Student/Youth Minimum Wages and Teen Employment in Canada[*]

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Abstract

There has been renewed public policy interest in minimum wage laws, living wages and income inequality over the past few years. Several provinces proposed or implemented minimum wage increases recently to support low-income workers and reduce poverty. However, such laws also create employment disincentive effects, worsening labour market prospects of inexperienced and low-skill workers including teens entering the market for the first time. This issue has historically been addressed by setting a lower minimum wage for students/youths, but such policies were largely abandoned during the 1980s and 1990s across Canada. As a result, employers were required to pay a notably higher minimum wage to these workers in accordance with general minimum wage policies in effect at the time. Against this background, the goal of this study is to investigate the effects of setting distinct student/youth minimum wages on teens' labour market outcomes. Specifically, we exploit the staggered timing of reforms across provinces to estimate the effects of these policies on employment rates and hours worked of 16 and 17 year olds using difference-in-differences, triple-difference and event study designs. We find that the reforms reduced summer employment by 3 to 5 percentage points and hours worked by 7 to 10 percent. However, no comparable effect is observed in the winter, the decline in summer hours worked gradually recovers after a few years, and the effects are most pronounced in selected industries. Taken together, the findings suggest that the main channel through which employers respond to rising labour costs for teens over the long term is by adjusting their seasonal labour demand.

Keywords: Teen Employment; Minimum Wages; Difference-in-Differences; Event Study.

JEL Codes: J08, J23, J31, J38.

1 Introduction

Employment opportunities for teens are important for many reasons. Working a part-time job helps teens develop non-cognitive skills, such as teamwork and time-management (Sum et al., 2014). In addition, early experience in the workforce can ease the transition of young people from school to the labour force, as high school students can develop relationships with employers and refine their work preferences (Hazel and Saunders, 2018). The earnings that teens receive from working is often an important source of funds for their postsecondary education (Marshall, 2010).

However, teens are less likely to work in today's labour market than in the past. For example, the employment rate among teens aged 16 to 19 fell from 45 to 26 percent from 2000 to 2011 (Sum et al., 2014). Youth unemployment was 2.4 times greater than the unemployment rate for all Canadian workers aged 25 to 54 in 2012, which was the widest this gap had been between the two age groups since 1977 (Bernard, 2013). There are several reasons why teen employment has declined. Young workers likely disproportionately bore the adverse effects of the past few major recessions (Bergevin, 2013). Since older workers are remaining employed for longer through part-time work and phased retirement than in the past, this reduces employee turnover and the demand for new workers (Hazel and Saunders, 2018). Weak employment opportunities and a shift towards the knowledge-based economy has also incentivized young people to remain in school for longer, thereby decreasing the teen participation rate (Ip, 1998).

Minimum wage laws discourage firms from hiring teens with little work experience, since a higher wage induces firms to substitute away from inexperienced labour towards either more capital-intensive inputs or towards more productive/experienced labour (Brouillette et al., 2017). For example, Ip (1998) finds rising payroll taxes and increases in minimum wages during the 1990s priced many teens out of a job following the 1990–91 recession. However, minimum wages may play an important role in combatting poverty and establishing fair/living wages. Thus, to counteract this employment disincentive on teens, all Canadian provinces have at some point in their history permitted lower ("subminimum") wage rates to be paid to young workers under the age of 17 (Shannon, 2011). Except for Ontario, all of the provinces abolished their student/youth minimum wage rates during the 1980s and 1990s in favour of a uniform rate

that does not depend on the worker's age. Ontario significantly lowered its subminimum wage around the same time. The impacts of these reforms on the labour market outcomes of students/youths are not fully understood, and are the focus of this study.

Specifically, we assess the effects of the reforms on employment and hours worked of teens. To this end, we construct a dataset of student/youth minimum wage rates by province that has a monthly granularity by thoroughly reviewing provincial government reports and archives of news articles from 1976 to 2019 and corresponding with various provincial government officials. We then take this dataset to the master files of Statistics Canada's Labour Force Surveys to estimate the effects of interest. The analysis exploits the staggered timing of the reforms across provinces to credibly identify the effects of interest using difference-in-differences (DD), triple-difference (DDD) and event study designs. These estimators allow us to directly evaluate the common-trends assumption that underpins the DD/DDD approaches, as well as to control flexibly or non-parametrically for province-specific shocks that may otherwise confound the estimated treatment effects.

The results of this analysis indicate that replacing the student/youth minimum wage rates with the higher adult minimum wage rate reduced employment and hours worked among teens aged 16 to 17 during the summer. Specifically, the employment rate decreased by about 3 to 5 percentage points and hours worked decreased by about 7 to 10 percent, depending on the exact model specification. The results hold after controlling for observed and unobserved factors that vary across provinces and over time. These findings are qualitatively similar to those first observed by Shannon (2011) who uses the public-use micro data (PUMF) version of the same files to estimate the impacts of these reforms. Because Shannon's results were shown to be somewhat non-robust to controlling for pre-trends, perhaps due to limitations of using the PUMF files as we discuss later, our findings serve as a useful replication/verification exercise. We also show that the reforms had different short-run versus long-run effects. More precisely, the impact on employment appears to persist over time whereas the drop in hours worked is a short-run phenomenon but recovers within several years of the reforms. The effects are also the largest for workers in retail trade and food and accommodations industries, which employ the largest shares of teens, as well as for students. The

fact that students were disproportionately impacted likely occurred because some provinces permitted employers to pay subminimum wages to teens only if they were students.

In contrast, we do not observe any effect of the reforms on employment during the winter. Since many teens acquire their first jobs during the summer when school is out of session, this finding likely indicates that student/youth minimum wage rates entice employers to hire more when there is a seasonal excess supply of first-time job seekers.

Minimum wages and the separate treatment of student/youths have received considerable attention in provincial policy discourse over the past few years. For example, in May, 2017, the former Premier Kathleen Wynne of the Ontario Liberal Party announced minimum wage hikes from $11.60 to $14.00 in January, 2018, and to $15.00 in January, 2019 (Mojtehedzadeh and Benzie, 2017). The second increase was halted by the incumbent Premier Doug Ford of the Progressive Conservative Party following his election on June 7, 2018 (Loriggio, 2018). In November 2018, a Nova Scotia Minimum Wage Committee recommended annual increases of approximately $0.55 each year for the next three years (Woodbury, 2018), which would follow an increase of $0.15 from the previous year (Patil, 2017). That recommendation was accepted by the provincial government on January 8, 2019 (National Post , 2019). In British Columbia, the minimum wage rose in June, 2019, from $12.65 per hour to $13.85 (Pawson, 2019).

The Government of Alberta lowered the minimum wage rate for students under 18 years old in May, 2019. Jason Kenney, Premier of Alberta, implemented this reform to boost employment rates among teens; however, Rachel Notley, the Leader of the Opposition, expressed concern that this policy would negatively impact employment and earnings for some of the province's most vulnerable workers and increase the chance that at-risk teens drop out of school (Keller, 2019; Wyton, 2019). Subminimum wages are thus a contested issue for which the labour market impacts are not fully documented, and a goal of this study is to draw attention to the need for renewed attention on this topic.

This paper proceeds as follows. The next section briefly surveys the related literature on teen employment and minimum wages, with a particular focus on the Canadian context. Section 3 describes the

data and methodologies used in the analysis. Section 4 presents the results. Lastly, Section 5 concludes by discussing the limitations and policy implications of the findings.

2   Related Literature

Numerous studies on the employment outcomes of teens and young adults find that, on average, youth employment outcomes have declined. For example, while about 61.4% of students were employed during the summer of 1989, only 51.7% were employed during the summer of 2005 (Usalcas and Bowlby, 2006). The 1991 recession is one of the main reasons for the dramatic decline in labour force participation among younger Canadians in the 1990s documented by Ip (1998). Moreover, after the 2008 recession, younger Canadians experienced an unemployment rate as high as 20% (Bernard, 2013).

There are various explanations for the deteriorating trend in youth employment. For example, youths are opting to stay in school longer to increase their human capital and employment prospects (Picot and Heisz, 2000). School attendance increased from 50% in 1989 to over 58% in 1997 (Ip, 1998). Older individuals are staying in the labour force longer and typically seek part-time employment in the retail trade and accommodations and food services sectors which hold jobs that are often filled by students and young workers (Hazel and Saunders, 2018). Young workers are often the first to be laid off during economic downturns (Marshall, 2010); in 2012, the monthly layoff rate for youths equaled 3.5% and was more than double the monthly layoff rate of workers aged 25 to 54, equal to 1.3% (Bernard, 2013). Low experience also causes employment instability for younger Canadians; workers who had at least six years of experience were 7 percentage point less likely to experience employment instability than workers who had two years of experience or less (LaRochelle-Côté, 2013). Structural changes in various industries have impacted youths adversely, as increasing adoption of novel technologies has shifted labour demand away from low-skilled labour and towards higher-skilled knowledge workers (Ip, 1998). However, while the employment opportunities for youths have declined as a whole, some groups have experienced better labour market outcomes than others. Between 2007 and 2017, individuals aged 15 to 17 experienced larger declines in

their employment and participation rates than their slightly older counterparts aged 18 to 24 years (Hazel and Saunders, 2018).

There is also a vast literature documenting the impacts of minimum wage laws on the employment and earnings outcomes of workers and teens. For example, Laporsek (2013) finds minimum wages negatively impact employment of teenagers and young adults. The author finds that employment elasticities range from −0.38 to −0.29 for those aged 20 to 24 years and from −1.05 to −0.74 for workers aged 15 to 19 years. In addition, countries with youth minimum wages experienced smaller declines in youth employment than countries with a uniform rate applied to all workers (Laporsek, 2013).

Marimpi and Koning (2018) followed 30 OECD countries and found that young workers are 14 percentage points less likely to be employed in countries with a uniform minimum wage rate than in countries that have subminimum wages for young workers. Campolieti, Fang and Gunderson (2005) use Canadian data spanning the years 1993 to 1999 and find that individuals living in a province where the minimum wage increased and their wage rate was between the old rate and the new rate were 6.6 percentage points less likely to have employment in the following year. Pereira (2003) found that firms reacted to the abolishment of the youth minimum wage by reducing the hours worked by teenage workers and by substituting away from young workers and towards older workers in Portugal. Yuen (2003) found that the effects of minimum wages on teenage and young adult employment are negative and significant when high wage workers are used as the control group, but the effects of minimum wages on youth employment are insignificant when young workers living in regions that did not experience a minimum wage rate change are used as the control group. This effect arises because high-wage workers tend to experience more employment stability than minimum wage workers, which causes the effects of minimum wages on youths to be biased towards significance.

The paper by Shannon (2011) is the most closely related to our study, as previously mentioned. Shannon uses the PUMF version of the Labour Force Survey to estimate the effects of these reforms in a DD approach. We regard our study as complementary to Shannon's, since we arrive at similar estimates on hours worked using slightly different methods. Our estimates for how the reforms affected summer

employment are in the same direction as Shannon's, but we observe larger and more robust effects. As described further in the next section, our empirical approach differs in several ways. We use the master files of the Labour Force Survey, which provides better accuracy on the age of respondents. The PUMF files group respondents into bins so it is not possible to separately identify 17 year olds (who were affected by the reforms) from 18 and 19 year olds (who were not affected). We also employ additional sample restrictions, augment the analysis to DDD and event-study designs, and control flexibly or non-parametrically for province-specific time trends to directly evaluate the common-trends assumption of the DD estimator. Lastly, we document heterogeneity by winter versus summer seasons, short-run versus long-run, and industry, which add to our understanding of how student/youth minimum wage rates impact teens' overall labour market prospects.

