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# Recent changes in the composition of minimum wage workers

by René Morissette and Dominique Dionne-Simard

Release date: June 13, 2018



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# Recent changes in the composition of minimum wage workers

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## Overview of the study

This study uses the 2017 and 2018 Labour Force Survey to provide a recent profile of minimum wage workers. The paper focuses on three groups of minimum wage workers: students aged 15 to 24 and non-students the same age living with their parents (referred to below as minimum wage workers under 25); individuals aged 15 to 64 who are single, lone parents or spouses/partners in single-earner couples; and individuals aged 15 to 64 who are spouses/partners in dual-earner couples. The article documents the relative importance of these three groups as well as their weekly wages and work patterns.

- As minimum wages increased in 2017 and early 2018, the composition of the population of minimum wage employees moved away from individuals under 25 years of age and towards older workers. The proportion of minimum wage workers under the age of 25 fell from 52% in the first quarter of 2017 to 43% in the first quarter of 2018. In contrast, the proportion of minimum wage workers aged 35 to 64 increased from 25% to 31%.
- In the first quarter of 2018, about 80% of minimum wage workers belonged to one of the three following groups: employees aged less than 25 (43%); employees aged 15 to 64 who were single, lone parents or spouses/partners in single-earner couples (17%); and employees aged 15 to 64 who were spouses/partners in dual-earner couples (21%).
- Less than one-fifth of minimum wage workers under 25 worked full time in early 2018. Among the other two groups of minimum wage employees aged 15 to 64, the majority—roughly two-thirds—worked full time.
- Minimum wage workers under 25 worked more often in temporary jobs and in retail trade, food and accommodation services than their counterparts in the two other groups.
- Minimum wage workers who are single, lone parents or spouses/partners in single-earner couples may face a different economic situation, compared with minimum wage workers who are spouses/partners in dual-earner couples. The former group lived in families whose total employment income was, after adjusting for family size, less than half of the latter.

## Introduction

Over the past few years, there has been renewed interest in minimum wages and their potential consequences. Motivated by fairness issues, a willingness to reduce earnings inequality or fight poverty, some analysts<sup>1</sup> have argued that minimum wage increases are desirable.<sup>2</sup> Others have pointed out that minimum wage increases might reduce employment and work hours of young and low-skilled workers<sup>3</sup> as well as employment in automatable jobs.<sup>4</sup> Others have suggested that

minimum wage increases might reduce the profitability of businesses<sup>5</sup> and school enrolment for teenagers.<sup>6</sup> Some observers have contended that past empirical studies measured the impact of relatively small minimum wage increases and are thus not informative about the potential employment impact of larger minimum wage increases,<sup>7</sup> such as those that have been recently implemented or are forthcoming in some Canadian provinces.<sup>8</sup>

## Recent changes in the composition of minimum wage workers

While estimates of the employment effects of increases in minimum wages vary across studies—especially in the United States<sup>9</sup>—the profile of minimum wage workers is fairly well established. It is well known, for example, that many minimum wage workers in Canada are under the age of 25 and work in part-time jobs.<sup>10</sup>

This characterization provides valuable information but does not offer a complete picture of minimum wage employees. One group of minimum wage workers consists of persons who are unattached individuals, lone parents or spouses/partners in single-earner couples. Another group is comprised of spouses/partners in dual-earner couples. These two groups share some common characteristics but differ with regard to others. For example, many workers in both groups are no longer at the beginning of their career. However, spouses/partners in dual-earner couples are likely to have higher living standards and to be less vulnerable to financial shocks than minimum wage workers who are single, lone parents or spouses/partners in single-earner couples. Even though these two groups collectively represent about one-third of minimum wage employees, they have received relatively little attention in previous studies.

