



ESTABLISHING THE FACTS



**ON ALBERTA'S
NEW MINIMUM WAGE**

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Establishing the Facts on Alberta's New Minimum Wage

BY PAUL TULLOCH: *LIVINGWORKS ANALYTICS* ON BEHALF OF THE ALBERTA FEDARATION OF LABOUR

Paul is an economist/ data scientist who serves as the director of research at LivingWork Analytics. He worked for nearly 20 years at Statistics Canada providing economic analysis, survey design and statistical expertise. For the last several years has been focusing on providing machine learning and critical data science solutions for a wide variety of clients. www.livingwork.ca

Executive Summary

The Alberta Government will raise the minimum wage from \$13.60 to \$15.00 per hour on October 1st, 2018. Workers at the lowest end of the wage scale will see their wages rise by 10.3 per cent or \$1.40 per hour above the current minimum wage. The benefits for these workers will be numerous, as the value of an extra dollar of earnings for these lower waged workers has a much higher utility in terms of determining basic living standards than a similar wage increase for higher wage workers, further, an increase to \$15.00 per hour will represent a real increase in wages for workers who have seen their wages stagnant for decades. However, these costs have become the focal point of the debate, with pro-business groups spreading doomsday scenarios to ensure their access to low-wages continues. From massive jobs losses to inflationary price and wage spirals, the list of outcomes put forth by some interest groups who are against the minimum wage border on the absurd. Much of this debate is based on wild speculation with very little evidence or facts. With that in mind the following paper digs into the data produced by Statistics Canada's Labour Force Survey and using a fact-based approach to the Alberta labour market, produces critical measures to help guide the debate. The report identifies the number of low-wage workers in Alberta, the direct cost in wages to bring these workers to \$15.00 per hour, and provides an estimation of the indirect wage costs.

It is estimated that in 2017 Alberta had 323,000 workers earning \$15.00 per hour and below, which accounted for 17 per cent of those classified as

employees. Nearly 2/3 of these workers were women numbering over 202,000. Workers 20 years of age and older made up more than 78 per cent of these workers. This paper will show the total direct wages costs for all employers to increase the minimum wage to \$15.00 per hour will be less than \$1 billion or approximately 0.6% of total wages paid to all workers in the Alberta economy. The paper will also show that by examining data from the previous minimum wage increase on October 1, 2017 to \$13.60 per hour that the wage bumping, or indirect wage increases to workers making above the minimum wage, resulted in a wage compression for workers making between \$13.60 and \$15.00 per hour. This suggests that the indirect wage costs resulting from "wage bumping" of the minimum wage will be low due to a new level of wage compression. This indicates that the move to \$15.00 will benefit workers making the minimum wage, without having significant impact on the rest of Alberta's higher wage earners. Lastly, the research calculated the ratio between minimum wages and the average and median wage typically used by international agencies to compare minimum wages across global economies. When comparing the Alberta labour market ratios of median and average wage to the minimum wages across the global economy, the new minimum wage in Alberta merely approaches the middle of many countries. Therefore, the Alberta minimum wage should not be viewed as highly irregular or unacceptable, but rather merely catching up to most countries and approaching the middle of the range.

As such the research found:

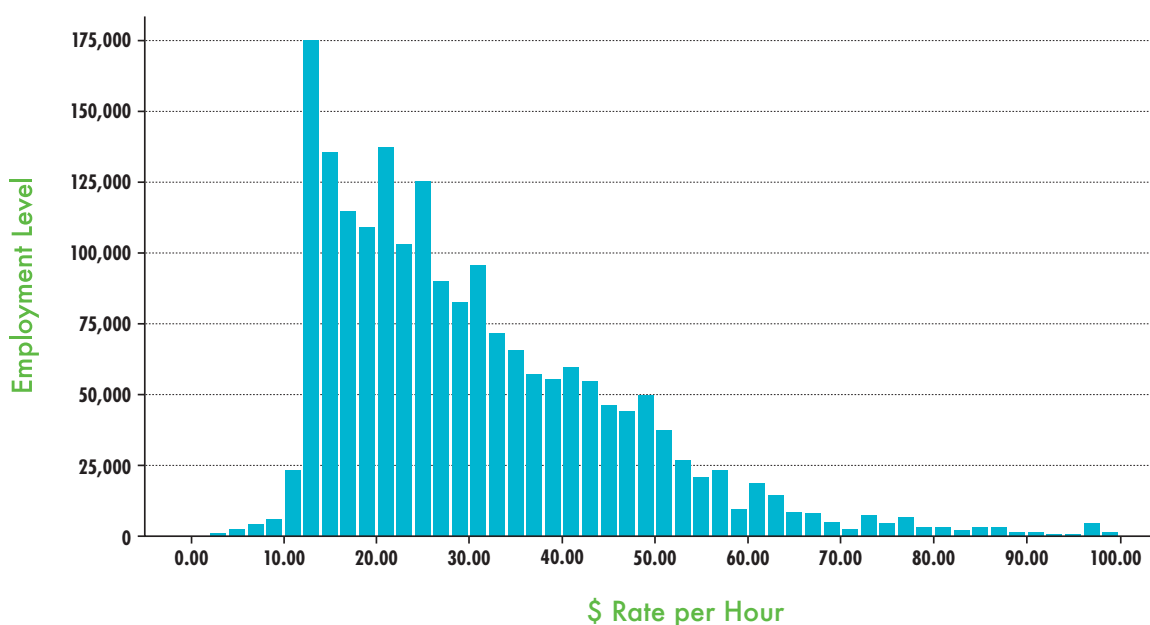
1. a small estimated .6% of added direct wage cost to the total wage bill of all employees,
2. the large amount of wage compression experienced in the 2017 data producing a small amount of indirect wage bumping,
3. the new minimum wage compared to the estimated median wage is approaching a middling position among internationally comparable minimum wage measures of a large group of nations.