3   Data and Methodology

In this section, we begin by briefly describing the dataset used in the analysis and the sample restrictions imposed on the data. Then, the empirical approach is described.

3.1   *Data and Sample Selection*

This study is based on an analysis of the master files of Statistics Canada's Labour Force Survey. This is a monthly survey designed to measure the current state of the Canadian labour market, and is used to calculate employment and unemployment rates at national, provincial and territorial, and regional levels. The data contain a wide set of information about respondents' demographics, education, labour force activities and job characteristics.

The analysis restricts to survey respondents aged 16 to 17 to consider how employment conditions of teens have evolved for whom the student/youth minimum wage rates applied. No other restrictions are imposed other than in specific cases, described later. Probability weights are used to ensure that results of this study generalize to the full Canadian population. As a control group for trends in teen employment in the DDD estimation, survey respondents aged 25 to 29 who were not enrolled in school, did not plan on

returning to school and held a terminal high school diploma are used. This age/education group is plausibly a valid control group for low-education workers for whom changes in employment likely reflect changes in labour demand due to macroeconomic factors rather than the reforms of interest. As will be shown, below, trends in employment and hours worked for this group are comparatively stable during the time period in which the reforms were enacted.

The Labour Force Survey is a rotating panel in which respondents are surveyed for six consecutive months, with around one-sixth of respondents entering and exiting the sample each month. This design can lead to the problem of rotating group bias for estimating outcomes such as changes in employment over time, since individuals who hold a job in one period are more likely to continue to hold a job in subsequent months. To address this problem, we restrict our analysis to the survey months of February and August in order to estimate the effects of the reforms on winter and summer employment, respectively. We follow Shannon (2011) in focusing on August for the summer period, and February is subsequently chosen because it is the only option that ensures no respondents appear twice.

Throughout most of the analysis, we restrict the sample to the time period ranging from five years before the reform to 10 years after the reform in each province (i.e., 16 years including the event-time at year zero). This is done to focus the sample on a period of stability leading up to the reforms of interest, which controls for the possibility that smaller changes in student/youth minimum wage rates in earlier years may otherwise cause the common-trends assumption of the DD estimator to be invalidated. It is also a common sample restriction for event study analysis that is necessary for the effects of interest to be exactly identified. For provinces that did not enact a reform, we restrict the sample to the minimum and maximum years used in the other provinces.

Table 1 shows descriptive statistics for the relevant sample used in this study. On balance, about half of respondents are female and half are male; and 90 percent of teens are in school or were in school in March of that year. No respondents aged 25 to 29 are or were in school since the sample focuses on those with a terminal high school diploma. Employment is higher in the summer than winter for both age groups likely due in part to the availability of seasonal work in the summer. The difference between winter and

summer months is much larger for teens, since many young workers enter the labour market for the first time to acquire a part-time summer job. The table also shows a large drop for teens in the percent who were not in the labour force between the winter and summer. Notably, the table shows that, among teens who hold jobs, the retail trade and food and accommodations industries are the two most prevalent in both the summer and winter months. This is especially true in the winter likely because seasonal outdoor jobs are not available during this season. Lastly, the table shows that the sample sizes are approximately equal between teens aged 16 to 17 and those aged 25 to 29 with a terminal high school diploma, which is desired for the DDD approach that follows.

[Table 1 here]

We were unable to locate a publicly-available dataset on historical student/youth minimum wage rates over time for the full sample period. While historical data are available for general (adult) minimum wages, no comparable dataset appears to exist for students/youths perhaps owing to the fact that most provinces abolished their student/youth rates a while ago. We therefore conducted a detailed analysis of provincial publications and reports, academic publications and news archives and we corresponded with government officials in some cases to obtain internal reports that contained this information. After making some key assumptions about the data, we were able to construct a time-series dataset at the provincial level that has a monthly granularity. This is important because some provinces enacted their reforms toward the end of the year, perhaps since they wanted to wait until the end of summer given that the immediate effect on student/youth employment was unclear. An example of an assumption imposed on the data was to use the lower of the two rates when a province used two different youth minimum wage rates at the same time. For instance, Alberta used both a student minimum wage, for students under the age of 18, and a youth minimum wage, for non-students under 18, from May 1980 to September 1988 before abolishing both of these subminimum wages in October 1988; we used the student minimum wage rate during this period of time because it was consistently lower than the youth minimum wage rate. More information about the construction of this dataset is provided in the Data Appendix.

Figure 1 plots the general and student/youth minimum wage rates by province, from 1976 to 2019. These rates are expressed in 2019 constant dollars. This shows many provinces had distinct student/youth rates through much of the 1970s, 1980s and 1990s while only Ontario maintained two separate rates in recent years. The figure also shows that minimum wages were comparatively high in the 1970s across Canada in real terms, but there was gradual wage erosion through much of the time period analyzed before rates began to increase again over the past decade.

[Figure 1 here]

On balance, the student/youth rates follow the general rates closely but there are cases where the two diverge. This is shown in Figure 2, which plots the nominal gap between the general and student/youth minimum wages. It shows that some provinces (i.e., Prince Edward Island and Manitoba) began to reduce their wage gaps slightly before enacting reforms to eliminate the subminimum wage rates. However, all provinces that reduced or abolished their student/youth rates in favour of a uniform higher rate for all workers had at least five years of stability before those reforms commenced, a fact that we will exploit in the empirical analysis.

[Figure 2 here]

3.2   *Empirical Methodology*

The goal is to estimate the effects of the reduction or elimination of student/youth minimum wage rates on labour market outcomes. Denote by E_{ipt} a binary variable that takes the value of "1" if individual i aged 16 to 17 residing in province p at time t is employed, and "0" otherwise. Further, denote by H_{ipt} the individual's hours worked each week conditional on being employed. The baseline statistical model is:

$$E_{ipt} \text{ or } H_{ipt} = \mu + \beta DD_{pt} + X'_{ipt}\theta + \rho_p + \tau_t + \varepsilon_{ipt} \tag{1}$$

The term DD_{pt} the difference-in-differences variable that takes the value of "1" in provinces that reduced or eliminated their student/youth minimum wage rates in the post-reform period, and "0" in those provinces for the pre-reform period and for provinces that never had a student/youth rate over the sample period. The

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term X_{ipt} is a vector of individual-specific control variables, namely age, sex and student status. In the regressions on hours worked, it also includes job-specific variables, namely whether the person is a single or multiple job holder, a quadratic term in work experience in the main job (measured in months), and the industry classification of the main job. The terms ρ_p, τ_t, and ϵ_{ipt} denote province-specific fixed effects (FEs), year FEs and the statistical residual, respectively.

In several specifications, the model is estimated with the inclusion of group- or province-specific linear time trends to flexibly absorb from the estimated effect of interest any unobserved heterogeneity that varies over time at the regional level that may bias the results. The "group-level" trend refers to treated versus control provinces, which relaxes the common-trends assumption of the DD estimator but in a less flexible manner than including province-specific time trends. However, as will be shown, over-saturation of the model with province-specific trends reduces the precision of the estimator, which ultimately leads us to use these different approaches in tandem.

In addition, we augment equation (1) to a DDD design by comparing the effect of the reform on 16 to 17 year olds expressed relative to their counterparts aged 25 to 29 who hold a terminal high school diploma. In this case, the statistical model is:

$$E_{ipt} \text{ or } H_{ipt} = \mu + \beta DDD_{ipt} + X'_{ipt}\theta + \rho_p\tau_t + \rho_p\alpha_i + \tau_t\alpha_i + \varepsilon_{ipt} \qquad (2).$$

The term DDD_{pt} is defined analogously to the DD variable except that it only takes the value of "1" among those aged 16 to 17, and is always equal to "0" otherwise; and α_i is an age group indicator for whether the respondent is a teen. Notice that the model is well-identified with province-by-year, province-by-age and year-by-age interaction FEs included (the pairwise interactions are necessary for identification in the same way that the level effects for province and year must be included in the DD estimator). Since province-year FEs are controlled for, DDD estimates the direct effect of the reforms on the treated group within provinces, and it controls non-parametrically for unobserved macro-economic shocks that could vary both across provinces and over time that may impact labour demand.

It is worth noting that this DDD approach differs from the age comparisons made by Shannon (2011) using all workers aged 20 to 24 as the control group. Because many individuals under 25 are still in school, it is plausible that abolishing or reducing the student/youth minimum wage rate increases labour costs and reduces demand for all part-time student workers including those not directly bound by the subminimum wages, which biases the estimated treatment effect downward. Individuals aged 25 to 29 and who hold a terminal high school diploma are more likely to be in full-time jobs since they are not working while in school, and so changes in their employment (while also potentially impacted by the reforms) are more likely to vary due to broader macro-economic conditions. Figure 3 shows teen employment fluctuated a lot over the past few decades and hours worked declined during the 1980s whereas the equivalent trends for 20 to 25 year olds with a terminal high school diploma were less volatile.

[Figure 3 here]

Lastly, we augment equation (1) to the event study design. Denote by $R_{pt} = t - \bar{t}_p$ to be the relative time in province p, where $\bar{t}_p$ denotes the reform year in that province. Then, the event study is estimated as follows:

$$E_{ipt} \text{ or } H_{ipt} = \mu + \sum_{\pi=-A}^{B} \beta_\pi 1(R_{pt} = \pi) + X'_{ipt}\theta + \rho_p + \tau_t + \varepsilon_{ipt} \tag{3},$$

where A and B are the number of pre- and post-reform years included in the sample, respectively. The event study is a generalization of the DD estimator because it disaggregates "pre-reform" and "post-reform" periods by estimating a sequence of event time dummy variables; see Baker et al. (2019) for a formal derivation of this relationship. For reasons described earlier, we set $A = 5$ and $B = 10$ to ensure that the effects of interest are not being affected by other changes that occurred to student/youth minimum wage rates before the reforms, and to observe their long-term impacts. The estimates are normalized relative to the event time one year before the reform, $R_{pt} = -1$.

4   Results

The primary regression results for the effects of the reforms on employment and hours worked are presented in Tables 2 and 3, respectively. The analysis on employment applies to the full sample and the analysis on hours worked is conditional on those who hold jobs. The analysis is repeated separately for winter and summer months (Panels A and B, respectively), using both DD and DDD estimators, and for various sets of fixed effects and controls. We briefly describe the different model variants used and then discuss the results.

In both tables, columns 1 to 6 correspond to the DD estimator while columns 7 and 8 correspond to the DDD estimator. Column 1 begins by estimating the treatment effect in a simple DD that uses the reform dates to distinguish between pre- and post-reform periods. Specifically, this refers to the year and month that each province replaced its subminimum wage for a uniform rate (or sharply reduced it in Ontario). This model specification controls for province and year FEs but no other covariates. Column 2 is similar, but uses the date when each province began reducing its subminimum wage leading up to the actual reform date to distinguish between pre- and post-reform periods. As shown in Figure 2, these two dates are the same for most provinces but differ in a few cases. This "pre-reform" approach accounts for the possibility that actions taken before the reform create pre-trends in the data that could bias the estimator in some way. Column (3) further addresses this concern by restricting the time period of analysis to be from 5 years before the reform in each province to 10 years after the reform, which is consistent with standard sample restrictions imposed in event study analysis. Columns (4) and (5) both relax the common trends assumption of the DD estimator by controlling parametrically (linearly) for group- and province-specific time trends, respectively. Column 6 includes the additional covariates.