This article fills this gap and uses the Labour Force Survey (LFS) to shed light on the relative importance of these two groups, their work patterns and their weekly wages (see the [Data sources, methods and definitions](#) section for details). Since minimum wages increased in all provinces in 2017 or at the beginning of 2018, this article compares the profile of minimum wage workers in the first quarter of 2017 to that of their counterparts in the first

quarter of 2018. By doing so, this study provides recent evidence on the composition of the population of minimum wage workers.<sup>11</sup> The study does not assess the impact of minimum wages on employment or other economic variables. These issues are beyond the scope of this article.

### The proportion of employees earning the minimum wage increased from 6% in early 2017 to 10% in early 2018

Roughly one million individuals earned minimum wages in 2017 (Table 1). Half of them were either students aged 15 to 24 or non-students the same age living with

their parents.<sup>12</sup> Hence, as previous studies have often pointed out, many minimum wage workers were relatively young in 2017.

Not all minimum wage employees, however, fell into that category. Over 15% of minimum wage workers in 2017 were under 65 and unattached individuals, lone parents or spouses/partners in single-earner couples. Another 18% were under 65 and spouses/partners in dual-earner couples. In sum, 83% of minimum wage employees in 2017 belonged to one of the three following groups: students aged 15 to 24 and non-students the same age living with their parents; individuals aged 15 to 64 who were single, lone parents

**Table 1**  
Percentage distribution of minimum wage workers across individual characteristics, 2017

	Minimum wage workers	Percentage distribution
	number	percent
<b>Student, aged 15 to 24</b>	<b>331,500</b>	<b>32.6</b>
<b>Not a student, aged 15 to 24</b>	<b>257,200</b>	<b>25.3</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	27,000	2.7
Spouse/partner in a dual-earner couple	16,800	1.6
Son/daughter living with their parents	181,800	17.9
Other	31,600	3.1
<b>Student, aged 25 to 34</b>	<b>19,600</b>	<b>1.9</b>
<b>Not a student, aged 25 to 34</b>	<b>111,300</b>	<b>10.9</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	34,300	3.4
Spouse/partner in a dual-earner couple	37,100	3.6
Son/daughter living with their parents	20,100	2.0
Other	19,800	1.9
<b>Aged 35 to 54</b>	<b>177,600</b>	<b>17.4</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	60,100	5.9
Spouse/partner in a dual-earner couple	90,700	8.9
Other	26,800	2.6
<b>Aged 55 to 64</b>	<b>84,100</b>	<b>8.3</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	35,600	3.5
Spouse/partner in a dual-earner couple	33,700	3.3
Other	14,700	1.4
<b>Aged 65 and over</b>	<b>36,800</b>	<b>3.6</b>
<b>Total</b>	<b>1,018,100</b>	<b>100.0</b>

**Note:** Subcomponents may not add up to components due to rounding.

**Source:** Statistics Canada, Labour Force Survey, 2017.

## Recent changes in the composition of minimum wage workers

or spouses/partners in single-earner couples; and individuals aged 15 to 64 who were spouses/partners in dual-earner couples.<sup>13</sup> The remaining minimum wage workers were under 65 and belonged to other categories<sup>14</sup> or were aged 65 and over.

Since all provinces raised minimum wages at some point in 2017 or at the beginning of 2018,<sup>15</sup> the numbers shown in Table 1 are not necessarily representative of the population of minimum wage workers in early 2018. To address this issue,

Table 2 compares the distribution of minimum wage employees in the first quarter of 2017 with that observed in the first quarter of 2018.

The first result to note is that the number of minimum wage employees increased markedly from early 2017 to early 2018. In the first quarter of 2018, roughly 1.57 million individuals earned minimum wages, up from about 953,000 a year earlier. As a result, minimum wage workers represented 10% of all employees in early 2018, up from 6% in early 2017.

The growth in the number of minimum wage workers is not surprising. In the absence of other changes across the wage distribution, an increase in minimum wages will increase the number of minimum wage workers. The reason is that workers who earned more than the previous minimum wage levels but less than the new levels will experience wage increases and now be classified as minimum wage workers.