The paper concludes that the minimum wage increase to \$15.00 per hour will not create the pandemonium of massive job losses, or the rampant inflationary pressures or other upheaval in the economy. Instead, the new minimum wage will place Alberta's minimum wage workers into a normalized wage level vis-à-vis the rest of the workers in the economy when compared to international rates of minimum wage levels. For the high proportion of workers making minimum wage, an increase to \$15.00 per hour represents a true increase in their real wages, which have been stagnant or declining for decades.

The Minimum Wage in Context

Conceptually, the minimum wage is a simple matter. It is the legally allowed lowest wage a worker can receive in payment in exchange for their labour. In Alberta, and indeed all of Canada, workers receiving the minimum wage is the largest of any group of workers, and skews the distribution substantially. The sheer volume of workers making the minimum wage is an important context to the debate. For these workers, the minimum wage has become the determinant of their purchasing power and a key factor in setting their living standards.

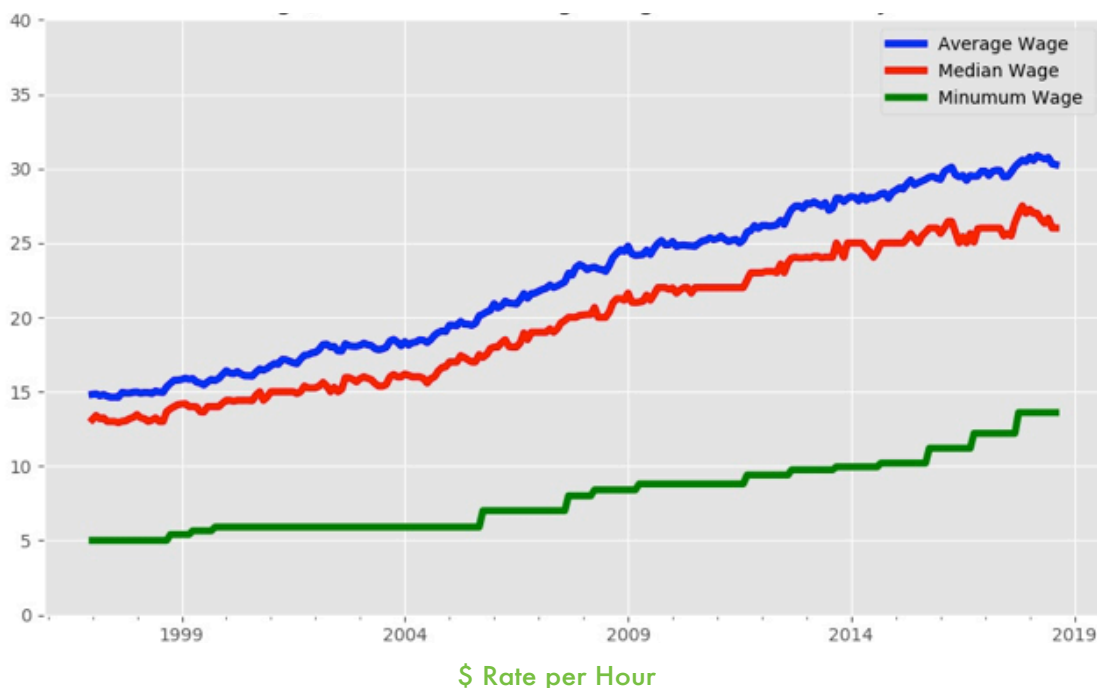
Worker Hourly Wages - Alberta
Annual Average 2017



Having the minimum wage level ranked as the highest in modality also tells us a lot about employers and their engagement of workers at the lowest price allowed. Increasingly the labour market is becoming more and more defined by low wage workers and employers who engage in such low wage hiring practices. It is these building pressures between those that make up an increasing share of low wage workers and the associated increasing polarization on worker outcomes, and a lack of formal mediating measures, that has produced much louder and more serious actions on the minimum wage.