Similarly, for the DDD approach, column 7 repeats the preferred specification using pre-reform dates and the restricted sample. The province-specific time trends are controlled for non-parametrically by including province-by-year FEs. This means treatment is identified within provinces based on differences over time and across age groups. Lastly, column 8 repeats this specification with the additional control variables in the model.

Rather than describe the results for each regression in turn, we leave this to the reader to inspect the regression output and instead discuss main findings. First, the reforms decreased the likelihood of employment in the summer by about 3 to 5 percentage points based on the preferred model specifications. This finding is robust to controlling for observed and unobserved factors that may be changing across individuals and provinces and over time that may indirectly affect employment levels. In the specification that includes province-specific trends, the effect is the least precisely estimated but it remains significant at the 10 percent level and the point estimate continues to be economically meaningful. This likely suggests that province-specific time trends simply over-saturate the model given that there are very few provinces with which to identify these effects. Controlling non-parametrically for province-specific factors using a DDD approach, the results confirm this negative and significant employment effect. In contrast, the effects on winter employment are smaller across all model specifications and are insignificant when province-specific time trends are controlled for. This leads us to conclude that the reforms discouraged employers from hiring additional teen workers during the summer when there is typically an increase in the supply of teen workers, but that employment in winter months remains unaffected.

[Table 2 here]

The results for hours worked are very similar to those for employment, shown in Table 3. More precisely, hours worked decrease during the summer by about 7 to 10 percent due to the reforms but no discernible effect is observed during the winter, on balance. The only exception is the last column based on the DDD approach with additional covariates included, which appears significant at the 5 percent level for the winter, but the effect size is only about 3 percent which is economically trivial.

[Table 3 here]

Given the differences in magnitudes observed for both employment and hours worked with versus without the inclusion of time trends, a closer inspection of these results using the event study design is warranted. This is especially true since Shannon (2011) carefully documents cases in which results are somewhat non-robust due to pre-trends. The event studies for employment and hours worked are presented in Figures 4 and 5, respectively. This analysis uses the pre-reform dates and restricted sample to ensure that

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the reported coefficients are exactly identified. We do not control for group or province-specific trends in this analysis since the goal is to directly inspect for pre-trends. However, to control for individual factors that may impact labour decisions, control variables are included. Figure 4 shows that employment in the winter does not respond meaningfully to the reforms but that there is an immediate and persistent drop during the summer, consistent with the main regression results.

[Figure 4 here]

In contrast, Figure 5 shows that hours worked declined sharply around the time of the reforms, notably during the summer by 10 percent over the first two years, but then gradually recovered over the years that followed. By the fifth year after the reforms, the loss in hours worked had completely recovered to zero, indicating that workers were receiving just as many hours after the elimination or reduction of the student/youth minimum wage as they were when this policy was still in place. The reasons for this recovery are outside the scope of our present study to investigate. One possibility is that employers gradually became accustomed to paying higher wages and stopped passing this cost onto workers in the form of reduced hours, or had gradually passed the cost onto consumers in the form of higher prices. Another possibility is that employees initially took on fewer hours due to an income effect of the reform but then gradually became accustomed to receiving the higher wage and started increasing their willingness to work to the pre-reform levels. Greater insights into the mechanisms behind this U-shaped pattern have implications for whether employers or workers incurred the burden of these reforms. Taken together, Figures 3 and 4 suggest that the primary channel through which employers responded to higher labour costs over the long-term was by adjusting the level of employment.

[Figure 5 here]

Briefly, Tables A1 and A2 in the Appendix repeat the analyses from Tables 2 and 3 but decompose the average treatment effect into short-term and long-term effects to explore this issue in more detail. Specifically, from equation (1), we define a new variable $DD_{pt}^{SR} = DD_{pt}$ if $t \in [\bar{t}, \bar{t} + 3]$ and $DD_{pt}^{SR} = 0$ otherwise, which measures the short-run (SR) effect over the first four years (including the reform year)

relative to the pre-reform period. Similarly, we define $D_{pt}^{LR} = DD_{pt}$ if $t \in [\bar{t} + 4, \bar{t} + 10]$ and $DD_{pt}^{LR} = 0$ otherwise to measure the long-run (LR) effect relative to the pre-reform period. This decomposition is analogous to the per-period decomposition observed in the event studies. The short-term and long-term effects are similar for summer employment, which indicates that the reforms led to a sharp and persistent decline, whereas the short-term effect for summer hours worked is much larger than the long-term effect. Interestingly, there appears to be a decline in hours worked over the long-term by about 5 to 8 percent during the winter, although we are less confident in this result due to the larger volatility in the estimates observed in the event study.

Lastly, Table 4 repeats the analysis by student status, sex, and industry of employment to test for heterogeneous responses, based on the preferred model specification from column (7) of Tables 2 and 3. As before, this analysis also distinguishes between winter and summer months. On balance, the main findings shown in Tables 2 and 3 continue to hold here. However, a few differences between groups are important to note. The reforms primarily impacted the employment and hours worked of students. This finding is not surprising since several large provinces including Alberta and Ontario permit employers to pay the subminimum wage only if the worker is a student. The employment effect is also slightly larger for men whereas the effect on hours worked is slightly larger for women, although in both of these cases the effects are statistically significant and economically meaningful so we do not put too much emphasis on these differences. The effect on hours worked among workers in the retail trade industry and the food and accommodations industry is twice as large as for all other industries. This likely arises because workers in these two industries are the most likely to be paid at the minimum wage. This difference by industry may also drive the small difference by sex to the extent that men are more likely than women to work in such industries as agriculture, construction or manufacturing, although for teens the overall share of workers in these industries is quite small.

5 Conclusion

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Despite the large literature investigating the effects of minimum wage laws on labour market outcomes of low-income workers, little is known about the effects of distinct student/youth minimum wages on teen employment. This is increasingly important given the gradual decline in teen employment outcomes observed over the past two decades. In this study, we estimate the effect of reforms that replaced the student/youth minimum wage rates with the higher adult minimum wage rates on employment and hours worked of teens aged 16 to 17. Exploiting the staggered timing of the reforms across provinces using several quasi-experimental methods, we show that the reforms significantly reduced summer employment by about 3 to 5 percentage points and reduced hours worked by 7 to 10 percent. These findings suggest that offering a subminimum wage to teens affects their employment prospects. However, no comparable effect was observed during the winter, and the decline in hours worked appears to recover within the first few years, which suggests the main channel through which employers respond to rising labour costs for teens over the long term is by adjusting their labour demand.

In addition, we find that the short-term effect on hours worked was most pronounced for workers in the retail trade and food and accommodations industries. While these estimates apply to reforms enacted during the 1980s and 1990s, this heterogeneity by industry has implications for today's workforce. Based on Labour Force Survey estimates over the period of study, the fraction of workers in these two industries has risen from approximately one third of all workers in the 1970s to one half of all workers in 2019. This suggests that policies of re-introducing student/youth minimum wages are even more likely to influence teen labour market outcomes now than in the past.

While this study informs discourse on the labour market implications of setting a student/youth minimum wage, an important limitation is that the effect on earnings remains unknown. This is because the Labour Force Survey did not collect wage data until after most of the reforms were implemented. Given the recent 2019 reform to reintroduce the student/youth rate in Alberta, as more data become available and other provinces potentially follow suit, estimating the effects of those reforms on wages or earnings from survey and administrative data will be a promising topic for future research.

References

Bernard, A. 2013. *Unemployment dynamics among Canada's youth.* Economic Insights, no. 24. Statistics

    Canada Catalogue no. 11-626-X. Ottawa: Statistics Canada.

Bergevin, P. 2013. "Who Is still standing in line? Addressing a mismatch of skills and jobs in the Canadian

    labour market." *Economic Grorwn and Innovation E-Brief.* Toronto: C.D. Howe Institute.

Brouillette, D., C. Cheung, D. Gao, and O. Gervais. 2017. "The impacts of minimum wage increases on the

    Canadian economy." *Staff Analytical Note*, no. 2017-26. Ottawa: Bank of Canada.

Campolieti, M., T. Fang, and M. Gunderson. 2005. "Minimum wage impacts on youth employment

    transitions, 1993–1999." *Canadian Journal of Economics* 38 (1): 81–104.

Hazel, M. and D. Saunders. 2018. Students in the labour market: After the recession. Labour Statistics:

    Research Papers. Statistics Canada Catalogue no. 75-004-M. Ottawa: Statistics Canada.

Ip, I. 1998. "Labour force participation in Canada: Trends and shifts." *Bank of Canada Review* 1998

    (Summer): 29–52. Ottawa: Bank of Canada.

Keller, J. 2019. "Alberta slashes minimum wage for teen students." *The Globe and Mail*.

Laporsek, S. 2013. "Minimum wage effects on youth employment in the European Union." *Applied

    Economics Letters* 20 (14): 1288–1292.

LaRochelle-Côté, S. 2013. *Employment instability among younger workers*. Research Document. Statistics

    Canada Catalogue no. 75-004-M. Ottawa: Statistics Canada.

Loriggio, P. 2018. Ontario government to halt minimum wage hike set to kick in next year. *CTV News*.

Marimpi, M., and P. Koning. 2018. Youth minimum wages and youth employment. *IZA Journal of Labor

    Policy* 7 (1): 1–18.

Marshall, K. 2010. "Employment patterns of postsecondary students." *Perspectives on Labour and Income*

    11 (9): 3–33. Statistics Canada Catalogue no. 75-001-XIE. Ottawa: Statistics Canada.

Mojtehedzadeh, S. and R. Benzie. 2017. Ontario's $11.40 minimum wage jumps to $14 next year, says

    Premier Kathleen Wynne. *Toronto.com.*

National Post. 2019. Nova Scotia's minimum wage expected to increase to $11.55 on April 1.

Patil, A. 2017. Minimum wage increases by 15 cents in Nova Scotia. *CBC News*.

Pawson, C. 2019. Minimum wage in B.C. increases to $13.85 an hour today. *CBC News*.

Pereira, S. 2003. The impact of minimum wages on youth employment in Portugal. *European Economic Review* 47 (2): 229–244.

Picot, G., and A. Heisz. 2000. "The performance of the 1990s Canadian labour market." *Canadian Public Policy* 26 (Supplement: Structural Aspects of Unemployment in Canada): S7–S25.

Shannon, M. 2011. The employment effects of lower minimum wage rates for young workers: Canadian evidence. *Industrial Relations: A Journal of Economy and Society* 50 (4): 629–655.

Sum, A., I. Khatiwada, M. Trubskyy, M. Ross, W. McHugh, and S. Palma. 2014. "The plummeting labour market fortunes of teens and young adults". *Metropolitan Policy Program*. Washington: The Brookings Institution.

Usalcas, J. and G. Bowlby. 2006. "Students in the labour market." *Education Matters: Insights on Education, Learning and Training in Canada*. Statistics Canada Catalogue no. 81-004-XIE. Ottawa: Statistics Canada.

Woodbury, R. 2018. Minimum wage committee calls for 55-cent annual increases over next 3 years. *CBC News*.

Wyton, M. 2019. Over 110 Alberta businesses pledge to maintain $15 minimum wage as youth wage cut takes effect Wednesday. *Edmonton Journal*.

Yuen, T. 2003. The effect of minimum wages on youth employment in Canada: A panel study. *The Journal of Human Resources, 38*(3), 647-672.