In addition, workers who earned more than previous minimum wage levels but were paid at an hourly rate equal to the new minimum wages will be classified as minimum wage workers, even though their hourly wages have remained unchanged. Since hourly wages tend to increase as individuals accumulate work experience and job tenure, the effect will be especially evident among workers in older age groups.

Indeed, as minimum wages increased, the composition of the population of minimum wage employees shifted from individuals under 25 and towards older workers. For example, the proportion of minimum wage workers who were students aged 15 to 24 fell from about 41% in the first quarter of 2017 to 32% in the first quarter of 2018. Conversely, the proportion of minimum wage workers aged 35 to 64 rose by six percentage points during that period, from 25% in the first quarter of 2017 to 31% in the first quarter of 2018.

As a result, students aged 15 to 24 and non-students the same age living with their parents accounted for about 43% of all minimum wage workers in early 2018, down from 52% one year earlier.<sup>16</sup> Individuals in the two other groups mentioned

**Table 2**  
Percentage distribution of minimum wage workers across individual characteristics, first quarter of 2017 and 2018

	First quarter of 2017	First quarter of 2018
	percent	
<b>Student, aged 15 to 24</b>	<b>41.1</b>	<b>31.6</b>
<b>Not a student, aged 15 to 24</b>	<b>17.1</b>	<b>17.2</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	2.3	2.6
Spouse/partner in a dual-earner couple	1.5	1.2
Son/daughter living with their parents	10.9	11.0
Other	2.4	2.3
<b>Student, aged 25 to 34</b>	<b>2.2</b>	<b>2.4</b>
<b>Not a student, aged 25 to 34</b>	<b>10.5</b>	<b>13.9</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	2.9	4.0
Spouse/partner in a dual-earner couple	3.7	4.5
Son/daughter living with their parents	2.3	2.8
Other	1.6	2.6
<b>Aged 35 to 54</b>	<b>17.3</b>	<b>21.8</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	6.1	6.3
Spouse/partner in a dual-earner couple	8.8	11.8
Other	2.4	3.8
<b>Aged 55 to 64</b>	<b>7.9</b>	<b>9.6</b>
Unattached individual, lone parent or spouse/partner in a single-earner couple	3.3	3.9
Spouse/partner in a dual-earner couple	3.1	3.8
Other	1.5	1.9
<b>Aged 65 and over</b>	<b>3.8</b>	<b>3.6</b>
<b>Total</b>	<b>100.0</b>	<b>100.0</b>
<b>Number of minimum wage workers</b>	<b>953,200</b>	<b>1,565,400</b>
<b>Percentage of employees who are minimum wage workers</b>	<b>6.2</b>	<b>10.1</b>

**Note:** Subcomponents may not add up to components due to rounding.

**Source:** Statistics Canada, Labour Force Survey, 2017 and 2018.

## Recent changes in the composition of minimum wage workers

above accounted for 38% of all minimum wage workers in early 2018, up from 32% in early 2017.<sup>17</sup> Hence, in line with 2017 data, the most recent data indicate that 4 in 5 minimum wage workers are found in the three aforementioned groups.<sup>18</sup>

### Different groups of minimum wage workers face different economic environments

Individuals in these three groups likely differ along a number of dimensions. For instance, minimum

wage workers under 25 are likely to work part time more often than other minimum wage workers, many of whom are between the ages of 35 and 64. The three different groups also likely experience different living standards. Minimum

