The Impact of the Minimum Wage on Employment in Canada: 1996-2010.

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Abstract

This research studies the effect of minimum wages on employment with Canadian data from 1996 to 2010. Using a prespecified research method described by Campolieti, Gunderson, and Riddell (2006), I find that increases in the minimum wage caused a moderate but statistically insignificant adverse effect on youth employment with an elasticity estimate of -0.12. Most of the adverse employment effect is driven by part-time teens (aged 15-19) while full-time youth (aged 15-24) experienced modest but statistically insignificant increases in employment.

Keywords: Minimum Wage, Employment, Unemployment, Labour

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Introduction

Motivation

What effect does the minimum wage have on youth employment in Canada? Classical theory predicts that the minimum wage is a binding price floor in the labour market and will only decrease employment (Stigler, 1946). However, other theoretical models predict that, in certain circumstances, the minimum wage may have no effect or a positive effect on employment. For example, firms may respond to minimum wage increases by reducing fringe benefits such as decreasing bonuses, eliminating free meals and company parties, or other non-pecuniary benefits and leaving employment levels unchanged. Also, if employment is inelastic, firms may make no meaningful changes in employment. Moreover, if monopsony power exists in the labour market, minimum wages can increase employment. Therefore, what effect the minimum wage has on employment is a question for empirical study. However, there is currently conflicting empirical evidence, and there is no broad consensus amongst labour economists about what effect the minimum wage has on the employment of young workers.[2] Some studies find that the minimum wage has a sizeable negative impact on youth employment, while other studies find no evidence of any employment effects. Furthermore, most minimum wage research looks at employment effects in the United States, and there is little empirical research in Canada in the twenty-first century.

This study contributes to the literature by providing an updated set of estimates for the minimum wage employment effects of young workers in Canada. Given the presence of publication biases (Doucouliagos & Stanley, 2009) and specification searching (Card &

[2] research on minimum wage employment effects mostly focuses on young workers because they are more likely to be low-skill or low-wage workers and, thus, are to more likely to be adversely affected by increases in the minimum wage.

Krueger, 1995; Neumark, 2001) in the minimum wage literature, this paper presents estimates using a the prespecified research design used in Campolieti et al. (2006). This design was originally implemented in the US by Neumark (2001). A prespecified research design entails committing to a set of specifications and datasets before analyzing the data. The rationale for using a prespecified design is to avoid mental biases in the research. Using this method, I find statistically insignificant disemployment effects, which are largely driven by part-time teen workers and are offset by other groups who experience increases in employment. A corollary from using the same method as Campolieti et al. (2006) is that this study provides evidence which suggests an important shift in how labour markets respond to minimum wage legislation may have occurred. This evidence alone cannot explain what this shift may be but may provide insight for future research.

Understanding the minimum wage effects is important as the minimum wage is a contemporary Canadian public policy issue. For one, at least one party in seven of the ten most recent provincial elections had minimum wage policies promises to either increase the minimum wage, or cancel planned increases.[3] Also, in the 2019 Canadian federal election, the NDP, Liberal, and Green parties all campaigned on increasing the federal minimum wage to $15 per hour. Moreover, there has been an increase in grassroots activist organizations that advocate for increases in the minimum wage. Some of the most visible groups include $15 and Fairness, Living Wage Canada, and ACORN Canada. Therefore, given the pervasiveness of minimum wage debate within Canada, it is important to have contemporary evidence when designing minimum wage policies.

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[3] Changes to the provincial minimum wage were presents in at least one party's platform in the 2017 British Columbia election, the 2019 Alberta election, the 2019 Manitoba election, the 2018 Ontario election, the 2018 Quebec election, the 2018 New Brunswick election, and the 2017 Nova Scotia election.