Figure 1
Student/Youth and General Minimum Wage Rates by Province and Year in 2019 Constant Dollars, 1976 to 2019

(a) Newfoundland and Labrador   (b) Prince Edward Island   (c) Nova Scotia   (d) New Brunswick

(e) Quebec   (f) Ontario   (g) Manitoba   (h) Saskatchewan

(i) Alberta   (j) British Columbia
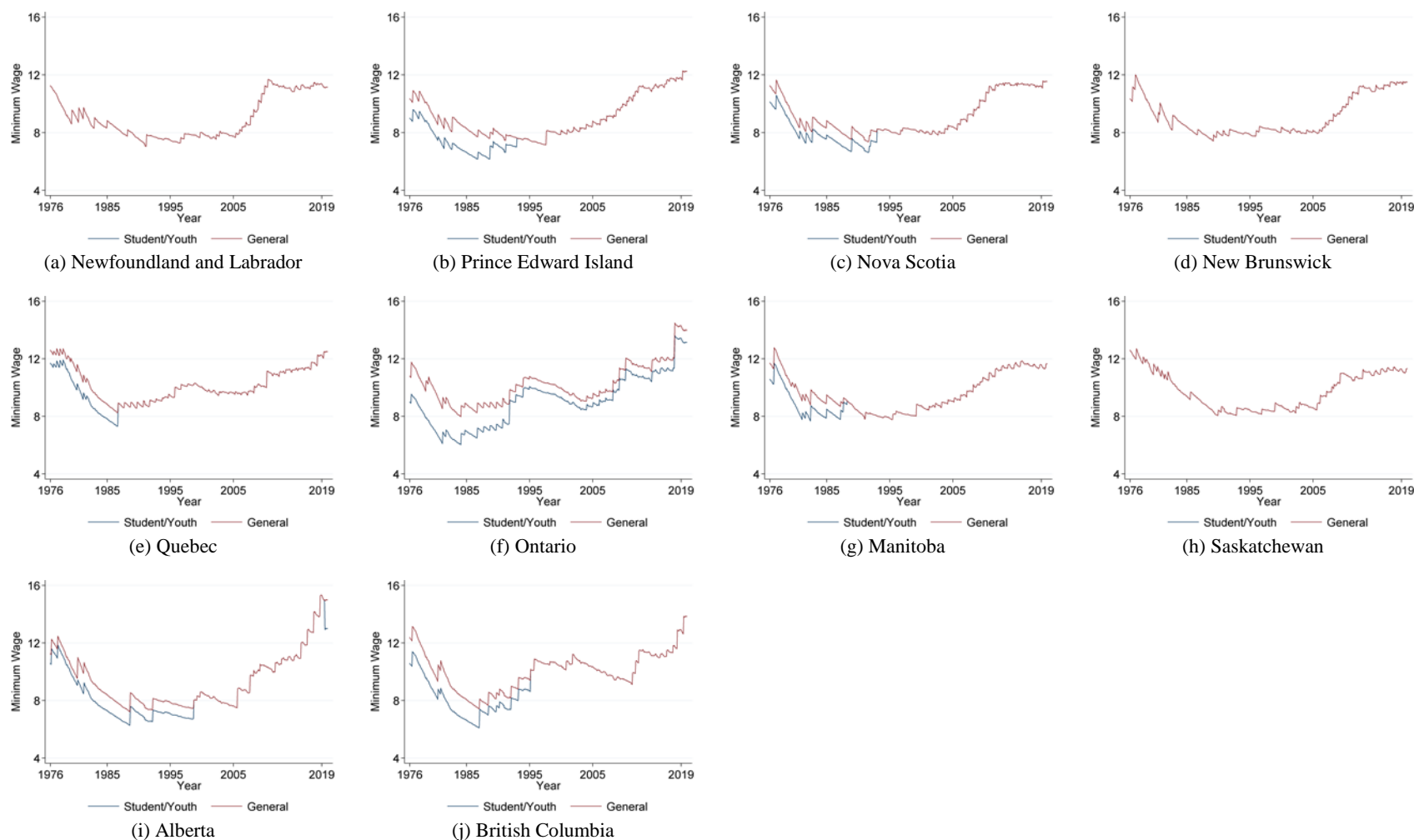
Notes: The minimum wage rates are expressed in December 2019 constant dollars. Only the general rate is shown for the provinces and years for which no student/youth rate was determined to exist.
Source: Authors' calculations; see Data Appendix.

Figure 2
Student/Youth Minimum Wage Rate Gap by Province and Year, 1976 to 2019

(a) Prince Edward Island

(b) Nova Scotia

(c) Quebec

(d) Ontario

(e) Manitoba

(f) Alberta

(g) British Columbia
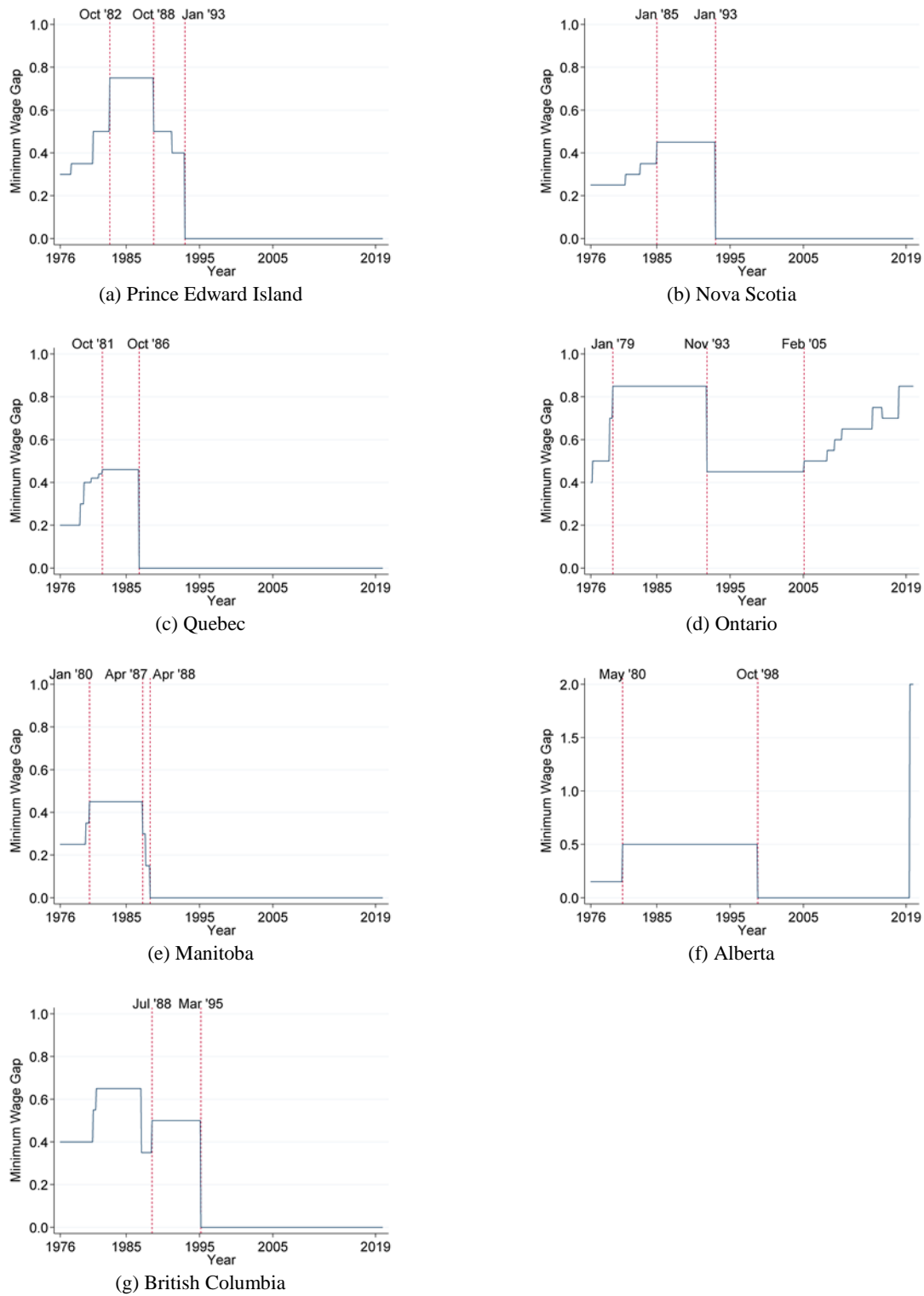
Notes: The wage "gap" is the difference between the general minimum wage rate minus the student/youth rate. Values are in nominal dollars (rather than constant dollars, to measure policy rate changes rather than fluctuations due to inflation).
Source: Authors' calculations; see Data Appendix.

