. For those groups where we find statistically significant disemployment effects from minimum wages increases (males 20 to 24 years old and females 25 to 54 years old), such increases have had a very small impact on the employment-to-population ratio (less than 1%). It should be noted, however, that a "disemployment effect" does not necessarily imply lay-offs. Rather "disemployment" in this context merely represents a decline in what the employment-to-population level might otherwise have been.

> Incorporating minimum wage levels rather than yearly changes leads to larger minimum wage impact estimates. However, our findings provide a strong indication that changes in the minimum wage produce only a marginal impact on employment.

To further elaborate on this point, we constructed two predicted employment-to-population ratio series from our estimates. For the first (minimum wage varying), we used actual British Columbia values for all the variables (co-variates) in our regression multiplied by our estimates of the effects of those variables on the employment-to-population ratio. This provides our best prediction of employment-to-population ratios in each year based on available data, including minimum wages.

For the second (minimum wage fixed), we repeat this exercise but hold the minimum wage constant at its 1976 value. Thus, this second series shows what we predict the employment-to-population ratio for females 25 to 54 years of age would have been had the minimum wage not changed. We selected this group because changes in the minimum wage were

statistically most significant for that group. We plot both of these series together in Figure 8.

The difference between the two lines corresponds to the impact on the employment-to-population ratio of the minimum wage varying relative to its value at the start of the period. In interpreting this graph, recall that our minimum wage measure is the ratio of the minimum wage to the average hourly wage. For BC, this ratio equalled 0.40 in 1976 and 0.43 in 1997. Thus, our estimates indicate that the employment-to-population ratio would have been 0.5% higher (i.e., 71.1% instead of 70.6%) if the minimum wage had been held at its relative (fixed) value from the beginning of the period.

Not only would the value of the employment-to-population ratio have been essentially unchanged at the end of the period if the 1976 ratio of the minimum wage to the average hourly wage (Figure 3) stayed the same, but changes in this ratio also explain little of the variation in the employment-to-population ratio during our data period. In fact, over 98% of the variation in our fitted series marked "minimum wage varying" are due to variation in co-variates other than the minimum wage. Variation in the mini-mum wage can explain only 2% of the observed variation in the employment-to-population ratio.

Impact on Total Wages

As mentioned above, estimates of the effects of minimum wage increases on employment are generally considered small when other economic factors are taken into consideration. Another way to evaluate the effect of the minimum wage is to consider whether an increase in the minimum wage leads to a net increase or decrease in the total wages (often called the wage bill) paid to minimum wage workers.

As pointed out in Benjamin (1997), if all workers worked for the minimum wage, then the wage bill (which simply equals the number of workers times the average wage) would be unchanged if a 1% increase in the minimum wage caused a 1% decline in employment. The average wage paid would rise by 1% but it would be exactly offset by the number re-

Figure 8: Fitted Employment-to-Population Ratio, Females Aged 25 to 54, British Columbia
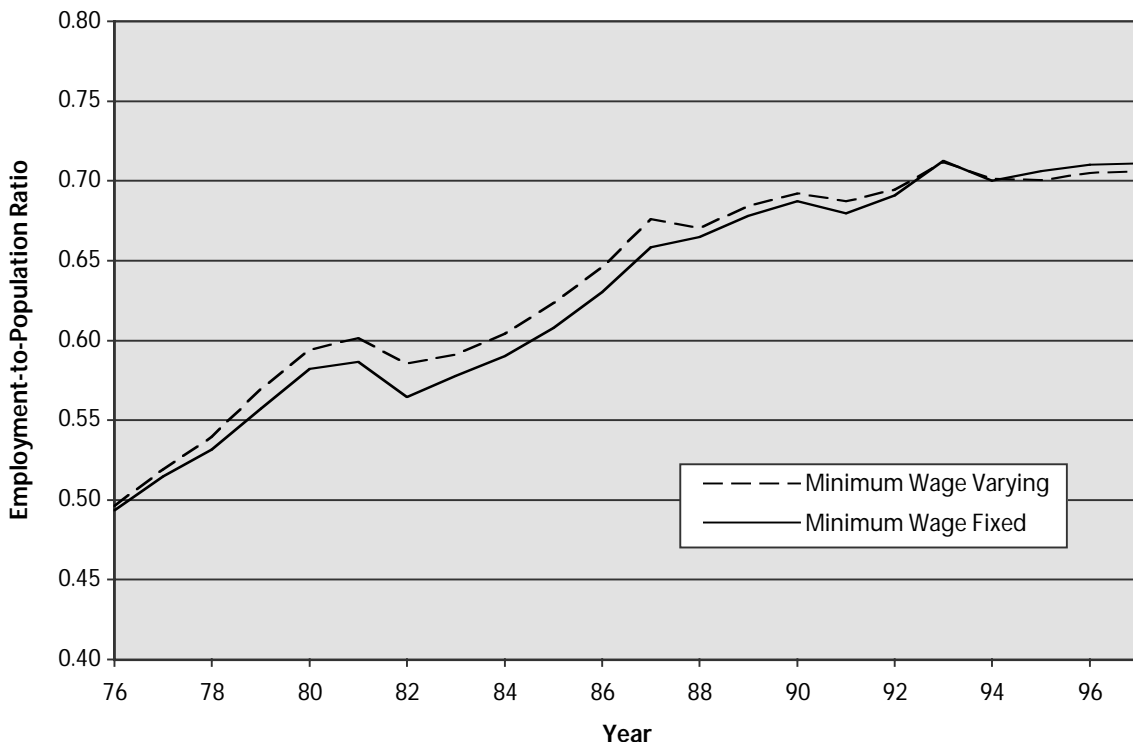
Sources: Authors' calculations using Statistics Canada data and sources listed in Figure 1.