**Table 3**  
**Weekly wages, work patterns and other characteristics of selected groups of minimum wage workers, 2017**

	Group 1	Group 2	Group 3
	Students aged 15 to 24 and non-students aged 15 to 24 living with their parents	Persons aged 15 to 64 who are unattached, lone parents or spouses/partners in single-earner couples	Persons aged 15 to 64 who are spouses/partners in dual-earner couples
<b>Number of minimum wage workers</b>	<b>402,900</b>	<b>156,300</b>	<b>147,300</b>
<b>Percentage of all minimum wage workers</b>	<b>39.6</b>	<b>15.3</b>	<b>14.5</b>
<b>Work patterns</b>			
Average weekly work hours in their main job	18.5	32.1	32.9
Percentage working full time	18.3	65.8	68.2
Percentage working in temporary jobs	34.0	19.8	16.6
Percentage working in retail trade, food and accommodation services	76.9	50.4	46.3
Percentage holding multiple jobs	5.4	7.6	6.0
<b>Weekly wages of minimum wage workers (current dollars)</b>			
Average	203	331	336
Median	174	346	348
25th percentile	115	228	231
75th percentile	264	430	434
<b>Weekly wages of all employees in the economic family (current dollars)</b>			
Average	1,827	393	1,416
Median	1,734	366	1,273
25th percentile	973	240	950
75th percentile	2,550	444	1,741
<b>Family size</b>			
Average	3.8	1.9	3.3
Median	4.0	1.0	3.0
<b>Weekly wages of all employees in the economic family (adjusted for family size, current dollars)</b>			
Average	924	308	808
Median	883	292	735
25th percentile	532	185	551
75th percentile	1,260	408	993
<b>Other characteristics</b>			
Percentage living in rented dwellings	25.7	61.4	37.6
Percentage with at most a high school diploma	65.0	40.8	38.5
Percentage with at least a bachelor's degree	2.5	20.6	26.0
Percentage of women	55.2	60.3	67.4
Percentage of immigrants	15.5	34.0	42.1
Average age	18.7	40.4	41.8
Percentage aged 35 to 64	0.0	60.7	68.7

**Note:** Minimum wage workers living in families with no self-employment income represent 78.5% (Group 1), 99.5% (Group 2) and 82.6% (Group 3) of all minimum wage workers in these groups.

**Source:** Statistics Canada, Labour Force Survey, 2017.

## Recent changes in the composition of minimum wage workers

wage workers who are single, lone parents or spouses/partners in single-earner couples cannot rely on a second adult earner to make ends meet. For this reason, the total employment income in their families

is expected to be lower than that of other minimum wage workers. This lower employment income should in turn be associated with a higher likelihood of being renters rather than homeowners.

These issues are investigated in this section. Since the LFS does not measure how much self-employment income is received by self-employed individuals, attention is restricted to minimum wage workers living in families with no self-employment income.<sup>19</sup>

**Table 4**  
**Weekly wages, work patterns and other characteristics of selected groups of minimum wage workers, first quarter of 2018**

	Group 1	Group 2	Group 3
	Students aged 15 to 24 and non-students aged 15 to 24 living with their parents	Persons aged 15 to 64 who are unattached, lone parents or spouses/partners in single-earner couples	Persons aged 15 to 64 who are spouses/partners in dual-earner couples
<b>Number of minimum wage workers</b>	520,200	259,400	274,800
<b>Percentage of all minimum wage workers</b>	33.2	16.6	18.2
<b>Work patterns</b>			
Average weekly work hours in their main job	17.8	31.7	32.4
Percentage working full time	17.5	65.7	68.8
Percentage working in temporary jobs	32.9	13.9	14.2
Percentage working in retail trade, food and accommodation services	72.4	49.9	42.9
Percentage holding multiple jobs	4.9	6.5	6.0
<b>Weekly wages of minimum wage workers (current dollars)</b>			
Average	218	380	385
Median	180	404	404
25th percentile	120	260	277
75th percentile	280	494	500
<b>Weekly wages of all employees in the economic family (current dollars)</b>			
Average	1,788	454	1,435
Median	1,703	422	1,323
25th percentile	919	280	1,010
75th percentile	2,505	520	1,750
<b>Family size</b>			
Average	3.8	2.0	3.3
Median	4.0	1.0	3.0
<b>Weekly wages of all employees in the economic family (adjusted for family size, current dollars)</b>			
Average	909	347	817
Median	867	323	756
25th percentile	500	210	553
75th percentile	1,254	455	1,014
<b>Other characteristics</b>			
Percentage living in rented dwellings	27.7	62.1	38.2
Percentage with at most a high school diploma	62.2	44.4	35.6
Percentage with at least a bachelor's degree	3.0	18.7	26.0
Percentage of women	54.1	60.4	65.8
Percentage of immigrants	17.9	35.2	48.0
Average age	19.1	40.6	42.4
Percentage aged 35 to 64	0.0	60.3	72.1

**Note:** Minimum wage workers living in families with no self-employment income represent 78.1% (Group 1), 99.1% (Group 2) and 82.4% (Group 3) of all minimum wage workers in these groups.