Literature Review

Overall, the empirical minimum wage literature has two conflicting findings and, thus, proposes inconclusive evidence as to what effect the minimum wage has on employment if any. One one hand, many panel studies find negative employment effects. For example, Burkhauser, Couch, and Wittenburg (2000) find that a 10% increase in the minimum wage causes a 2 to 6% decrease in teenage employment and argue that proper macroeconomic controls consistently find a modest and statistically significant negative relationship between minimum wages and employment. Similar panel studies typically find elasticity estimates in the range of -0.1 and -0.3 (Meer & West, 2016; Sabia, 2009; Neumark & Wascher, 1994, 1992) One review of the literature concludes that minimum wage increases negatively impact employment for low-skilled workers and that the most convincing evidence points towards this conclusion, unambiguously. Neumark and Wascher (2008).[4]

Most Canadian studies find evidence of adverse employment effects. Using a panel study, Baker, Benjamin, and Stanger (1999) find that a 10% increase in the minimum wage decreases teen employment by roughly 2.5%. Using a similar method with data from 1981 to 1997, Campolieti et al. (2006) find statistically significant elasticity estimates in the range of -0.1 and -0.4. Campolieti, Fang, and Gunderson (2005) find statistically significant elasticities ranging between -0.3 and -0.5. More recent studies continue to use a similar method and find comparable results. Sen, Rybczynski, and Van De Waal (2011) find similar elasticity estimates as previous Canadian studies and, separating by gender, Rybczynski and Sen (2018) still find statistically significant negative employment elasticities and that increases in the minimum wage are associated with lower employment for prime-age immigrants.

However, there are many studies which find evidence that increases in the minimum wage have either no effect on employment or a small, economically insignificant negative

[4] Dube (2011) argues that Neumark and Wascher (2008) do not give fair treatment to evidence that contradicts Neumark and Wascher's conclusion.

effect on employment. For example, Card and Krueger (1994), (2000) study the change in the minimum wage in New Jersey compared to eastern Pennsylvania and find no statistically significant disemployment effects.[5] Similar case studies that analyze one local change in minimum wage tend to produce no detectable employment effects (Dube, Naidu, and Reich (2007); Katz & Krueger, 1992; Card, 1992) Card and Krueger (2015) present a summary of the literature which suggests that minimum wage increases have no economically or statistically significant effect on employment. Also, meta-analyses by Doucouliagos and Stanley (2009) and Belman and Wolfson (2014) both find no practically or statistically significant employment effect.

A downfall of both case studies and panel studies is the reliance on time-series variation in the minimum wage in a limited number of jurisdictions. Dube (2011) argues that variation in the minimum wage in the US has been highly spatially selective and that employment trends for low-wage workers vary substantially across states. Also, states with the greatest increases in the minimum wage are those with lower growth in demand for low-wage workers. Therefore, there is a worry that the minimum wage effect estimates are biased to produce negative estimates from unobserved heterogeneity. As such, many contemporary studies use novel attempts to control for heterogeneity and largely find no disemployment effects. (Dube, Lester, & Reich, 2010; Addison, Blackburn, & Cotti, 2012; Allegretto, Dube, & Reich, 2011).

However, some argue that these novel methods are problematic. There is an ongoing debate between prominent minimum wage researchers as to what the best econometric methods are for identifying minimum wage effects. Some researchers argue that new methods that control for spatial heterogeneity are problematic and fail to identify minimum wage effects and proper controls produce statistically significant adverse employment effects. (Neumark, Salas, and Wascher (2014); Neumark and Wascher (2017)).

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[5] Neumark and Wascher (2000) replicate this study and find evidence that employment did decrease in New Jersey.

Others argue the novel methods are valid and that they properly identify minimum wage effects and still find no economically or statistically significant effect on employment (Allegretto, Dube, Reich, & Zipperer, 2017). The current consensus within this debate is that minimum wage effects have been difficult to identify.

In addition to the empirical issues mentioned above, there is evidence of author and publication bias in the minimum wage literature. Card and Krueger (1995) raise concerns that both specification searching and publication bias causes authors to favour statistically significant negative employment effects. (Neumark & Wascher, 1998) refute this finding and fail to reject the hypothesis of no publication bias. However, a more recent meta-analysis by Doucouliagos and Stanley (2009) analyzes 64 studies and finds evidence that publication bias is present in the minimum wage literature. In response to the possibility of author and publication bias, Neumark (2001) commits to a prespecified research design where he agreed to a dataset and set of specification with the journal before any analysis or estimation. In Canada, Campolieti et al. (2006) followed this prespecified design "in spirit" with additional specifications that were recommended by Neumark (2001).