ceiving the wage declining by 1%. Benjamin terms an estimate of the elasticity associated with a minimum wage change of 1.0 as the break-even elasticity in this case.

If the estimated coefficient is less than 1.0 (i.e., a 1% increase in the minimum wage leads to less then a 1% decrease in employment) the net result is an increase in the total wage bill. If the estimated elasticity is greater than 1.0, then employment losses more than offset wage gains.

Of course, all workers do not earn the minimum wage, so only a proportion of them are in a position to gain from a minimum wage increase. If, for example, only 50% of workers earn wages low enough to be affected by a minimum wage increase, then a 1% increase in the minimum wage would only increase the wage bill by 0.5%, even if no one was laid off as a result of the increase. In this case, the break-even elasticity would be 0.5.

To gain a more complete understanding of the impact of minimum wage increases on total wages paid to workers, we calculate the hourly wage bill (hourly wages times the number of workers) for a hypothetical firm with 100 workers in each of our age and gender categories. The calculated wage bills for males are presented in Table 5a and for females in Table 5b.

To create the table, we calculate the average wage for all workers in each of the gender/age groups, using the actual wage distribution for employees in the personnel service and accommodation and food service sectors in BC and Quebec, derived from 1994 SLID data.[17] We selected these two sectors because they have very high proportions of low-wage workers. The actual hourly average wage is the entry in the minimum wage equals $6/hour column.

To create the $7 column, we raise all individuals with wages below $7 up to $7. In order to test for the "worst case" possible, we only raise wages to $7, even for those who were close to $7 prior to the increase. For example, individuals earning $6.90 would only receive a 10-cent increase in their wages. Individuals earning $7 or more per hour also do not receive an increase. Green and Paarsch (1997) find that increases in minimum wages for teenagers lead to increases in wages for workers with wages up to $1 above the new minimum wage, as well as for those whose wages were formerly below the new minimum. Since our

Table 5a: Wage Bill Values for 100 Male Workers in Each Age Group

	Minimum Wage Values		Percentage Change
	$6/hour	$7/hour	
Teenagers (15-18 Year Olds)	$631	$709	12.4%
Young Adults (19-24 Year Olds)	$715	$736	2.9%
Adults (25 and older)	$783	$813	3.9%

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

Table 5b: Wage Bill Values for 100 Female Workers in Each Age Group

	Minimum Wage Values		Percentage Change
	$6/hour	$7/hour	
Teenagers (15-18 Year Olds)	$659	$720	9.2%
Young Adults (19-24 Year Olds)	$641	$715	11.5%
Adults (25 and older)	$750	$782	4.3%

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

calculations assume no change in wages for workers with wages above the new minimum, our estimates are the most conservative estimates for increases in the wage bill.