Figure 3
Trends in Employment and Hours Worked by Age Group, 1976 to 2019

(a) Employed
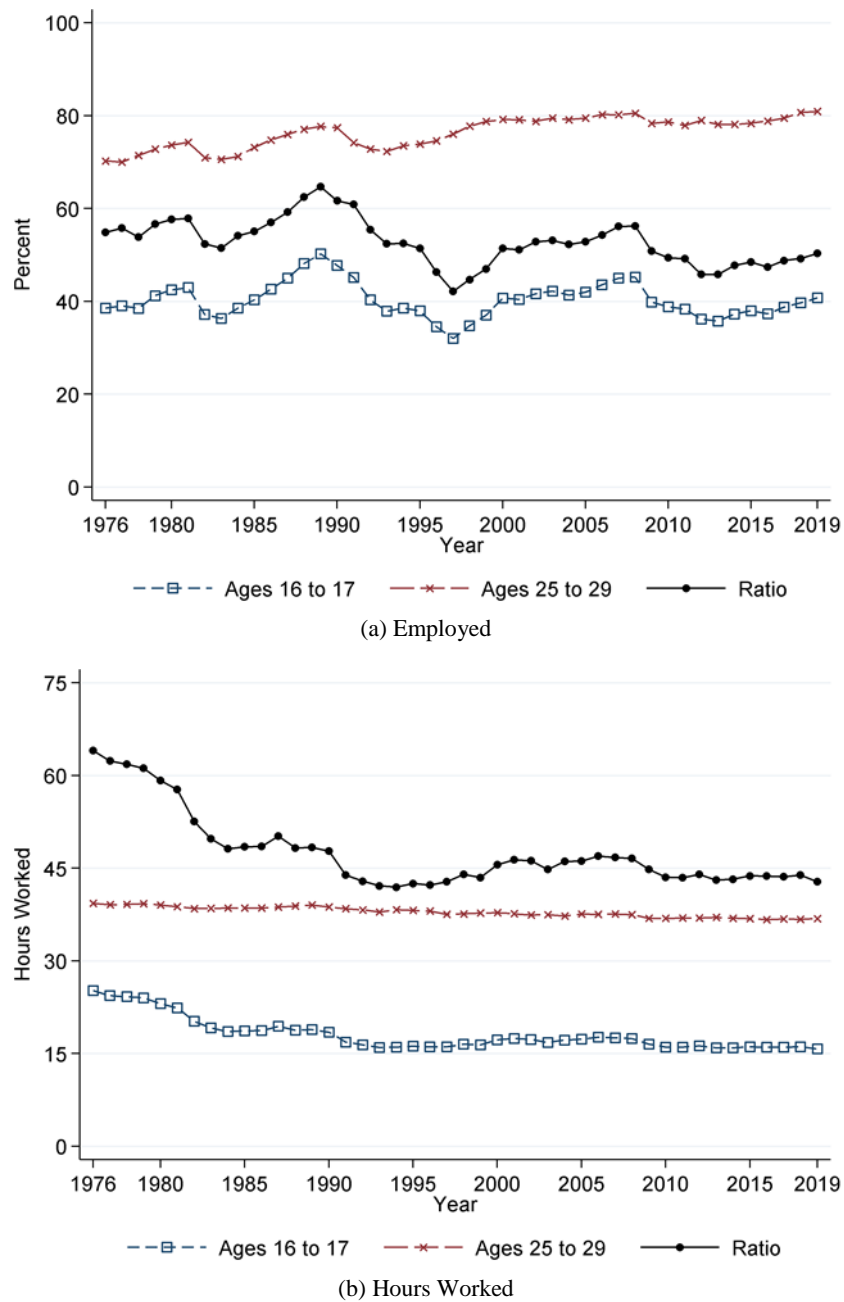
(b) Hours Worked

Notes: This figure plots the percent of respondents who were employed and the hours worked, by year, in Panels A and B respoectively. For the analysis of hours worked, the sample is restricted to respondents who were employed. In both panels, the ratio is calculated as the level for 16 to 17 year olds relative to the level for 25 to 29 year olds. The estimates for 25 to 29 year olds applies only to those with a terminal high school diploma.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Figure 4
Event Study of the Effects of the Reforms to Student/Youth Minimum Wages on Employment
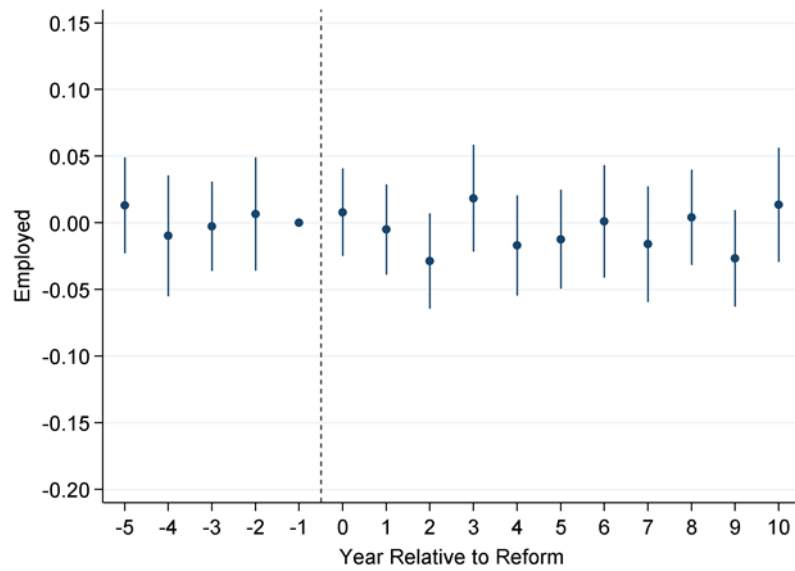
(a) Winter
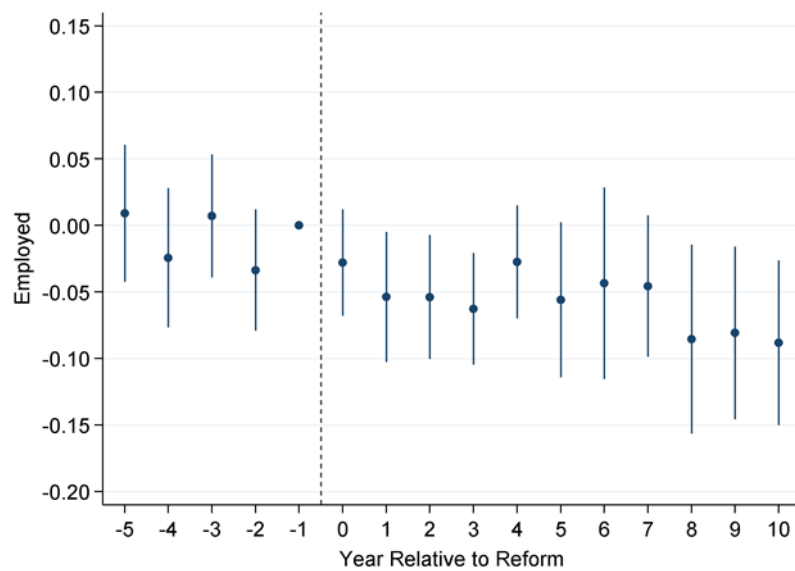
(b) Summer

Notes: Each panel plots β_π, for $\pi \in \{-5, -4, ..., 10\}$ corresponding to the model specification in equation (3). The estimates are normalized relative to event-time -1 (i.e., imposing that $\beta_{-1} = 0$). The exact specification corresponds to column (6) of Table 2 except that province-specific trends are omitted in order to better assess whether pre-trends are present in the data. See the notes in Table 2 for more information. 95% confidence intervals are shown as the bars around the point estimates. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Figure 5
Event Study of the Effects of the Reforms to Student/Youth Minimum Wages on Hours Worked
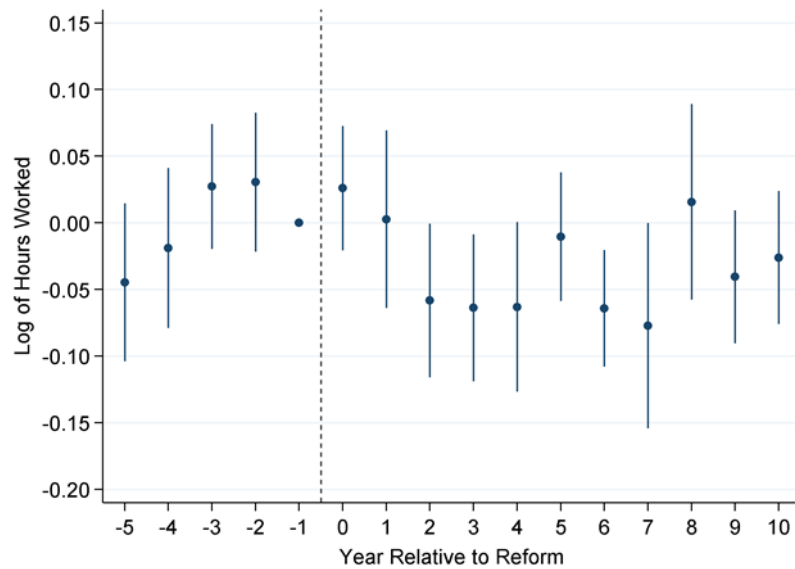
(a) Winter
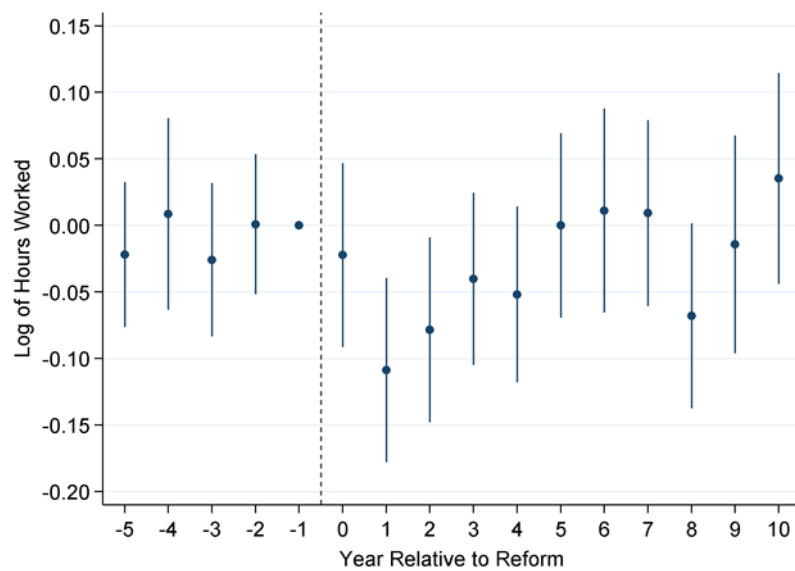
(b) Summer

Notes: The sample is restricted to respondents who were employed. 95% confidence intervals are shown as the bars around the point estimates. See the notes in Tables 2 and 3 and Figure 4 for more information. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Table 1
Descriptive Statistics

	Ages 16 to 17		Ages 25 to 29	
	Winter	Summer	Winter	Summer
Demographics				
Female	49.0	49.0	48.9	49.2
Student	89.1	91.1	0.0	0.0
Labour Force Status				
Employed	35.2	52.9	63.0	68.4
Unemployed	7.8	10.3	11.4	8.7
Not in Labour Force	56.9	36.7	25.6	22.9
Work Characteristics if Employed				
Hours Worked per Week	15.3	28.2	38.7	40.3
Multiple Job Holder	0.1	0.2	0.1	0.1
Tenure (in Months)	14.7	10.1	47.4	45.3
Retail Trade or Food and Accommodations	58.9	47.5	22.6	21.6
Number of observations	186,553	183,976	185,361	188,996

Notes: 25 to 29 year olds are restricted to those with a terminal high school diploma. Because many teens identify that they are not in school on the Labour Force Survey during the summer regardless of whether they intend to return to school in the fall, we use a measure of whether the respondent was in school last March as the identifier for student status in the summer and current student status in the winter.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Table 2
**Effect of the Reforms to Student/Youth Minimum Wages on Employment**

	Difference-in-Differences						Triple-Difference	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Winter							
Effect	-0.049***	-0.049***	-0.039**	-0.041***	-0.039**	-0.017	-0.010	-0.012
	(0.015)	(0.015)	(0.014)	(0.014)	(0.016)	(0.015)	(0.009)	(0.009)
R-Squared	0.019	0.019	0.037	0.050	0.050	0.051	0.129	0.137
Observations	186,553	186,553	74,832	74,817	74,817	74,817	155,537	155,522
	Panel B: Summer							
Effect	-0.073***	-0.075***	-0.062***	-0.060***	-0.051**	-0.033*	-0.042***	-0.040***
	(0.019)	(0.019)	(0.015)	(0.015)	(0.020)	(0.019)	(0.008)	(0.008)
R-Squared	0.021	0.021	0.034	0.049	0.050	0.051	0.072	0.093
Observations	183,976	183,976	73,609	73,587	73,587	73,587	155,279	155,257
Reform Date	✓							
Pre-Reform Date		✓	✓	✓	✓	✓	✓	✓
Restricted Sample			✓	✓	✓	✓	✓	✓
Group Trends				✓				
Province Trends					✓	✓		
Control Variables						✓		✓

Notes: *** $P < 0.01$; ** $p < 0.05$; * $p < 0.10$. This table shows regression results corresponding to equations (1) and (2) using employment status as the dependent variable. The regression using the reform date refers to the date when provinces abolished their student/youth minimum wages (or reduced it in Ontario), whereas the pre-reform date refers to the date when provinces began reducing their rates just prior to abolishing them. The restricted sample restricts to the years used in the event-study analysis. Group trends refers to separate trends for all treated and all untreated provinces. The control variables include age, sex and student status. See the discussion in the main text for more information. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Table 3
Effect of the Reforms to Student/Youth Minimum Wages on Hours Worked