Empirical Methodology

This study estimates minimum wage employment effects by replicating the prespecified methodology used in Campolieti et al. (2006). The purpose of following this methodology is to avoid mental biases and specification searching. The baseline specification for this methodology is a log-log model which estimates relative minimum wage employment rate elasticities.

$$\begin{aligned} \ln EMP/POP_{it} = \alpha + \eta \ln MinW/AvgW_{it} + \rho \ln MinW/AvgW_{it-1} \\ + \gamma \ln X_{it} + \phi Province_i + \tau Year_t + \epsilon_{it} \end{aligned} \tag{1}$$

where i is a subscript for province, and t is a subscript for year. The dependent variable, EMP/POP_{it} is the employment rate which denotes the fraction of the total population of a specific group that is employed (for example, teens). The relative minimum wage,

$MinW/AvgW_{it}$, is the ratio of the minimum wage to the average wage of workers aged 15 to 64. X_{it} is a vector of control variables that impact employment-population ratio trends independently of minimum wage trends. The baseline specification contains two control variables: the prime-age (aged 25-54) male unemployment rate, to control for provincial labour market conditions; and the percentage of the age group under analysis to the working-age population (aged 15-64), to control for variation in supply for the group under study. $Province_i$ is a set of dummies to control for time-invariant fixed effects that vary across provinces, and $Year_t$ is a set of year dummies to control for fixed effects that are common to all provinces that vary by year.

I calculate estimates for three population groups: teens (aged 15-19), young adults (aged 20-24), and youth (aged 15-24). The motivation for restricting the analysis to young workers is that they are more likely to be low-wage or low-skill workers. Theory predicts that the minimum wage will only be binding if it is a binding price floor in the labour market. Thus, high-wage and high-skill workers are either unaffected by an increase in the minimum wage or experience an increase in employment if firms substitute to high-skill labour. Therefore, this methodology estimates minimum wage employment effects for young workers.

The relative minimum wage, $MinW/AvgW_{it}$, is a measure of the level of the minimum wage to the market-determined wage. This measurement captures the idea that the employment effects of minimum wages change should be greater the higher the minimum wage is relative to the market-determined wage. In other words, estimates derived from this variable describe the effect that an increasingly binding minimum wage has on the employment of a given age group. However, this variable may impose a source of bias.

Card, Katz, and Krueger (1994) argue that if the labour demand curve slopes down, and employment is determined by the demand curved, then an increase in the minimum wage must reduce employment by raising wages. Therefore, the minimum wage ratio must

be positively correlated with average youth wages. However, they find this is not the case and that the minimum wage ratio is negatively correlated with average youth wages. Because average youth and adult wages are positively correlated, including adult wages in the denominator induces a source of negative bias that can outweigh any positive correlation between the minimum wage and average wages.

Therefore, this methodology includes additional estimates where average wage and minimum wage are separated.

$$\begin{aligned} \ln EMP/POP_{it} = \alpha + \eta_1 \ln MinW_{it} + \rho_1 \ln MinW_{it-1} + \eta_2 \ln AvgW_{it} + \rho_2 \ln AvgW_{it-1} \\ + \gamma \ln X_{it} + \phi Province_i + \tau Year_t + \epsilon_{it} \end{aligned} \tag{2}$$

Because minimum wage is a unique variable in model (2), this specification estimates the minimum wage employment rate elasticities. In other words, estimates from model (2) describe the effect of an increase in the minimum wage on the employment of a given age group. The rationale for including the average wage as a separate regressor is that demand for youth employment depends on their wage relative to the wage of other workers.

The first identifying assumption of these models is that, in the absence of minimum wages, provinces follow parallel employment rate trends and act as proper controls for each other. The other identifying assumption is that there are no confounding factors that affect both minimum wages and employment rates other than the control variables specified. If both of these conditions are satisfied, then these models provide estimates of the causal effect of minimum wages on youth employment rates.