In addition, we "lay off" some workers. Assuming all other factors in the economy remain the same, we calculate the number of workers who would be "laid off" from a firm, given the estimated disemployment effects from our regression analysis (Tables T2a and T2b). The number of workers "laid off" in each gender and age group is derived from the formula: 100 (number of workers in the group) x 16.7% (the increase in the minimum wage from $6 to $7/hour) x the coefficient in the regression formula in Tables T2a and T2b.[18]

> **Using very conservative assumptions, an increase in the minimum wage from $6 to $7 was estimated to generate a 7% increase in the total wages paid to low-wage workers.**

We have "rounded-up" the number "laid off," in the case of teenaged males to three persons, in order to be consistent with our "worst case" analysis. The number of workers "laid off" included three male and female teenager workers, and two young adult male and two adult female workers. We did not "lay off" any adult males or young adult females because the coefficient from our estimated disemployment effects for these groups was close to zero.

The results in Tables 5a and 5b show that the increase in the minimum wage from the 1994 level of $6 to the 1995 level of $7 generated increases in the wage bill for all categories of workers. On average, the 16.7% increase in the minimum wage would generate a 7% increase in the overall wage bill using very conservative estimations. Overall, the results of this exercise point to increases in the minimum wage generating increases in the total amount of money paid to low-wage workers in each age group, ranging from a 2.9% increase for young adult males to an 11.5% increase for young adult females and a 12.4% increase for teenage males. However, while the net wage bill appears to increase, there are a few people who will lose their jobs who need to be helped. The minimum wage thus needs to be seen as part of a package of income redistribution, job creation, and social policies.

The overall conclusion of our examination of the descriptive statistics and several regression specifications can be stated in four parts. First, the immediate impact of a change in the minimum wage in terms of changes in employment is small for all gender and age groups. Second, the longer- term impacts captured in the regressions in minimum wage levels rather than yearly changes are negative, but are only statistically significant for males 20 to 24 and females 25 to 54 and are not statistically significantly different from zero for the other gender and age groups. Our results support those in the literature on impacts of minimum wages, namely that a 10% increase in the minimum wage produces declines in the employment-to-population ratio in the range of 1% to 3%. This is generally interpreted as a small disemployment effect.

Third, with small impacts of minimum wages on employment-to-population ratios, it is reasonable to argue that other factors play a much larger role in determining levels and trends in employment. Attempts to place a major portion of current economic woes in British Columbia at the feet of the minimum wage are simply misguided. So, too, are claims that minimum wage cuts will lead to large jumps in employment. And fourth, our analysis shows that an increase in minimum wages generates an increase in the total amount of money (the wage bill) going to low-wage workers.

Setting the Minimum Wage

NEXT WE DISCUSSES POSSIBLE CRITERIA FOR setting the minimum wage. We also discuss other related income and social policy issues that need to be considered to complement the anti-poverty objectives of minimum wages.

Having criteria to set and increase the minimum wage has both economic and social advantages. The criteria would create conditions where both workers and firms know what the rules are and when an increase can be expected. Having criteria would, therefore, create a more stable planning environment. Once minimum wages were set, then a material change in the criteria would lead to a change in the minimum wage. This would lead to more orderly adjustments compared to the erratic peaks and valleys in the changes in the real value of the minimum wage, as shown in Figure 2.

One option for setting the minimum wage is to peg it, for example, at 50% of the average hourly wage. The average hourly wage in 1997 in BC was $16.28. The minimum wage, using this option, would be $8.14 per hour. This option would also convey to minimum wage workers that their labour is valued through a wage that is a reasonably just floor given the rest of the hourly wage distribution. It should be noted that this is lower than what would be established if the criteria were similar to the European Decency Threshold (Bell and Wright; 1996).[19]

While using a ratio is a useful mechanism for setting the minimum wage when the wages of hourly workers are similar to those of salaried workers, it could lead to a deteriorating situation when hourly-wage workers fall behind salaried workers. In such circumstances, pegging the minimum wage to the average hourly wage will exacerbate inequality trends.

A second option is to peg the minimum wage to the Statistics Canada Low Income Cut Off (LICO). Table 6 identifies what the minimum wage would need to have been in 1997 to meet various poverty thresholds.[20]

> **Having criteria to set and increase the minimum wage has both economic and social advantages. The criteria would create conditions where both workers and firms know what the rules are and when an increase can be expected.**

The current minimum wage would need to increase to $8/hour if it were to meet the current estimated poverty line for a single person. (Inflating the 1997 poverty line by 2% to account for inflation would generate a minimum wage of $8/hour based on a 40-hour week, and a minimum wage of $9.15 based on a 35-hour week, for a single person.)