**Source:** Statistics Canada, Labour Force Survey, 2018.

## Recent changes in the composition of minimum wage workers

When the focus is on these minimum wage workers, several patterns emerge. First, while less than one-fifth of minimum wage workers under 25 work full time, the majority—roughly two-thirds—of other minimum wage employees work full time (Table 3 and Table 4). Second, minimum wage workers under 25 are more likely to work in temporary jobs and in retail trade, food and accommodation services than their counterparts in the two other groups. Third, contrary to individuals under 25, most minimum wage workers in the other two groups are aged 35 to 64 and are thus no longer at the beginning of their career. Fourth, because minimum wage workers in the two other groups work longer hours, they have higher weekly wages, on average, than minimum wage workers under 25. Lastly, because minimum wage employees who are single, lone parents or partners in single-earner couples work about the same number of work hours per week on average as those who are partners in dual-earner couples, both groups have similar average weekly wages.

However, this does not mean that families in both groups have the same level of total employment income. In early 2018, families of minimum wage workers who were spouses/partners in dual-earner couples had total weekly wages (i.e., the sum of weekly wages earned by all members of the family) averaging \$1,435, more than three times the \$454 earned in families of minimum wage workers who were single, lone parents or partners in single-earner couples (Table 4).

Since families in the former group are larger, on average, than families in the latter group, a proper comparison requires controlling for differences in family size. When this is done,

average total weekly wages adjusted for family size<sup>20</sup> amount to \$817 and \$347, respectively. Hence, total weekly wages adjusted for family size are, on average, more than twice as high for families of minimum wage workers who are spouses/partners in dual-earner couples as they are for families of minimum wage workers who are single, lone parents or spouses/partners in single-earner couples. Total weekly wages adjusted for family size are the highest, on average, for families of minimum wage workers under 25. In line with the notion that income and homeownership are positively correlated, groups of minimum wage workers who had lower total weekly wages (adjusted for family size) were more likely to live in rented dwellings.

These numbers suggest that minimum wage workers who are single, lone parents or spouses/partners in single-earner couples have the lowest living standards. Yet part of the weekly wage differences

shown above might reflect spatial differences in the cost of living across groups. In other words, minimum wage workers who are spouses/partners in dual-earner couples might live in more costly regions than their counterparts who are single, lone-parents or spouses/partners in single-earner couples. If so, the numbers reported in Tables 3 and 4 would overestimate differences in the purchasing power of both groups of families.

To account for this possibility, total weekly wages adjusted for family size are regressed on group indicators and economic region indicators (Table 5).<sup>21</sup> The inclusion of regional indicators has little impact on the differences in total weekly wages across groups. Hence, Table 5 does not support the notion that the total weekly wages shown in Tables 3 and 4 (adjusted for family size) markedly overestimate differences in the purchasing power of various groups of families of minimum wage workers.