These specifications also assume that without minimum wage increases, changes in employment for the age cohort under study would be similar across provinces and, thus, be captured in the year dummy variables. However, research by Deere, Murphy, and Welch (1995) show that this may be a faulty assumption. They find that increases in the minimum wages tend to reduce employment for low-skilled groups more than high-skilled groups and that employment growth for high-skilled workers is strongest in low-wage regions. In other words, it is unlikely that employment trends are similar across provinces

and assuming so can lead to biased estimates. Including the prime-age male unemployment rate should control for some of these differences, but employment and unemployment rates may not be tightly linked. Therefore, I estimate specifications (1) and (2) conditional on the employment rate for prime-age individuals who have more than a high-school education as an additional control variable.

To focus on a sub-sample of workers who are most likely to be affected by increases in the minimum wage, I also estimate this augmented specification for a subsample or lower-skilled workers. I use educational attainment and enrolment as a proxy for skill and define low-skill as those not enrolled in any form of education at the time of the survey and whose highest level of education is high school or less. Therefore, I hypothesize that the minimum wage effects for this sub-sample will be more adverse than the entire sample.

Lastly, I estimate equation (1) and (2) for two sub-samples: full-time workers and part-time workers. The motivation is to be able to provide a more detailed picture of the minimum wage effects. Minimum wages may affect part-time and full-time employees differently in these models. First, these specifications are measuring changes in the number of persons employed, yet firms may respond to increased wages by reducing hours worked. If the reduction of hours worked is uniform for all workers, then part-time employees will be more likely to have their hours reduced to zero. Secondly, firms may consider part-time workers as more replaceable, making them more susceptible to lay-offs. Also, part-time workers may be, on average, less productive due to spending less time gaining job-specific skills than their full-time counterparts and, thus, be more adversely affected by the minimum wage.

Data

I use Statistics Canada provincial time series data to construct a panel from 1996 to 2010. I use the April Labour Force Survey (LFS) to calculate province-year means for the

dependant variables, the employment rate for the relevant age group, and three control variables: the percentage of the relevant age group to the entire working-age population, the prime-age male unemployment rate, and the skilled prime-age employment rate. The LFS is a mandatory monthly cross-sectional representative survey that collects data on the Canadian population over the age of 15 from all provinces and territories. The LFS excludes persons living on reserves and other Aboriginal settlements in the provinces, full-time members of the Canadian Armed Forces, the institutionalized population, and households in extremely remote areas with very low population density. According to Statistics Canada, "[t]hese groups together represent an exclusion of less than 2% of the Canadian population aged 15 and over." (Statistics Canada, 2020).

I use the Survey of Labour and Income Dynamics (SLID) to calculate average wages.[6] The SLID is a supplement to the April LFS and, thus, is a survey of the same individuals. (Statistics Canada, 1999; Statistics Canada, 2012) The SLID is also a representative cross-sectional survey but diverges from LFS as it calculates annual averages and is non-mandatory. (Statistics Canada, 2013) The participation rate for SLID typically ranges between 70% and 85% (Statistics Canada, 2012).

I obtain information on historical minimum wages from Employment and Social Development Canada (The Government of Canada, 2020). This database shows the minimum wage in each province and territory on the exact date of the change. A benefit of researching minimum wage effects in Canada is that there is rich variation across time and provinces. As presented in Table A2, there were 84 unique minimum wage changes across all provinces and, on average, there are 8.07 unique minimum wages across ten provinces.

It is worth noting that this research uses the April LFS to calculate annual averages. The rationale for this restriction is to follow the research design of Campolieti et al. (2006)

[6] The time period of this study is determined by the SLID, where publicly available data begins in 1996 and ends in 2010. While data for 2011 is available, I was unable to use it due to data formatting issues.

who use the April LFS to calculate province-year means. They provide no discussion for their reasoning for restricting their data to April. However, they use the Survey of Consumer Finances (SCF) for their earnings data. SCF is the predecessor to the SLID and also draws from the April LFS. Therefore, the likely rationale is to ensure that both the earnings and employment data are drawn from the same panels to avoid sampling errors. Thus, this research assumes that the average employment levels per province in April is a reasonable estimate for the entire year. This restriction may be problematic and bias estimates towards zero if employment adjustments occur or re-adjust between May through March.