Table 6:   Minimum Wage at the LICO (1997 Poverty Line)

	Single Person	Single Parent One Child
LICO	$16,320/yr	$22,121/yr
At 40 hours/week	$7.85/hr	$10.64/hr
At 35 hours/week	$8.97/hr	$12.15/hr

Setting a minimum wage at the poverty level for a single person, however, would not enable the minimum wage to meet anti-poverty objectives for many families. We do not believe that the minimum wage is the appropriate tool on its own to address the income security needs of families with children. We would, however, agree with Freeman (1996), that minimum wages are an important component, when used in conjunction with other income and social security policies, in meeting anti-poverty objectives. For example, minimum wage increases in conjunction with increases in refundable child tax credits could reduce the poverty gap for families.

> **The current minimum wage would need to increase to $8.00/hour if it were to meet the current estimated poverty line for a single person.**

> **Minimum wage increases in conjunction with increases in refundable child tax credits could reduce the poverty gap for families. Setting the minimum wage to the poverty line would convey a standard that ensures no worker is exploited when selling his or her labour.**

While it is beyond the scope of this study to discuss in detail the efficacy of these other components, we want to briefly discuss four related components we believe are critical.

Setting the minimum wage to the poverty line would convey a standard that ensures no worker is exploited when selling his or her labour. This would be in keeping with the historic reasons for placing constraints on the labour market. At the same time, such criteria cannot ensure that there are sufficient hours of employment, or that employment is available throughout the year. Our analysis of the SLID data also reveals that the usual hours of work varied between all workers and minimum wage workers (see Table 7).

Increasing the minimum standard of the number of hours a worker must be paid when called out to work is an important complementary component to the minimum wage. BC increased this minimum from two to four hours in 1995, and other provinces should consider increasing the minimum call-out within their employment standards legislation and regulations.[21]

Earlier in the report we commented that, while most minimum wage workers would benefit from an increase in minimum wages, a few may be laid off as firms adjust technologies following an increase. In this regard, other policies such as unemployment insurance need to be in place to help redistribute income towards those facing the direct costs of such a change. A recent report prepared by Human Resources Development Canada shows that changes in the UI system introduced in 1996 have had perverse effects on young workers and women, who tend to be in more irregular and part-time jobs. The number of people under 25 who collected UI benefits fell by 27%, larger than the drop for those over 25. The number of women fell by 20%, larger than the drop for men.[22]

Government can also mitigate the small negative employment losses for teenagers by expanding their job creation programs for youth. To some extent, this has been addressed in BC through the Youth Options Program, but such initiatives should be expanded.

The high marginal claw-back rates in various income support programs are another example of the interconnectedness of various policy instruments used to address income adequacy. These claw-back rates are particularly high for people on provincial income assistance. As the National Council of Welfare reported, people on income assistance in most provinces lose $75 from their income assistance if they earn $100, an effective marginal tax rate of 75%. Such high claw-backs may serve to undermine the value and attractiveness of paid employment, particularly part-time and minimum wage employment.

Table 7: Usual Hours of Work per Week

	Females	Males	All
All Workers	32.3	41.2	37.2
Minimum Wage Workers	24.1	23.4	24.0

Source: Authors' calculations using Survey of Labour and Income Dynamics, 1994.

Raising the Floor

THE FINDINGS OF THIS STUDY CONFIRM THOSE of most other minimum wage studies. As shown, the disemployment effects of increases in minimum wages are small and only reached statistically significant levels for male young adults and female adults. Attempts to portray the minimum wage as a great job slayer are simply not warranted.

The findings also show that increases in minimum wages lead to an overall increase in the net amount paid to low-wage earners (the wage bill) and that these increases go disproportionately to those in low-income families.

The findings also show that, contrary to popular misconceptions, the majority of minimum wage workers are not teenagers. The majority of minimum wage workers are women (64%) and are 19 years or older (61%).

Based on our analysis, we conclude that the minimum wage is a useful tool. The current minimum wage does provide some income redistribution, but not enough. Setting the minimum wage should focus on meeting standards where, in a just society, individuals working full-time, full-year, would not find themselves in poverty. At the same time, it is recognized that increases in minimum wages do not help individuals without a job.