**Table 5**  
Differences in family-level average weekly wages between minimum wage workers aged 15 to 64 who are unattached, lone parents or spouses/partners in single-earner couples (ref.) and other groups of minimum wage workers

	Group 1	Group 2	Group 3
	Students aged 15 to 24 and non-students aged 15 to 24 living with their parents	Persons aged 15 to 64 who are unattached, lone parents or spouses/partners in single-earner couples	Persons aged 15 to 64 who are spouses/partners in dual-earner couples
	current dollars		
<b>Year 2017</b>			
After controlling for family size	617	(ref.)	501
After controlling for family size and economic region	612	(ref.)	494
<b>First quarter of 2018</b>			
After controlling for family size	561	(ref.)	470
After controlling for family size and economic region	565	(ref.)	468

**Note:** The data in this table represent minimum wage workers living in families with no self-employment income.

**Source:** Statistics Canada, Labour Force Survey, 2017 and 2018.



### Conclusion

Interest in minimum wages and their potential consequences has resurfaced in recent years. Motivated by fairness issues, a desire to fight poverty and/or reduce income inequality, some observers have argued in favour of substantial increases in minimum wages in Canada. Other observers have pointed out that minimum wage increases might have unintended consequences such as a potential reduction in the employment of young and low-skilled workers.

Since all provinces raised their minimum wages at some point in 2017 or at the beginning of 2018, it is important to provide an up-to-date profile of minimum wage workers. Using data from the Labour Force Survey, this study does so by focusing on three different groups of minimum wage workers:

students aged 15 to 24 and non-students the same age living with their parents; individuals aged 15 to 64 who are single, lone parents or spouses/partners in single-earner couples; and individuals aged 15 to 64 who are spouses/partners in dual-earner couples. In the first quarter of 2018, these three groups represented four-fifths of minimum wage employees.

The main finding of the study is that these three groups of minimum wage workers face different economic environments. Minimum wage workers who are single, lone parents or spouses/partners in single-earner couples live in families where total weekly employment income is lower than that in families of other minimum wage employees. This result holds even after controlling for differences in family size and potential regional

differences in the cost of living. Of all three groups of minimum wage employees, those under 25 live in families that have, on average, the highest total weekly wages. Contrary to their counterparts in the two other groups, minimum wage employees under 25 are also much less likely to work full time. For these reasons, taking the diversity of economic circumstances faced by various groups of minimum wage workers into account is essential for informed discussions on minimum wages.

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### Data sources, methods and definitions

#### Data sources

This study uses data from the Labour Force Survey (LFS). The LFS is a monthly survey that collects labour market information for all household members aged 15 and over as well as demographic and family relationship information for all household members, making it possible to derive family types. Excluded from the survey's coverage are persons living on reserves and other Aboriginal settlements, full-time members of the Canadian Armed Forces, and the institutionalized population. These groups together represent an exclusion of less than 2% of the Canadian population aged 15 and over.

The LFS began collecting earnings information from all employees for their main job in 1997. Respondents are asked to report their hourly rate of pay or their regular salary (weekly, bi-weekly, etc.) before taxes and other deductions, including tips, commissions and bonuses. Hourly and weekly earnings are calculated in conjunction with usual paid work hours per week.

#### Definitions

Minimum hourly wage rates are obtained from Employment and Social Development Canada (ESDC) and can be viewed on their website (<http://srv116.services.gc.ca/dimt-wid/sm-mw/rpt2.aspx?lang=eng&dec=1>). Minimum wage workers include employees who earn the minimum wage for experienced adult workers set by their province as well as employees who earn less than this threshold.