Results

Results for Entire Sample

Tables A3 and A4 present the estimated minimum wage employment elasticities for the entire sample. The first three columns of both tables show the *relative* minimum wage employment elasticity estimates. An estimated coefficient of -0.1 using the minimum wage ratio models implies that a 10% increase in the minimum wage relative to the market-determined average wage decreases the employment rate by 1%. The last three columns show the minimum wage employment rate elasticity estimates. Therefore, an estimated coefficient of -0.1 using the minimum wage as a separate regressor implies that a 10% increase in the minimum wage decreases the employment-population ratio by 1% I present estimates for all three age cohorts for all specifications.

The first panel of Table A4 presents estimates for specification (1) and (2), and the second panel includes estimates with the high-skilled prime-age employment rate added as an additional control variable. Table A4 indicates that youth experience a moderate decrease in employment, which is mostly driven by teen employment effects. For teens, a 10% increase in the minimum wage decreases their employment-population ratio by a 3.3%, with most of the wage decrease occurring with a lag. However, for young adults, the

estimates suggest that disemployment effects happen immediately, but employment increases over a 1-year lag. These combined effects lead to an estimated null net employment effect. However, these findings are somewhat conflicted by comparing estimates to the relative minimum wage elasticities.

On one hand, many estimated minimum wage employment elasticities are economically significant with some statistical significance. On the other hand, all *relative* minimum wage employment elasticities are both statistically and economically insignificant with some estimates being statistically insignificant at a 90% threshold. Therefore, I fail to reject the hypothesis that the relative minimum wage had no effect on employment from 1996 to 2010. That is to say, I am unable to rule out the possibility that increasing binding minimum wages did not affect employment. These results imply that employers are responding to changes in minimum wages but not to relative minimum wages.

Table A4 also implies that including the high-skilled prime-age employment rate has little effect on the estimates. In other words, excluding the prime-age skilled employment rate does not pose any significant bias on the estimated coefficients. This finding is in line with both Campolieti et al. (2006) and Neumark (2001) and implies that this control variable may be unnecessary should future researchers wish to use these specifications.

Results for Low-Skill, Part-Time, and Full-Time Workers

Table A5 presents estimates for specific sub-groups within the population. The first panel presents estimates when the sample is restricted to lower-skilled individuals with the additional control variable. The second and final panel of Table A5 show estimates for models (1) and (2) when restricted to full-time and part-time workers, respectively.

Analyzing the minimum wage effects for full-time and part-time workers separately indicate that the disemployment effects in Table A4 are mostly driven by part-time teen workers and is offset by an increase in employment for full-time youth workers. The

estimated minimum wage elasticity for part-time workers implies that a 10% increase in the minimum wage decreased part-time youth employment by 3.7%, which is mostly driven by the lag effect of part-time teens. Conversely, the same increase in the minimum wage increased full-time youth employment by 1.2%, with all positive employment effects occurring with a lag.

This evidence suggests that firms respond to minimum wage increases by substituting part-time workers for full-time workers. The result that the *relative* minimum wage increased part-time employment for young adults slightly contradicts this hypothesis. For the substitution hypothesis to be accurate, firms would have to have to substitute part-time teen employment for both part-time young adult employment and full-time youth employment.

Interestingly, minimum wage changes have a moderate but statistically insignificant positive effect on unskilled workers, defined as those whose highest level of education is high school and are not enrolled in further education. Also, all positive employment effects for this group occur with a lag. This finding is fairly perplexing as theory would predict that disemployment effects will be most substantial amongst lower-skilled workers, and this result has been found in other empirical research using tr methodology (Campolieti et al. (2006); Neumark (2001)).

Given this research uses educational attainment and enrolment as a proxy for skill, a plausible explanation for these contradictory findings is that lesser-educated youth may be less likely to work in low wage jobs compared to less-educated youth in the twentieth century. Or, given that this study uses data from April, there may be more less-educated individuals job searching in April than their enrolled peers. It may also be that case that educational attainment and enrolment is not a good proxy for skill in the labour market.