We believe that it is more useful to see minimum wages as one of a set of tools, complementary to others in the battle against poverty and excessive inequality. The results of this study indicate that minimum wages can play a useful role in that battle. Minimum wages, in conjunction with other employment standards, are one policy instrument for raising the floor for low-income earners. Minimum wages that are set to meet or exceed Statistics Canada's Low Income Cut Off can help ensure that all workers receive at least a fair and just wage for their labour.

We therefore recommend that the minimum wage in BC be increased to $8 per hour immediately, with planned increases to bring the minimum wage to the Statistics Canada's Low Income Cut Off based on a 35-hour work week (estimated to be $9.15 per hour).

We further recommend that the other three provinces examined in this study adopt the Statistic Canada Low Income Cut Off as the criteria for establishing and updating their minimum wage.

> **We recommend that the minimum wage in BC be increased to $8.00 per hour immediately, with planned increases to bring the minimum wage to the Statistics Canada's Low Income Cut Off based on a 35-hour work week (estimated to be $9.15 per hour). We further recommend that the other three provinces examined in this study adopt the LICO as the criteria for establishing and updating their minimum wage.**

Notes

[1] Comparisons with neighbouring U.S. jurisdictions were considered beyond the scope of this study because of their differing macroeconomic environments and labour legislation. Further information comparing overall minimum wages between Canada and the U.S. can be found in Benjamin (1995).

[2] Benjamin, 1995; Guest, 1997.

[3] Guest.

[4] Guest, p 114.

[5] Editorial, *Vancouver Sun.* April 29,1999.

[6] The small sample size for minimum wage-earners precludes supplying reliable comparisons between the provinces. All calculations use sample weights provided by SLID.

[7] The percentage of minimum wage-earners would be larger if all individuals earning minimum wage at any time during the year were counted.

[8] There were an estimated 48,548 minimum wage workers in BC in 1994. This number of workers has probably increased given changes in the labour market in BC over the past four years.

[9] In the following tables, totals may not always equal 100% due to rounding.

[10] As measured by the Statistics Canada's Low Income Cut Off line.

[11] Statistics Canada, cited in Pulkingham and Ternowetsky, forthcoming.

[12] In keeping with the literature and in order to make our results more comparable with actual changes in minimum wages, we report the percent change in employment caused by a 10% increase in the minimum wage in the rest of the report.

[13] BC increased its minimum wage in 1998 to $7.15 per hour. Alberta increased its minimum wage to $5.50 in 1998 and has announced that it will raise its minimum wage to $5.90 by October, 1999.

[14] The LICO measure is for a large urban area.

[15] Beaudry and Green, 1997.

[16] Copies of the tables on this regression analysis are available from the authors on request.

[17] Quebec was used along with BC to increase sample sizes in obtaining the wage distributions. Quebec was chosen because it had the same minimum wage as BC in 1994 ($6 per hour).

[18] For example, for teenaged males, the formula would be: 100 x .167 x .14 = 2.34.

[19] "The European Decency Threshold definition is 68% of average gross earnings and is the value that the European Social Charter defines as: 'the fair remuneration needed to achieve a decent standard of living...taking account of economic, social and cultural needs'." Bell and Wright, p. 650.

[20] The LICO is a measure of gross income. The poverty lines used here are for a large urban area.

[21] Alberta, Ontario and Quebec currently have a three-hour minimum when an employee is called to work.

[22] Greenspoon, 1999.

Additional Tables

The following tables provide additional information we used in constructing the profile of minimum and low-waged workers. The column totals may not always equal 100% due to rounding. All of the tables are the authors' calculations using the Survey of Labour and Income Dynamics, 1994.

Table A1: Percentage of Minimum Wage Workers by Age Group (Wage Within $.25 of the Minimum)

	Females		Males		All	
	#	%	#	%	#	%
Teenage	47,009	32%	41,356	51%	88,365	39%
Young Adult	55,248	38%	23,461	29%	78,709	34%
Adult	44,492	30%	16,979	21%	61,471	27%
TOTAL	146,749	100%	81,796	100%	228,545	100%

Table A2: Percentage of Low Wage Workers by Age Group (Wages Up to $7/hour)

	Females		Males		All	
	#	%	#	%	#	%
Teenage	69,996	20%	58,692	28%	128,688	23%
Young Adult	117,955	34%	70,754	34%	188,709	34%
Adult	163,489	47%	77,911	38%	241,400	43%
TOTAL	351,440	100%	207,357	100%	558,797	100%