### Notes

1. See, for example, Green (2015).
2. Different views have been expressed as to whether increases in minimum wages should be used to reduce poverty. Compare Gunderson (2007), Fortin (2010), Green (2015), and Murphy et al. (2016).
3. See Gunderson (2007).
4. See Lordan and Neumark (2018).
5. See Draca et al. (2011).
6. See Chaplin et al. (2003).
7. See Neumark (2017).
8. Firms facing minimum wage increases might adjust by implementing various simultaneous strategies. For example, they might reduce hiring, reduce work hours and/or fringe benefits of existing workers, increase layoffs, increase the pace of work, introduce labour-saving technologies whenever jobs can be automated, increase the price of their products and services, or reduce their quality.
9. Neumark (2017) discusses the challenges facing U.S. studies. Brouillette et al. (2017) present recent Canadian estimates of the effect of minimum wages on employment.
10. See Galarneau and Fecteau (2014).
11. Throughout this article, the term “minimum wage worker” refers to employees who earn the minimum wage for experienced adult workers set by their province as well as to employees who earn less than this threshold. As Galarneau and Fecteau (2014 [p. 8]) point out: “Hourly earnings below the established minimum do not necessarily indicate an infringement of the law—they may be received by workers not subject to the law or subject to rates below the minimum wage, such as some workers in food services (e.g. servers).”
12. Non-students aged 15 to 24 living with their parents are referred to as “son/daughter” in Table 1 and Table 2.
13. In the second and third groups, individuals who are aged 15 to 34 are not students.
14. For instance, 2% were non-students aged 25 to 34 living with their parents.
15. For example, Ontario increased its minimum wage twice, first from \$11.40 to \$11.60 in October 2017, and then to \$14.00 in January 2018. Alberta increased its minimum wage to \$13.60 in October 2017, up from \$12.20 in October 2016.
16. In spite of this shift, the number of minimum wage workers in this group rose from 495,900 in early 2017 to 666,200 in early 2018.
17. Workers aged 15 to 64 who were unattached, lone-parents or spouses/partners in single-earner couples accounted for 17% of minimum wage workers in the first quarter of 2018. Those who were spouses/partners in dual-earner couples represented 21% of all minimum wage employees during that period.
18. In both early 2017 and early 2018, slightly less than 4% of minimum wage workers were aged 65 and over.
19. When this restriction is imposed, the three groups considered in this study account for about 69% of all minimum wage workers in 2017, down from 83% in the absence of this restriction. The corresponding percentages for the first quarter of 2018 are 68% and 81%, respectively.
20. Total weekly wages adjusted for family size are computed by dividing total weekly wages by the square root of family size.
21. There are 73 economic regions in the 10 provinces considered in this study.

### References

- Brouillette, Dany, Calista Cheung, Daniel Gao and Olivier Gervais. 2017. *The Impacts of Minimum Wage Increases on the Canadian Economy*. Staff Analytical Note 2017-26. Ottawa: Bank of Canada.
- Chaplin, Duncan D., Mark D. Turner and Andreas D. Pape. 2003. "Minimum wages and school enrollment of teenagers: A look at the 1990's." *Economics of Education Review*. February. Vol. 22, no. 1. p. 11–21.
- Draca, Mirko, Stephen Machin and John Van Reenen. 2011. "Minimum wages and firm profitability." *American Economic Journal: Applied Economics*. January. Vol. 3, no. 1. p. 129–151.
- Fortin, Pierre. 2010. "Salaire minimum, pauvreté et emploi : à la recherche du « compromis idéal »." *Regards sur le travail*. Autumn. Vol. 7, no. 1. p. 1–15.
- Galarneau, Diane and Eric Fecteau. 2014. "The ups and downs of minimum wage (<http://www.statcan.gc.ca/pub/75-006-x/2014001/article/14035-eng.pdf>)." *Insights on Canadian Society*. July. Statistics Canada Catalogue no. 75-006-X.
- Green, David. 2015. "The case for increasing the minimum wage: What does the academic literature tell us?" *Behind the Numbers*. April. Canadian Centre for Policy Alternatives. p. 1–10.
- Gunderson, Morley. 2007. *Minimum Wages: Issues and Options for Ontario*. Paper prepared for the Ontario Ministry of Finance.
- Lordan, G. and D. Neumark. 2018. *People Versus Machines: The Impact of Minimum Wages on Automatable Jobs*. NBER Working Paper No. 23667. Cambridge, MA: The National Bureau of Economic Research.
- Murphy, Robert P., Charles Lammam and Hugh MacIntyre. 2016. *Raising the Minimum Wage: Misguided Policy, Unintended Consequences*. Vancouver: Fraser Institute.
- Neumark, David. 2017. *The Employment Effects of Minimum Wages: Some Questions We Need to Answer*. NBER Working Paper No. 23584. Cambridge, MA: The National Bureau of Economic Research.