Other Results

For nearly all estimates, *relative* minimum wage has no economically or statistically significant effect on employment except for the positive employment effects for part-time young adults. One hypothesis for this result is that behavioural factors rather than economic considerations drive firms response to minimum wage increases. For example, if firms consistently chose to adjust employment by the same amount when minimum wage increases, regardless of whether or not it is optimal to do so, then this could help explain these results.

Lastly, this research finds that the lagged estimate is not always more negative than the contemporaneous effect. This finding contradicts a seminal contribution of Baker et al. (1999) that minimum wage effects happen over the long-run. Moreover, many studies have found that estimated lagged effects tend to show larger statistically significant disemployment effects (Rybczynski and Sen (2018); Campolieti et al. (2006); Neumark (2001)). However, there have been recent studies that find no lagged effects (Dube et al. (2010); Allegretto et al. (2011)).

Discussion

This study presents estimates of minimum wage employment elasticities for Canada by exploiting time-series and cross-province variation in the minimum wage over 15 years. This research commits to a prespecified research design to avoid mental biases which are present in the literature. I present employment estimates for both the minimum wage to average wage ratio and for these variables as separate regressors. Also, I estimate employment effects for three subsamples: lower-skill, full-time, and part-time workers. For

all specifications, I estimate the employment elasticities for three age cohorts: teens (15-19), young adults (20-24), and youth (15-24).

The results indicate that part-time teens experience the majority of the disemployment effects with estimated elasticities in the range of -0.3 and -0.4, and part-time young adults and all full-time youth experience a moderate increase in employment. Overall, the net effect for all youth workers is moderate to no adverse employment effects from increases in the minimum wage. Importantly, in this sample, the adversely affected population (part-time teens) account for roughly three-quarters of all teen workers or 38.5% of all youth workers, and roughly 8% of the working-age population, on average.[7]

This research also finds some surprising results. The lagged estimates are not more negative than their contemporaneous counterparts. Also, employment estimates for lower-skill workers, defined as those who are not enrolled in education and whose highest educational attainment is a high school diploma or less, are all statistically significant.

One hypothesis for these findings is that firms may have behavioural responses to minimum wages. Another hypothesis is that increases in the minimum wage may have other effects like increased prices, increased shut-downs, decreased in fringe benefits, or other effects not measure in this research. Moreover, increases in monopsony power can lead to firms increasing employment after an increase in the minimum wage. Furthermore, problems with the specification may be driving these results m. For example, some of the contemporary literature suggests that heterogeneity across regions can lead to problematic estimates, and this research uses relatively coarse heterogeneity controls. Also, averaging effects across provinces and times may provide misleading results.

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[7] This is based on the author's analysis. See Table A2

While this research is unable to answer any of these hypotheses, it does present suggestions for future research. First, analyzing the degree of monopsony power may help explain the lack of disemployment effects. Also, research into whether firms respond to the minimum wage behaviourally or through other cost-reducing effects could potentially explain the null results found in this research and others. Lastly, including better controls for heterogeneity in the Canadian literature may provide additional insights to these conflicting findings. While Canada has significant time and provincial variation in minimum wages, it is also geographically and economically diverse. For example, a change in the minimum wage will likely affect a low-wage worker in rural Alberta differently than an otherwise identical worker in downtown Toronto.

The main implication for policymakers from this research is that increases in the minimum wage will have a mixed effect on employment for young workers in Canada. On the one hand, part-time teen workers are more likely to significantly lose employment from increases in the minimum wage, while their part-time young adult and full-time youth counterparts will mostly be unaffected. Moreover, the net employment effect for all youth workers is likely small and, from a public policy perspective, effectively zero. However, these findings are unable to make any predictions on the effect minimum wage increases will have on income, poverty, prices, productivity, or other salient considerations. While employment effects are important, further attention and research should also aim to understand minimum wages effects on these outcomes and other measures of wellbeing.