Table A3: Percentage of Low Wage Workers by Highest Level of Education (Wages Up to $7/hour)

	Females	Males	All
Less than High School Graduate	27%	34%	30%
High School Graduate	18%	14%	16%
Some Post Secondary	27%	30%	29%
Post Secondary Certificate	23%	15%	20%
University Degree	4%	6%	4%
TOTAL	100%	100%	100%

Table A4: Percentage of Low Wage Workers by Family Situation (Wages Up to $7/hour)

	Females	Males	All
Teenager (Age 15 to 18)			
Live Alone	1%	0%	0%
Live With Parents	18%	24%	20%
Other (not defined)	1%	4%	2%
Young Adult (Age 19 to 24)			
Live Alone	4%	4%	4%
Live With Parents	19%	21%	20%
Married or Lone Parent	3%	4%	3%
Other (not defined)	7%	5%	6%
Adults (Age 25 and over)			
Live Alone	4%	9%	6%
Married	34%	19%	28%
Lone Parent	4%	0%	2%
Other (not defined)	6%	10%	8%
TOTAL	100%	100%	100%

Table A5: Proportion of Low Wage Workers by Family Employment Income Group (Wages Up to $7/hour)

	Female	Male	All
Less than 5th Percentile	12%	12%	12%
Less than 10th	21%	24%	20%
Less than 25th	36%	39%	37%

Table A6: Percentage of Low Wage Workers by Age Group (Wages Up to $8/hour)

	Females		Males		All	
	#	%	#	%	#	%
Teenage	78,341	15%	70,682	21%	149,023	18%
Young Adult	163,833	32%	112,797	33%	276,630	33%
Adult	266,064	52%	156,009	46%	422,073	50%
TOTAL	508,238	100%	339,488	100%	847,726	100%

Table A7: Percentage of Low Wage Workers by Highest Level of Education (Wages Up to $8/hour)

	Females	Males	All
Less than High School Graduate	25%	34%	29%
High School Graduate	19%	13%	17%
Some Post Secondary	24%	28%	26%
Post Secondary Certificate	27%	18%	23%
University Degree	5%	6%	5%
TOTAL	100%	100%	100%

Table A8: Percentage of Low Wage Workers by Family Situation (Wages Up to $8/hour)

	Females	Males	All
Teenager (Age 15 to 18)			
Live Alone	0%	1%	0%
Live With Parents	14%	17%	15%
Other (not defined)	1%	4%	2%
Young Adult (Age 19 to 24)			
Live Alone	4%	4%	4%
Live With Parents	18%	19%	19%
Married or Lone Parent	3%	4%	4%
Other (not defined)	7%	5%	6%
Adults (Age 25 and over)			
Live Alone	5%	14%	8%
Married	38%	23%	32%
Lone Parent	5%	0%	3%
Other (not defined)	5%	9%	7%
TOTAL	100%	100%	100%

Table A9: Proportion of Low Wage Workers by Family Employment Income Group (Wages Up to $8/hour)

	Female	Male	All
Less than 5th Percentile	11%	14%	12%
Less than 10th	21%	20%	21%
Less than 25th	36%	39%	38%

Technical Specifications

Our regression analysis uses a specification, in broad accord with much of the rest of the literature estimating minimum wage effects, that includes:

1) dummy variables corresponding to each province,

2) a time trend and the time trend squared,

3) real province-specific GDP,

4) the unemployment rate for males age 25 to 54,

5) a variable equalling the ratio of the population of the specific age group relative to the total population age 15 and over, and

6) the minimum wage variable itself.

The dependent variable and the last four co-variates are all measured in logarithms. The province-specific dummy variables are included to control for permanent differences across provinces. Thus, if Ontario and Alberta differ in the structure of their economies and labour markets in ways leading to differing employment-to-population ratios, we do not want to attribute all of those differences to differences in the levels of the minimum wages in the two provinces.

Similarly, we do not want to attribute broad overall trends that are common across the Canadian economy, such as increases in school enrolment in recent years, to broad movements in the minimum wage such as the common pattern of decreasing then increasing real minimum wages in the four provinces. To control for these common trends, we include the trend and trend-squared variables. Including these trend variables is in keeping with most other studies on the employment effects of the minimum wage, and is done in part to ensure ease of comparison to other studies. Baker et al. find that inclusion of trend variables changes the magnitude of estimated employment effects from minimum wages very little.