	Difference-in-Differences						Triple-Difference	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Winter							
Effect	-0.043	-0.043*	-0.032	-0.044**	-0.033	-0.028	-0.017	-0.031**
	(0.025)	(0.025)	(0.029)	(0.019)	(0.024)	(0.021)	(0.018)	(0.013)
R-Squared	0.049	0.049	0.034	0.321	0.321	0.322	0.563	0.643
Observations	65,709	65,709	25,443	25,443	25,443	25,443	74,775	74,775
	Panel B: Summer							
Effect	-0.073***	-0.072***	-0.071**	-0.070**	-0.106***	-0.073**	-0.066***	-0.068***
	(0.025)	(0.024)	(0.026)	(0.027)	(0.031)	(0.032)	(0.019)	(0.019)
R-Squared	0.054	0.054	0.033	0.157	0.157	0.160	0.247	0.316
Observations	97,339	97,339	38,399	38,399	38,399	38,399	93,554	93,554
Reform Date	✓							
Pre-Reform Date		✓	✓	✓	✓	✓	✓	✓
Restricted Sample			✓	✓	✓	✓	✓	✓
Group Trends				✓				
Province Trends					✓	✓		
Control Variables						✓		✓

Notes: *** $P < 0.01$; ** $p < 0.05$; * $p < 0.10$. This table shows regression results corresponding to equations (1) and (2) using hours worked as the dependent variable. The sample is restricted to respondents who were employed. See the notes in Table 2 and the discussion in the main text for more information. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Table 4
Heterogeneous Effect of the Reforms to Student/Youth Minimum Wages on Employment and Hours Worked

	Employed				Hours Worked					
	By Student Status		By Sex		By Student Status		By Sex		By Industry	
	Student	Non-Student	Female	Male	Student	Non-Student	Female	Male	Retail, Food	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Panel A: Winter									
Effect	-0.012	0.005	-0.019	-0.001	-0.027**	-0.026	-0.034*	-0.029**	-0.028*	-0.022
	(0.010)	(0.024)	(0.013)	(0.010)	(0.013)	(0.030)	(0.019)	(0.014)	(0.014)	(0.019)
R-Squared	0.140	0.089	0.083	0.203	0.653	0.155	0.582	0.682	0.591	0.645
Observations	148,486	87,756	76,161	79,376	72,176	51,931	33,048	41,727	26,385	48,390
	Panel B: Summer									
Effect	-0.040***	-0.015	-0.032**	-0.051***	-0.068***	-0.023	-0.088***	-0.054**	-0.100***	-0.055**
	(0.008)	(0.021)	(0.013)	(0.010)	(0.020)	(0.038)	(0.022)	(0.023)	(0.020)	(0.025)
R-Squared	0.093	0.099	0.046	0.141	0.321	0.158	0.234	0.351	0.286	0.281
Observations	151,034	85,915	76,566	78,713	91,753	56,955	39,973	53,581	30,590	62,964

Notes: *** $P < 0.01$; ** $p < 0.05$; * $p < 0.10$. This table shows regression results corresponding to equations (1) and (2) using employment status and hours worked as the dependent variables. More precisely, the DDD specification from column 7 of Tables 2 and 3 is used. For the analysis on hours worked, the sample is restricted to respondents who were employed. Because many teens identify that they are not in school on the Labour Force Survey during the summer regardless of whether they intend to return to school in the fall, we use a measure of whether the respondent was in school last March as the identifier for student status in the summer and current student status in the winter. See the notes in Tables 2 and 3 and the discussion in the main text for more information. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

A1   Appendix

Table A1
Short-Run and Long-Run Effects of the Reforms to Student/Youth Minimum Wages on Employment

	Difference-in-Differences						Triple-Difference	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Winter							
Short-Run Effect	-0.036**	-0.036**	-0.035**	-0.037**	-0.041**	-0.019	-0.010	-0.012
	(0.015)	(0.015)	(0.015)	(0.014)	(0.016)	(0.015)	(0.011)	(0.011)
Long-Run Effect	-0.057***	-0.058***	-0.044**	-0.046**	-0.053**	-0.034	-0.011	-0.012
	(0.018)	(0.018)	(0.017)	(0.017)	(0.019)	(0.022)	(0.010)	(0.010)
R-Squared	0.019	0.019	0.037	0.050	0.050	0.051	0.129	0.137
Observations	186,553	186,553	74,832	74,817	74,817	74,817	155,537	155,522
	Panel B: Summer							
Short-Run Effect	-0.062***	-0.065***	-0.062***	-0.061***	-0.048**	-0.030	-0.045***	-0.045***
	(0.019)	(0.019)	(0.015)	(0.016)	(0.019)	(0.019)	(0.008)	(0.008)
Long-Run Effect	-0.081***	-0.082***	-0.062***	-0.058***	-0.029	-0.012	-0.037***	-0.034***
	(0.021)	(0.020)	(0.018)	(0.017)	(0.024)	(0.027)	(0.009)	(0.009)
R-Squared	0.021	0.021	0.034	0.049	0.050	0.051	0.072	0.093
Observations	183,976	183,976	73,609	73,587	73,587	73,587	155,279	155,257
Reform Date	✓							
Pre-Reform Date		✓	✓	✓	✓	✓	✓	✓
Restricted Sample			✓	✓	✓	✓	✓	✓
Group Trends				✓				
Province Trends					✓	✓		
Control Variables						✓		✓

Notes: *** P < 0.01; ** p < 0.05; * p < 0.10. This table replicates Table 2 but distinguishing between short-run versus long-run effects. See that table's notes and the discussion in the main text for more information. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

Table A2
Short-Run and Long-Run Effects of the Reforms to Student/Youth Minimum Wages on Hours Worked

	Difference-in-Differences						Triple-Difference	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Winter							
Short-Run Effect	-0.009	-0.008	-0.013	-0.032	-0.039	-0.035	0.004	-0.019
	(0.022)	(0.022)	(0.028)	(0.020)	(0.024)	(0.022)	(0.021)	(0.016)
Long-Run Effect	-0.070**	-0.070**	-0.062*	-0.063***	-0.080**	-0.081**	-0.052***	-0.051***
	(0.033)	(0.033)	(0.033)	(0.021)	(0.030)	(0.030)	(0.018)	(0.013)
R-Squared	0.049	0.049	0.034	0.321	0.321	0.322	0.564	0.643
Observations	65,709	65,709	25,443	25,443	25,443	25,443	74,775	74,775
	Panel B: Summer							
Short-Run Effect	-0.091***	-0.090***	-0.093***	-0.084***	-0.105***	-0.073**	-0.084***	-0.086***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.032)	(0.033)	(0.022)	(0.020)
Long-Run Effect	-0.059**	-0.060**	-0.042	-0.053*	-0.099**	-0.077*	-0.040**	-0.041**
	(0.025)	(0.025)	(0.027)	(0.030)	(0.041)	(0.044)	(0.017)	(0.017)
R-Squared	0.054	0.054	0.033	0.157	0.157	0.160	0.247	0.316
Observations	97,339	97,339	38,399	38,399	38,399	38,399	93,554	93,554
Reform Date	✓							
Pre-Reform Date		✓	✓	✓	✓	✓	✓	✓
Restricted Sample			✓	✓	✓	✓	✓	✓
Group Trends				✓				
Province Trends					✓	✓		
Control Variables						✓		✓

Notes: *** P < 0.01; ** p < 0.05; * p < 0.10. This table replicates Table 3 but distinguishing between short-run versus long-run effects. See that table's notes and the discussion in the main text for more information. Standard errors are clustered by province and age.
Source: Statistics Canada, Labour Force Survey, 1976 to 2019.

A2 Data Appendix

A2.1 Overview

We make two assumptions to compile this monthly dataset:

1. The student/youth minimum wage does not change in a month when the adult minimum wage rate did not change unless explicitly otherwise stated.
2. A minimum wage change that occurred on the 15th day of the month or later is treated as occurring on the 1st day of the following month.

A2.2 Newfoundland and Labrador

Savage (1973) states that Newfoundland and Labrador's minimum wage equalled $1.40 for workers over the age of 18 and $1.10 for workers aged 16 to 18 in October 1973. For those over the age of 18, this information is consistent with Statistics Canada (2016). However, Shannon (2011) states that Newfoundland and Labrador's separate youth minimum wage for those aged 16 to 18 was abolished in January 1974. We contacted the provincial government to confirm this information and were informed by the Manager of Community Accounts that, "to my knowledge, Newfoundland and Labrador has not used a youth minimum wage rate" (personal communication, May 4, 2020). Moreover, a Labour Standards NL Policy and Program Development Specialist (personal communication, May 6, 2020) asserted, "I do not see any indication in the files that NL had a youth minimum wage rate [from 1976 to 2019]." We therefore conclude that Newfoundland and Labrador did not use a youth minimum wage rate during the period of study.

A2.3 Prince Edward Island

According to the Government of Prince Edward Island (2016), the province established separate minimum wages for the following four groups on July 1, 1972: (1) males under the age of 18; (2) females under the age of 18; (3) males aged 18 and over; and females aged 18 and older. On July 1, 1974, the province abolished minimum wage discrimination based on gender but kept a distinct minimum wage for workers under the age of 18. On January 1, 1993, the province abolished its youth minimum wage in favour of a single minimum wage that applies to all workers.

A2.4 Nova Scotia

Information for Nova Scotia's student/youth minimum wage history derives from correspondences with the provincial government. The province began using a separate minimum wage rate for individuals considered inexperienced and underage on February 20, 1965, which distinguished by gender and region. On July 1, 1972, this system was abolished in favour of a province-wide system involving two minimum wages: an adult minimum wage for workers aged 18 and over and a minimum wage for inexperienced and underage workers.

On January 1, 1993, Nova Scotia abolished its youth minimum wage in favour of a minimum wage for inexperienced workers (personal communication, June 23, 2020; Shannon, 2011). Workers who have less than 3 months of experience performing the tasks that they were hired to do are considered inexperienced. This separate minimum wage for inexperienced workers was recently eliminated on April 1, 2020 (Nova Scotia Labour Standards Inquiries Officer, personal communication, April 29, 2020; Shannon, 2011).

A2.5 New Brunswick

New Brunswick had a youth minimum wage for workers aged 17 or less. However, according to Shannon (2011), the province abolished its youth minimum wage in January 1974. Ravensbergen (1979) states that New Brunswick did not have any special minimum wage rates distinct from the general minimum wage in 1979.

A2.6 Quebec

Quebec adopted a youth minimum wage rate that was 10 cents lower than the adult minimum wage rate in 1966 (Lehoux, 2010). More precisely, Quebec set two separate youth minimum wages: one for youth workers not receiving tips and another for those working in the hospitality industry and receiving tips (Lehoux, 2010; Shannon, 2011). In our dataset, we only use the minimum wage for young workers not receiving tips. Quebec abolished both of its youth minimum wage rates on October 1, 1986 (Lehoux, 2010; Shannon, 2011).

We use information from various sources to compile the complete dataset of Quebec's minimum wage rate history from 1976 to 2019:

- The Gazette (1975) documents the minimum wage legislation that came into effect on December 1, 1975.

- The Gazette (1976) provides evidence regarding Quebec's minimum wage rate increase on July 1, 1976.
- The Times Colonist (1977) and the Gazette (1977b) provide information regarding the minimum wage change in July 1977.
- Bigio (1977) provides information concerning the minimum wage change that took place on January 1, 1978.
- The Red Deer Advocate (1978) and the Calgary Herald (1978) provide evidence regarding the minimum wage legislation in Quebec that took place on October 1, 1978.
- The Globe and Mail (1978a, 1979), the Red Deer Advocate (1978) and the Calgary Herald (1978) document the minimum wage change that occurred on April 1, 1979.
- The Globe and Mail (1980b) provides information regarding the minimum wage increase on April 1, 1980.
- Robinson (1981) and the Globe and Mail (1981a) provide information about a minimum wage increase on April 1, 1981.
- The Gazette (1981) documents a minimum wage increase on October 1, 1981.