Appendix A

Appendix A: Tables

Table A1

Descriptive Statistics of Non-Logarithmic Variables

Variable	Mean	Standard Deviation	Minimum	Maximum
Minimum Wage	6.879	1.217	4.75	10.25
Average Wage (Age 15-64)	23.714	6.946	12.543	61.139
Relative Minimum Wage	0.305	0.067	0.097	0.495
Prime Age Male Unemployment Rate	0.194	0.079	0.072	0.373
Prime Age Adult Employment Rate	0.815	0.045	0.657	0.882
Teens, Aged 15-19				
Employment Rate	0.389	0.089	0.128	0.545
Employment Rate, Low-Skill	0.090	0.034	0.026	0.206
Employment Rate, Full-Time	0.092	0.037	0.025	0.188
Employment Rate, Part-Time	0.297	0.061	0.096	0.398
Share of Population	0.102	0.008	0.086	0.122
Young Adults, Aged 20-24				
Employment Rate	0.640	0.081	0.382	0.783
Employment Rate, Low-Skill	0.218	0.057	0.096	0.326
Employment Rate, Full-Time	0.448	0.074	0.233	0.631
Employment Rate, Part-Time	0.191	0.040	0.110	0.285
Share of Population	0.100	0.006	0.087	0.115
Youth, Aged 15-24				
Employment Rate	0.513	0.084	0.252	0.661
Employment Rate, Low-Skill	0.153	0.043	0.061	0.254
Employment Rate, Full-Time	0.268	0.055	0.132	0.424
Employment Rate, Part-Time	0.245	0.041	0.105	0.320
Share of Population	0.202	0.013	0.174	0.234

Notes:

Table A2

Nominal Hourly Minimum Wages in Canada by Province on April 1st From 1996 to 2010

Province	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Changes / Province
Newfoundland and Labrador	4.75	**5.25**	5.25	5.25	**5.5**	5.5	5.5	**6**	6	6	**6.5**	**7**	**8**	**8.5**	**9.5**	8
Nova Scotia	5.15	**5.5**	5.5	5.5	**5.6**	**5.7**	**5.8**	**6**	**6.5**	6.5	**7.15**	7.15	**7.6**	**8.6**	**9.2**	10
Prince Edward Island	5.15	**5.4**	5.4	5.4	**5.6**	**5.8**	**6**	**6.25**	**6.5**	**6.8**	**7.15**	**7.5**	**8**	**8.4**	**9**	12
New Brunswick	5.5	5.5	5.5	5.5	**5.75**	**5.9**	**6**	6	**6.2**	**6.3**	**6.7**	**7.25**	7.25	**8.25**	**9**	9
Quebec	6.7	**6.8**	**6.9**	6.9	6.9	**7**	**7.2**	**7.3**	**7.45**	**7.6**	**7.75**	**8**	**8.5**	8.5	**9.5**	11
Ontario	6.85	6.85	6.85	6.85	6.85	6.85	6.85	6.85	**7.15**	**7.45**	**7.75**	**8**	**8.75**	**9.5**	**10.25**	7
Manitoba	5.4	5.4	5.4	**6**	6	**6.25**	**6.5**	**6.75**	**7**	**7.25**	**7.6**	**8**	**8.5**	**9**	**9.5**	11
Saskatchewan	5.35	**5.6**	5.6	**6**	6	6	6	**6.65**	6.65	6.65	**7.5**	**7.95**	**8.25**	**8.6**	**9.25**	8
Alberta	5	5	5	**5.65**	**5.9**	5.9	5.9	5.9	5.9	5.9	**7**	7	**8.4**	**8.8**	8.8	5
British Columbia	7	7 3	**7.15**	7.15	**7.6**	**8**	8	8	8	8	8	8	8	8		
Unique Minimum Wages	9	8	8	8	8	9	8	8	9	10	8	6	7	8	7	Total: 84

Notes: Bold font indicates a change in the hourly minimum wage between April 1 of each year within a given province.

Source: Employment and Social Development Canada Open Data. Table: Historical Minimum Wage Rates in Canada. Retrieved on 24th April 2020 at: https://open.canada.ca/data/en/dataset/390ee890-59bb-4f34-a37c-9732781ef8a0.