We also want to control for cyclical movements in the economy to ensure that employment-to-population ratio changes responding to the cycle are not accidentally attributed to the minimum wage. To do this, we use both real provincial GDP and the prime-age male unemployment rate. The latter is a standard measure of the cycle, where the rationale is that focusing on unemployment movements of prime-age males entails using a demographic group with a strong commitment to the labour market.

Such a strong commitment means that movements in their unemployment rate likely reflect basic movements in economic activity rather than reflecting, for example, compositional changes as individuals move in and out of the labour market. In contrast, unemployment rates for women and young people are generally not used because long-term trends in movements in and out of the labour market may cause changes in the unemployment rate for reasons unrelated to the cycle.

Finally, as Brown et al. point out, minimum wage changes will not directly affect all workers. Some workers are in a sub-market in the labour market where their wage, before a minimum wage change, is below the new minimum wage. In that case, increases in the minimum wage will entail a movement up the demand curve and supply side considerations are not relevant for establishing employment levels. However, other workers operate in labour markets where the market-clearing wage is above both the old and the new minimum wage. For them, a minimum wage increase will not directly alter their wage or their employment level.

Nonetheless, we might observe changes in the employment levels of those working above minimum wage occurring at the same time as a minimum wage change by pure chance if labour supply shifts occur at the same time as the minimum wage change. To control for this possibility, we include the relative size of the age group's population. Again, this is standard in the literature, and Baker et al. do not find substantive effects on their minimum-wage-effect estimates from including these types of supply side variables.

Tables T1a and T1b contain the results from the regression for males and females of changes in the employment-to-population ratio on changes in all the co-variates. Because the provincial dummy vari-

ables and the constant intercept do not change over time, they are dropped from the regression. (Note that there will still be an intercept in the regression because the change in the time trend is equal to one in all years.) As is often the case with regressions run on differences, several estimated effects are not statistically significantly different from zero.

Table T1a: Regressions of Changes in Employment-to-Population Ratios on Changes in Co-variates: Males

VARIABLE	AGE 15–19	AGE 20–24	AGE 25–54
CONSTANT	0.020 (0.03)	-0.026 (0.016)	0.001 (0.002)
TIME SQUARED	-0.0016 (0.001)	0.0005 (0.0006)	-0.0001 (0.0001)
GDP	0.028 (0.018)	0.027 (0.012)	0.002 (0.002)
UNEMPLOYMENT RATE	–2.52 (0.62)*	-1.29 (0.41)*	-1.19 (0.05)*
RELATIVE POPULATION	0.89 (5.15)	-0.14 (2.16)	-0.41 (0.27)
MINIMUM WAGE	-0.12 (0.19)	-0.24 (0.13)†	-0.009 (0.016)
# OBSERVATIONS	84	84	84
R-SQUARED	0.30	0.25	0.91

* Statistically significantly different from zero at the 5% level of significance.

† Statistically significantly different from zero at the 10% level of significance.

( ) Standard errors.

Table T1b: Regressions of Changes in Employment-to-Population Ratios on Changes in Co-variates: Females

VARIABLE	AGE 15–19	AGE 20–24	AGE 25–54
CONSTANT	0.060 (0.04)	0.031 (0.015)*	0.03 (0.022)
TIME SQUARED	-0.003 (0.001)	-0.001 (0.0006)*	-0.001 (0.0003)*
GDP	0.014 (0.018)	0.001 (0.012)	0.007 (0.005)
UNEMPLOYMENT RATE	–2.39 (0.65)*	-0.62 (0.38)†	-0.57 (0.18)*
RELATIVE POPULATION	1.15 (5.45)	-0.63 (2.42)	0.10 (0.74)
MINIMUM WAGE	-0.025 (0.20)	0.17 (0.12)	-0.03 (0.06)
# OBSERVATIONS	84	84	84
R-SQUARED	0.26	0.06	0.27

* Statistically significantly different from zero at the 5% level of significance.

† Statistically significantly different from zero at the 10% level of significance.

( ) Standard errors.