Lehoux (2010) and Shannon (2011) state that the province's youth minimum wage was abolished in October 1986. We estimated the youth minimum wage from July 1976 to June 1977 because we could not find data for this time. There is evidence that Quebec's minimum wage change on July 1, 1976 was linked to the consumer price index (The Gazette, 1976) and its increase on July 1, 1977 was tied to cost of living adjustments (The Gazette, 1977a, 1977b; the Calgary Herald, 1977). We therefore assume that the youth and general minimum wages changed by the same proportion. Using data from Statistics Canada (2016) for the general minimum wage, we first computed the percentage changes in general minimum wages during that time. Then, we calculated what the youth minimum wage would have been each month if it changed at the same time and by the same percentage. To provide some support for this approach, we found a newspaper article in The Gazette from December 29, 1976 that states, "[I]f the minimum wage were raised to $3 for those over 25 years of age and before then left to the employer's discretion above the present $2.67 level…" (Sullivan, 1976). The hourly wage of $2.67 is exactly the value of the youth minimum wage we obtain for December 1976 using our approach.

A2.7 Ontario

Ontario had a distinct student/youth minimum wage throughout the period of study. The Ontario Ministry of Labour (1976) states that "the student rate applies to students under 18 who work 28 hours or less per week or during school holidays." Similarly, the Ontario Ministry of Labour, Training and Skills Development (2020) states that the student rate "applies to students under the age of 18 who work 28 hours a week or less when school is in session, or work during school breaks and holidays". Thus, the practical definition of Ontario's student minimum wage has been very stable for more than 40 years.

We use information from various sources to compile the complete dataset of Ontario's minimum wage rate history from 1976 to 2019:

- The Ottawa Citizen (1975) provided data on the minimum wage change that occurred on May 1, 1975.
- The Ontario Ministry of Labour (1976) revealed the change to the student minimum wage that occurred on March 15, 1976.
- The Globe and Mail (1978b) detailed the minimum wage changes in Ontario that occurred on August 1, 1978 and January 1, 1979.
- The Globe and Mail (1980a) explained the minimum wage change that occurred on March 31, 1981.
- The Globe and Mail (1981b) detailed the change to the student minimum wage that took place on October 1, 1981.
- The Ontario Ministry of Labour (1984) detailed the student minimum wage increases that happened on March 1, 1984 and October 1, 1984.
- Ingram (1986), Contenta (1986), and the Toronto Star (1986) provide evidence on the student minimum wage increase that took place on October 1, 1986.
- Walker (1987) and Emmerson (1987) outlined the student minimum wage changes that occurred on October 1, 1987.
- Keena (1988) detailed the increase to the student rate on October 1, 1988.
- Stinson (1990) informs the minimum wage changes that took place on October 1, 1989 and October 1, 1990.
- The Toronto Star (1991) outlined the student minimum wage increase on November 1, 1991.
- The minimum wage rate increase on November 1, 1992 was explained by the Windsor Star (1992) and the Globe and Mail (1992).
- The Globe and Mail (1993) and the Toronto Star (1993) revealed information on the student minimum wage increase that took place on January 1, 1994.
- Ontario Newsroom (2007) provided evidence regarding the student minimum wage changes that took place on January 1, 1995, February 1, 2004, February 1, 2005, February 1, 2006, February 1, 2007, March 31, 2008, March 31, 2009, and March 31, 2010.
- Brennan (2004) also provided information on the February 1, 2004 student minimum wage increase.
- The Ottawa Citizen (2008) outlined the increase to the student minimum wage that occurred on March 31, 2008.
- The government of Ontario (2009) explained the student minimum wage increase that took place on March 31, 2009.

- The Government of Ontario (2010) delineated the details of the student minimum wage change that occurred on March 31, 2010.
- Ontario Newsroom (2014a) describes the student minimum wage increase that occurred on June 1, 2014.
- Ontario Newsroom (2015) describes the student minimum wage increase on June 1, 2014 and October 1, 2015.
- Ontario Newsroom (2016) summarized the student minimum wage changes that occurred on October 1, 2015 and October 1, 2016.
- The Ontario Ministry of Labour, Training and Skills Development (2020) described the details of the student minimum wage increases that occurred on October 1, 2017 and January 1, 2018.

We could not find an article that explicitly stated the value the student minimum wage on October 1, 1989, which was the same date that the adult minimum wage in Ontario increased (Statistics Canada, 2016). Stinson (1990) asserts that the student minimum wage rose "to $4.55 from $4.15" on October 1, 1990. The most recent adult minimum wage change in Ontario before that date was the change that occurred on October 1, 1989, according to Statistics Canada (2016). Therefore, we assume that the minimum wage in Ontario increased to $4.15 on October 1, 1989—since the adult minimum wage increased on that date as well (Statistics Canada, 2016)—and we assume that the student rate did not change again until October 1, 1990.

A2.8   Manitoba

Information on Manitoba's youth minimum wage history derives from an article on the provincial government's website (Employment Standards Manitoba, n.d.). The article states that Manitoba began using a youth minimum wage for men in 1945 and created a youth minimum wage for women residing in rural areas in 1952. Manitoba abolished its gender-based minimum wage in 1960 but continued to distinguish between urban and rural regions. Specifically, a minimum wage existed for youths living in urban regions but not for those living in rural regions. On December 1, 1966, the province adopted a distinct minimum wage for youths in all regions.

Manitoba abolished its youth minimum wage on April 1, 1988, in favour of a single minimum wage that did not discriminate based on age (Employment Standards Manitoba, n.d.; Shannon 2011). According to Shannon (2011) and Ravensbergen (1979), Manitoba's youth minimum wage, prior to its abolition, applied to workers aged 17 or less.

A2.9   Saskatchewan

A communications consultant with the government of Saskatchewan provided us with a document on Saskatchewan's historical minimum wage legislation. Saskatchewan established a youth minimum wage in 1957, with separate minimum wages for workers in urban regions versus the rest of the province (Government of Saskatchewan Communications Consultant, personal communications, May 4, 2020). However, in 1972, Saskatchewan abolished its youth minimum wage and introduced a single minimum wage that did not distinguish based on age. Shannon (2011) states that Saskatchewan abolished its youth minimum wage rate in January 1972 and there is evidence that Saskatchewan's youth minimum wage rate, prior to its abolition, applied to individuals under the age of 17 (Shannon, 2011; Government of Saskatchewan Communications Consultant, personal communications, May 4, 2020).

A2.10   Alberta

Information on Alberta's student/youth minimum wage history derives from a document we acquired from the Alberta Employment Standards Contact Centre (personal communication, May 7, 2020).

The document indicates that Alberta's minimum wage history is more complicated than most other provinces. There is evidence that Alberta used a youth minimum wage as early as June 1, 1961, which is also the date when Alberta abolished minimum wages that discriminated based on gender. The province also introduced minimum wages for three different groups at that time: less than 18 years old; 18 years old; and more than 18 years old. On July 1, 1965, Alberta reformed its minimum wages to delineate by age and region. That reform remained in effect until July 1, 1967 when Alberta abolished it minimum wage system that distinguished by geographical area in favour of a province-wide minimum wage for those over the age of 18 and another youth minimum wage applicable to workers under the age of 18.

Further, the document indicates that Alberta changed its minimum wage system on May 1, 1980 such that the rates were $3.00, $3.35 and $3.50 for workers less than 18 years old, 18 years old and more than 18 years old, respectively. This reform remained in effect until September 1, 1988, when Alberta abolished its youth minimum wage but still kept both its general minimum wage rate and its minimum wage rate applicable to students under the age of 18. Alberta abolished its student minimum wage rate on October 1, 1998 in favor of a single, province-wide minimum wage.

Alberta used a single minimum wage from October 1998 to June 2019; a period spanning over 20 years. However, Alberta introduced a new minimum wage rate system on June 29, 2019, which included two distinct minimum wages: a $15.00 hourly general minimum wage rate and a $13.00 hourly student minimum wage rate applicable to students under the age of 18. The student minimum wage applies to any student under the age of 18 who is attending any educational institution (Government of Alberta, 2020). Moreover, for Albertan students under the age of 18, the $13.00 student minimum wage applies to the first 28 hours that the student worked during a week when school is in session and the general minimum wage of $15.00 per hour applies

to hours worked in excess of the first 28 hours. However, the $13.00 hourly student minimum wage applies to all hours worked for students under the age of 18 when school is not in session.

A2.11   British Columbia

We use information from various sources to compile the complete dataset of British Columbia's minimum wage rate history from 1976 to 2019:

- The Government of British Columbia (1975) details the minimum wage increase that took place on December 1, 1975 and June 1, 1976.
- The Alberni Valley Times (1976) explains the minimum wage change that occurred on June 1, 1976.
- The 100 Mile House Free Press (1980) provides evidence concerning the minimum wage changes that occurred on July 1, 1980 and December 1, 1980.
- The Calgary Herald (1986) provides evidence concerning the minimum wage change that took place on February 1, 1987.
- The Alberni Valley Times (1988) details the minimum wage change that took place on July 1, 1988.
- The National Post (1989) provides evidence regarding the minimum wage changes that took place on October 1, 1989 and April 1, 1990. The Vancouver Sun (1990) provides additional evidence regarding the minimum wage change occurring on April 1, 1990.
- The Vancouver Sun (1992) documents the minimum wage change that occurred on February 1, 1992.
- The Star-Phoenix (1993) provides evidence regarding the minimum wage legislation that took effect on April 1, 1993.

Shannon (2011) and Beyer (1995) indicate that British Columbia abolished its youth minimum wage rate on March 1, 1995. Shannon (2011) states that British Columbia's youth minimum wage rate, prior to its abolition, applied to individuals aged 17 or less.

A2.12   References

"Base wage rises to $4 in B.C.". (1986, December 18). *Calgary Herald.* Retrieved from https://www.newspapers.com/image/484229036/?terms=british%2Bcolumbia%2Bminimum%2Bwage.

"B.C.'s minimum wage rate rises". (1980, July 9). *100 Mile House Free Press.* Retrieved from https://www.newspapers.com/image/323997915/?terms=british%2Bcolumbia%2Bminimum%2Bwage.

B.C. minimum wage rises to $5.50. (1992, February 1). *The Vancouver Sun.* p. C2. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/243402553/fulltext/7E82A53F6B5D4C2DPQ/1?accountid=12378.

"B.C. wage up". (1989, July 7). *National Post.* Retrieved from https://www.newspapers.com/image/512200697/?terms=B.C.%2Bwage%2Bup.

Beyer, H. (1995, March 8). This is the week that was. *The Caledonia Courier*, p. 5. Retrieved from https://www.newspapers.com/image/324140443/?terms=british%2Bcolumbia%2Byouth%2Bminimum%2Bwage.

Bigio, M. (1977, December 21). Restaurateurs say tax bite driving crowd to fast food. *The Gazette*, p. 3. Retrieved from https://www.newspapers.com/image/421592146/?terms=).%2BRestaurateurs%2Bsay%2Btax%2Bbite%2Bdriving%2Bcrowd%2Bto%2Bfast%2Bfood.

Brennan, R. (2004, February 2). Minimum wage rises to $7.15/hour ; 1st increase in 9 years begins Rate scheduled to be $8 by 2007. *Toronto Star*, p. A06. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/438687794/fulltext/45C0EEF4A7E42B2PQ/1?accountid=12378.