Table A3

Estimated Minimum Wage Employment Elasticities

	Minimum Wage Ratio			Minimum Wage		
	Teens (15-19)	Young Adults (20-24)	Youth (15-24)	Teens (15-19)	Young Adults (20-24)	Youth (15-24)
Baseline Specification						
Minimum Wage	0.011	0.008	-0.001	0.054	-0.195*	-0.123
	(0.034)	(0.022)	(0.020)	(0.260)	(0.105)	(0.088)
Minimum Wage 1-Year Lag	0.002	0.030	0.012	-0.358	0.234**	0.003
	(0.031)	(0.024)	(0.020)	(0.304)	(0.116)	(0.102)
Sum Current and 1-Year Lag	0.013	0.037	0.011	-0.304	0.039	-0.120
	(0.045)	(0.033)	(0.028)	(0.185)	(0.084)	(0.079)
Baseline Specification, Including Prime-Age Skilled Employment Rate						
Minimum Wage	-0.031	-0.000	-0.005	0.020	-0.197*	-0.124
	(0.035)	(0.023)	(0.021)	(0.219)	(0.105)	(0.088)
Minimum Wage 1-Year Lag	-0.006	0.030	0.012	-0.345	0.232**	-0.005
	(0.029)	(0.024)	(0.020)	(0.268)	(0.116)	(0.104)
Sum Current and 1-Year Lag	-0.037	0.029	0.007	-0.325*	0.035	-0.120
	(0.045)	(0.033)	(0.028)	(0.172)	(0.082)	(0.079)

Notes: All specifications contain controls for province and year effects as well as the prime-age male unemployment rate and the percentage of the relevant group to the total population. Teens are individuals between the age 16 - 19, young adults are individuals between the age of 20 - 24, and youths are individuals between the age of 16 - 24. Standard errors and in parentheses. Statistical significance levels: *10%, **5%, ***1%.

Table A4

Estimated Minimum Wage Employment Elasticities for Subsamples

	Minimum Wage Ratio			Minimum Wage		
	Teens (15-19)	Young Adults (20-24)	Youth (15-24)	Teens (15-19)	Young Adults (20-24)	Youth (15-24)
Subsample: High School Education or Less. Including Prime-Age Skilled Employment Rate						
Minimum Wage	0.144	-0.015	0.042	-0.566	-0.007	-0.179
	(0.091)	(0.058)	(0.058)	(0.408)	(0.324)	(0.271)
Minimum Wage 1-Year Lag	0.031	-0.039	-0.021	0.619	0.280	0.367
	(0.072)	(0.058)	(0.046)	(0.506)	(0.395)	(0.333)
Sum Current and 1-Year Lag	0.175	-0.054	0.021	0.053	0.273	0.188
	(0.120)	(0.077)	(0.072)	(0.287)	(0.206)	(0.193)
Subsample: Full-Time Workers. Baseline Specification						
Minimum Wage	0.104	0.008	0.013	-0.355	-0.203	-0.246
	(0.096)	(0.036)	(0.037)	(0.412)	(0.170)	(0.168)
Minimum Wage 1-Year Lag	-0.091	-0.001	-0.019	0.438	0.368*	0.367*
	(0.069)	(0.039)	(0.036)	(0.482)	(0.187)	(0.188)
Sum Current and 1-Year Lag	0.013	0.007	-0.006	0.083	0.165	0.120
	(0.108)	(0.054)	(0.052)	(0.315)	(0.140)	(0.136)
Subsample: Part-Time Workers. Baseline Specification						
Minimum Wage	-0.008	0.035	-0.008	0.174	-0.230	-0.000
	(0.044)	(0.060)	(0.032)	(0.312)	(0.324)	(0.203)
Minimum Wage 1-Year Lag	0.022	0.142**	0.050*	-0.581	0.040	-0.367
	(0.036)	(0.061)	(0.030)	(0.364)	(0.357)	(0.247)
Sum Current and 1-Year Lag	0.013	0.177**	0.041	-0.406*	-0.190	–0.367***
	(0.056)	(0.084)	(0.041)	(0.216)	(0.191)	(0.120)

Notes: All specifications contain controls for province and year effects as well as the prime-age male unemployment rate and the percentage of the relevant group to the total population. Teens are individuals between the age 16 - 19, young adults are individuals between the age of 20 - 24, and youths are individuals between the age of 16 - 24. Standard errors and in parentheses. Statistical significance levels: *10%, **5%, ***1%.

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