Table T2a: Regressions: Time Series of Employment-to-Population Ratios on Time Series of Co-variates: Males

VARIABLES	AGE 15–19	AGE 20–24	AGE 25–54
CONSTANT	-0.59 (0.41)	-0.36 (0.11)*	0.01 (0.05)
QUEBEC	0.02 (0.06)	0.05 (0.04)	-0.03 (0.01)*
ALBERTA	0.33 (0.10)*	0.11 (0.06)†	0.0004 (0.008)
BC	0.23 (0.10)*	0.09 (0.05)†	-0.01 (0.01)
TREND	0.02 (0.02)	0.004 (0.004)	0.001 (0.001)
TREND SQUARED	–0.001 (0.0005)*	–0.0003 (0.0002)†	-0.0001 (0.00002)
GDP	0.01 (0.005)*	0.003 (0.003)	-0.003 (0.01)
UNEMPLOYMENT RATE	–4.26 (0.44)*	–2.72 (0.24)*	–1.31 (0.04)*
RELATIVE POPULATION	–3.41 (2.26)	0.03 (0.64)	-0.08 (0.09)
MINIMUM WAGE	–0.14 (0.10)	–0.096 (0.06)†	–0.01 (0.01)
# OBSERVATIONS	88	88	88
R-SQUARED	.88	.82	.98

* Statistically significantly different from zero at the 5% level of significance.

† Statistically significantly different from zero at the 10% level of significance.

( ) Standard errors. Standard errors are corrected to account for first order autocorrelation.

Table T2b: Regressions: Time Series of Employment-to- Population Ratios on Time Series of Co-variates: Females

VARIABLES	AGE 15–19	AGE 20–24	AGE 25–54
CONSTANT	-0.92 (0.44)*	-0.31 (0.11)*	-0.34 (0.21)
QUEBEC	-0.15 (0.07)*	-0.10 (0.03)*	-0.16 (0.02)*
ALBERTA	0.16 (0.10)	-0.03 (0.06)	-0.08 (0.04)*
BC	0.13 (0.10)	-0.07 (0.05)	-0.14 (0.04)*
TREND	0.05 (0.02)*	0.03 (0.004)*	0.04 (0.004)*
TREND SQUARED	–0.002 (0.0005)*	–0.001 (0.0001)†	-0.004 (0.00002)*
GDP	0.006 (0.005)	-0.003 (0.003)	-0.004 (0.002)†
UNEMPLOYMENT RATE	–3.56 (0.46)*	–1.46 (0.23)*	–1.01 (0.16)*
RELATIVE POPULATION	–1.46 (2.49)	-0.26 (0.72)	-0.56 (0.34)†
MINIMUM WAGE	–0.16 (0.11)	0.02 (0.05)	–0.09 (0.04)*
# OBSERVATIONS	88	88	88
R-SQUARED	.86	.72	.96

* Statistically significantly different from zero at the 5% level of significance.

† Statistically significantly different from zero at the 10% level of significance.

( ) Standard errors. Standard errors are corrected to account for first order autocorrelation.

Tables T2a and T2b contain results from the time series regression of the employment-to-population ratio on the co-variates described above. Many of the variables are statistically significantly different from zero at either the 5% or 10% level of significance. Notice that Quebec, for example, has statistically significantly different employment-to-population ratio levels for females (lower) relative to the base province (Ontario). On the other hand, both Alberta and BC have higher employment-to-population ratios for males compared to Ontario, and the trends in the two western provinces are quite similar to one another. These represent differences in the average level of the employment-to-population ratio over the whole sample period and are likely the outcome of many factors, including the nature of the educational system and the industrial make-up of employment.

If we did not include the province-specific dummy variables, we might attribute some of these permanent differences to different average minimum wage levels across the provinces. While minimum wages may play some role in the permanent employment level differences, it would be misleading to attribute all of those differences to the minimum wage. Instead, by including the province-specific dummy variables, we identify the impact of minimum wages by focusing on the effects of movements in minimum wages within provinces.

Apart from the province variables, other co-variates also have statistically significant impacts on the employment-to-population ratio. As expected, increases in the unemployment rate have negative effects. While the unemployment rate is statistically significant for all age and gender groups, the negative coefficient decreases for older groups. This, in part, reflects the greater variability in the employment-to-population ratio of 15 to 19-year-olds. Note, for example, the larger impact of a change in the unemployment rate on 15 to 19-year-olds than on other groups – a fact that fits with the larger downturn in the teenage employment-to-population ratio during recessions, as seen in Figures 4 to 7 in the text.

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