Contenta, S. (1986, June 20). Minimum wage rises to $4.35 Oct. 1. *Toronto Star*, p. A2. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/435442285/fulltext/E3C4BDC05C404440PQ/1?accountid=12378.

Emmerson, J. (1987, September 29). Minimum wage up 20 to $4.55 an hour. *Toronto Star*, p. A1. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/435625511/abstract/C0BF0D1C44884623PQ/1?accountid=12378.

Employment Standards Manitoba. (n.d.). Historical Summary of Min. Wage Rates in Manitoba. Retrieved May 26, 2020, from https://www.gov.mb.ca/labour/standards/history-min.html.

Government of Alberta. (2020). Minimum wage. Retrieved June 04, 2020, from https://www.alberta.ca/minimum-wage.aspx.

Government of British Columbia. (1975, November 19). "Notice of Minimum Wage Revision". *The Chilliwack Progress.* Retrieved from https://www.newspapers.com/image/77091358/?terms=british%2Bcolumbia%2Bminimum%2Bwage.

Government of Ontario. (2009, March 4). The minimum wage is going up. *National Post*, p. A16. Retrieved from https://www.newspapers.com/image/514731861/?terms=ontario%2Bminimum%2Bwage.

Government of Ontario. (2010, March 17). The minimum wage is going up. *The Windsor Star*, p. C10. Retrieved from https://www.newspapers.com/image/506283841/?terms=ontario%2Bminimum%2Bwage%2Bunder%2B18.

Government of Prince Edward Island. (2016). HISTORY OF MINIMUM WAGES PRINCE EDWARD ISLAND. Retrieved from https://www.princeedwardisland.ca/sites/default/files/publications/minimum_wage_history_1.pdf.

Ingram, M. (1986, June 21). Ontario minimum wage rising 8.75% to $4.35. *The Globe and Mail*, p. A5. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/386390079/fulltext/9F77C8D6A2B6415CPQ/1?accountid=12378.

Keena, K. (1988, June 03). Minimum wage to rise to $4.75 an hour in fall NDP critic attacks 'pathetic' 20-cent increase. *Toronto Star*, p. A5. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/435757596/fulltext/5794EFFD6EBE46BAPQ/1?accountid=12378.

Lehoux, D. (2010). L'histoire du salaire minimum au Québec. *Regards sur le travail*, *7(1)*. Retrieved from https://www.travail.gouv.qc.ca/fileadmin/fichiers/Documents/regards_travail/vol07-01/L_histoire_du_salaire_minimum.pdf.

Levesque announces increase in Quebec minimum hourly wage. (1978, July 21). *Calgary Herald*, p. B.12. Retrieved from https://www.newspapers.com/image/482203736/?terms=student%2Bminimum%2Bwage%2Bunder%2B18%2Bquebec.

Lowest-paid Ontario workers to get 5.5-per-cent increase Economist foresees effect on pay cheques across country. (1993, July 31). *The Globe and Mail,* p. A.5. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/385312334/fulltext/24384D261DD84718PQ/1?accountid=12378.

Minimum wage gets boost on March 31 on way to $10 an hour. (2008, March 2). *The Ottawa Citizen*, p. A4. Retrieved from https://www.newspapers.com/image/468447968/?terms=ontario%2Bminimum%2Bwage.

"Minimum Wage going up in B.C.". (1988, April 21). *Alberni Valley Times*. Retrieved from https://www.newspapers.com/image/560117244/?terms=british%2Bcolumbia%2Bminimum%2Bwage.

"Minimum Wage Increases Today". (1976, June 1). *Alberni Valley Times*. Retrieved from https://www.newspapers.com/image/559985220/?terms=british%2Bcolumbia%2Bminimum%2Bwage.

Minimum wage raised to $2.87 as of July 1. (1976, June 1). *The Gazette*, p. 3. Retrieved from https://www.newspapers.com/image/421347193/?terms=minimum%2Bwage%2Bquebec.

Minimum wage raised two bits to $4.50 and $5. (1990, March 31). *The Vancouver Sun,* p. D17. Retrieved from https://www.newspapers.com/image/493204276/?terms=quebec%2Bminimum%2Bwage%2Bunder%2B18.

Minimum wage rises 35 to $4.35. (1986, September 29). *Toronto Star*, p. A2. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/435495371/fulltext/711864AF1FED4C9APQ/1?accountid=12378.

Minimum wage rises in Ontario to $3.50 an hour. (1981b, October 1). *The Globe and Mail*, p. P.5. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/386653104/fulltext/D54DE88B572D4B00PQ/1?accountid=12378.

Minimum wage rising to $6 an hour. (1991, June 27). *Toronto Star*, p. A1. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/436427837/fulltext/448D9245ABF14BB0PQ/1?accountid=12378.

Minimum wage to increase by 15 cents. (1975, January 23). *The Ottawa Citizen*, p. 55. Retrieved from https://www.newspapers.com/image/460180807/?terms=minimum%2Bwage%2Bontario.

Minimum wage to rise to $6.70. (1993, July 31). *Toronto Star*, p. A12. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/436867536/fulltext/56CCA7CD0A9F49EDPQ/1?accountid=12378.

Minimum wages increased. (1975, November 28). *The Gazette*, p. 47. Retrieved from https://www.newspapers.com/image/421569789/?terms=quebec%2Bminimum%2Bwage.

No wage violations reported. (1981, October 8). *The Gazette*, p. 43. Retrieved from https://www.newspapers.com/image/422005900/?terms=quebec%2Bminimum%2Bwage%2Bunder%2B18.

Ontario minimum wage to increase in November. (1992, August 1). *The Windsor Star*, p. A9. Retrieved from https://www.newspapers.com/image/503982943/?terms=ontario%2Bminimum%2Bwage%2Bunder%2B18.

Ontario Ministry of Labour. (1976, March 23). If you're making minimum wage, you get a raise. *The Windsor Star*, p. 4. Retrieved from https://www.newspapers.com/image/502165270/?terms=minimum%2Bwage%2Bontario.

Ontario Ministry of Labour (1984, January 23). The New Minimum Wage Rates in Ontario. *The Windsor Star*, p. A4. Retrieved from https://www.newspapers.com/image/504355720/?terms=minimum%2Bwage%2Bontario.

Ontario Ministry of Labour, Training and Skills Development. (2020, March 31). Minimum wage. Retrieved from https://www.ontario.ca/document/your-guide-employment-standards-act-0/minimum-wage

Ontario Newsroom. (2007, July 4). McGuinty Government Boosts Minimum Wage For Students. Retrieved from https://news.ontario.ca/archive/en/2007/07/04/McGuinty-Government-Boosts-Minimum-Wage-For-Students.html

Ontario Newsroom. (2014a, February 25). Minimum Wage in Ontario. Retrieved from https://news.ontario.ca/mol/en/2014/02/minimum-wage-in-ontario.html

Ontario Newsroom. (2015, March 19). Minimum Wage Increase. Retrieved from https://news.ontario.ca/mol/en/2015/03/minimum-wage-increase.html.

Ontario Newsroom (2016, March 18). Minimum Wage Increases for October 1, 2016. Retrieved from https://news.ontario.ca/mol/en/2016/03/minimum-wage-increases-for-october-1-2016.html.

Ontario plans two-stage increase Basic wage will rise to $3.50. (1980a, December 31). *The Globe and Mail*, p. P.5. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/386850162/fulltext/717B407D616342BEPQ/1?accountid=12378.

Ontario's minimum wage gets increase to $6.35. (1992, August 1). *The Globe and Mail*, p. B12. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/1151519411/fulltextPDF/92A477F812A9476EPQ/1?accountid=12378.

Quebec minimum wage hike aimed at 'narrowing gap'. (1978, July 22). *Red Deer Advocate*, p. 5. Retrieved from https://www.newspapers.com/image/557828628/?terms=quebec%2Bminimum%2Bwage.

Quebec minimum wage is tied to the cost of living. (1977a, February 15). *The Gazette*, p. 1. Retrieved from https://www.newspapers.com/image/421494971/?terms=Quebec%2Bminimum%2Bwage%2Bis%2Btied%2Bto%2Bthe%2Bcost%2Bof%2Bliving

Quebec raises minimum wage. (1981a, January 24). *The Globe and Mail*, p. B.3. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/386827237/abstract/AAF371C2329540FFPQ/1?accountid=12378.

Quebec to increase minimum wage rates. (1978a, July 21). *The Globe and Mail*, p. B.12. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/387055348/fulltext/3B0C6E1CFDC4471CPQ/1?accountid=12378.

Reaches $3 on Jan. 1 Minimum wage going to $2.85. (1978b, February 21). *The Globe and Mail*, p. P.1. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/387140147/fulltext/5DF900346C2412BPQ/1?accountid=12378.

REPORT ON CANADA Quebec to raise minimum wage to $3.65 an hour on April 1 30. (1980b, February 7). *The Globe and Mail*, p. B.20. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/386977437/fulltext/9FC2ABE83A0D4144PQ/1?accountid=12378

REPORT ON CANADA Quebec wages. (1979, March 31). *The Globe and Mail*, p. B.2. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/387080945/abstract/B9B65A46BBD645DEPQ/1?accountid=12378.

Ravensbergen, J. (1979, January 5). Quebec pulls back on minimum wage hikes. *The Gazette*, p. 68. Retrieved from https://www.newspapers.com/image/421793458/?terms=student%2Bminimum%2Bwage%2Bunder%2B18.

Robinson, J. (1981, April 1). Minimum wage goes to $3.85 an hour today. *The Gazette*, p 33. Retrieved from https://www.newspapers.com/image/419458422/?terms=nova%2Bscotia%2Bminimum%2Bwage%2B%243.30.

Savage, H. (1973, October 14). Canada Sees No Threat From European Nations. *St. Petersburg Times*, p. 22-A. Retrieved from https://www.newspapers.com/image/318605881/?terms=newfoundland%2Bminimum%2Bwage.

Shannon, M. (2011). The Employment Effects of Lower Minimum Wage Rates for Young Workers: Canadian Evidence. *Industrial Relations: A Journal of Economy and Society, 50*(4), 629-655.

Statistics Canada. (2016, December 6). Customized Search for General Minimum Wage Rates in CANADA. Retrieved May 24, 2020, from http://srv116.services.gc.ca/dimt-wid/sm-mw/rpt4.aspx?GoCTemplateCulture=en-CA.

Stinson, M. (1990, July 3). Minimum wages to rise Hike in Ontario and Quebec rates. *The Globe and Mail*, p. B.3. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/385584272/fulltext/564654856173439FPQ/1?accountid=12378.

Sullivan, J. (1976, December 29). New $3 wage will hobble enterprise. *The Gazette*, p. 6. Retrieved from https://www.newspapers.com/image/421451939/?terms=quebec%2Bminimum%2Bwage.

The bare minimum. (1993, July 19). *Star-Phoenix.* p. 9. Retrieved from https://www.newspapers.com/image/512373155/?terms=british%2Bcolumbia%2Bminimum%2Bwage%2Bstudent%2B17.

U.S. businesses blast minimum wage hike. (1977b, August 20). *The Gazette*, p. 35. Retrieved from https://www.newspapers.com/image/421760167/?terms=quebec%2Bminimum%2Bwage%2Bunder%2B18.

Walker, W. (1987, June 5). Minimum wage for Ontario climbs to $4.55 in October, government says. *Toronto Star*, p. A3. Retrieved from https://search-proquest-com.qe2a-proxy.mun.ca/docview/435581803/fulltext/BFB150C13F5A4E6FPQ/1?accountid=12378.