While it is true that Alberta workers have enjoyed some of the highest average wage levels in Canada, this has not been true for minimum wage workers. Over the past 30 years, minimum wage levels in Alberta have only marginally increased. In fact, the minimum wage level over the past 30 years has barely kept pace with inflation – meaning many of the lowest paid workers have been witnessing a stagnant or declining wage.

Minimum Wage, Median and Average Wage Alberta Monthly 1997–2018

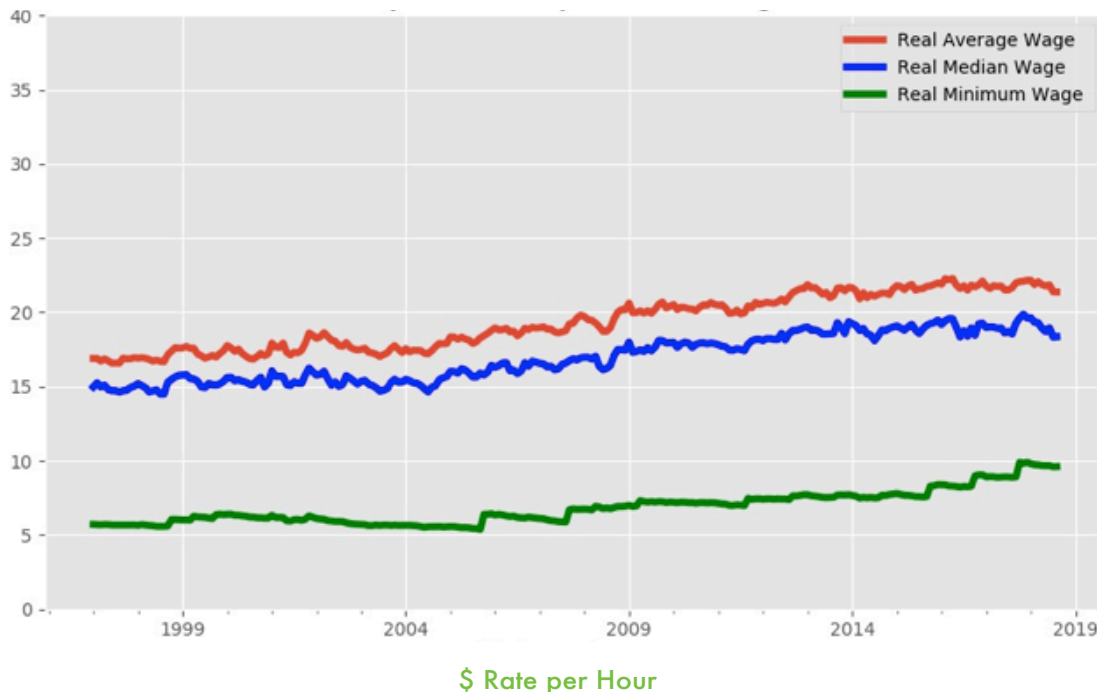


Source: Statistics Canada LFS Micro File

As stated in a 2016 Statistics Canada report, “In 2013, the minimum wage was around \$10 in all provinces. In constant dollars, this rate was similar to the rate observed in the late 1970s.” Compounding this wage differential is the fact that Alberta’s cost of living has ballooned substantially, especially during the recent boom years in the oil and gas sector.

These two factors combine together and result in minimum wage workers having some of the lowest earnings in Canada when measured with inflation adjusted dollars. When looking at wages in real dollars, deflated to take into account the cost of living changes, the minimum wage actually declined at some intervals. It has only been in the last 3 years have we actually seen a significant real wage increase, with the ambitious changes associated with the increase to \$15.00 per hour.

Inflation Adjusted Real Wages Alberta Monthly 1997–2018



Source: Statistics Canada LFS Micro File

1. How is the Minimum Wage Rate Determined?

Minimum wage legislation has long been a part of the policy tools used by governments to protect workers from excessive vagaries of labour markets. The minimum wage acts as a wage floor which fundamentally determines the standard of living for many workers at the lower end of the wage spectrum.

There have long been historical power struggles and decision-making processes between various groups and representative of business, government, unions, and other activist groups attempting to influence the setting of such a wage. It has become a debate centered on the profitability of firms versus the healthy living standard for workers.

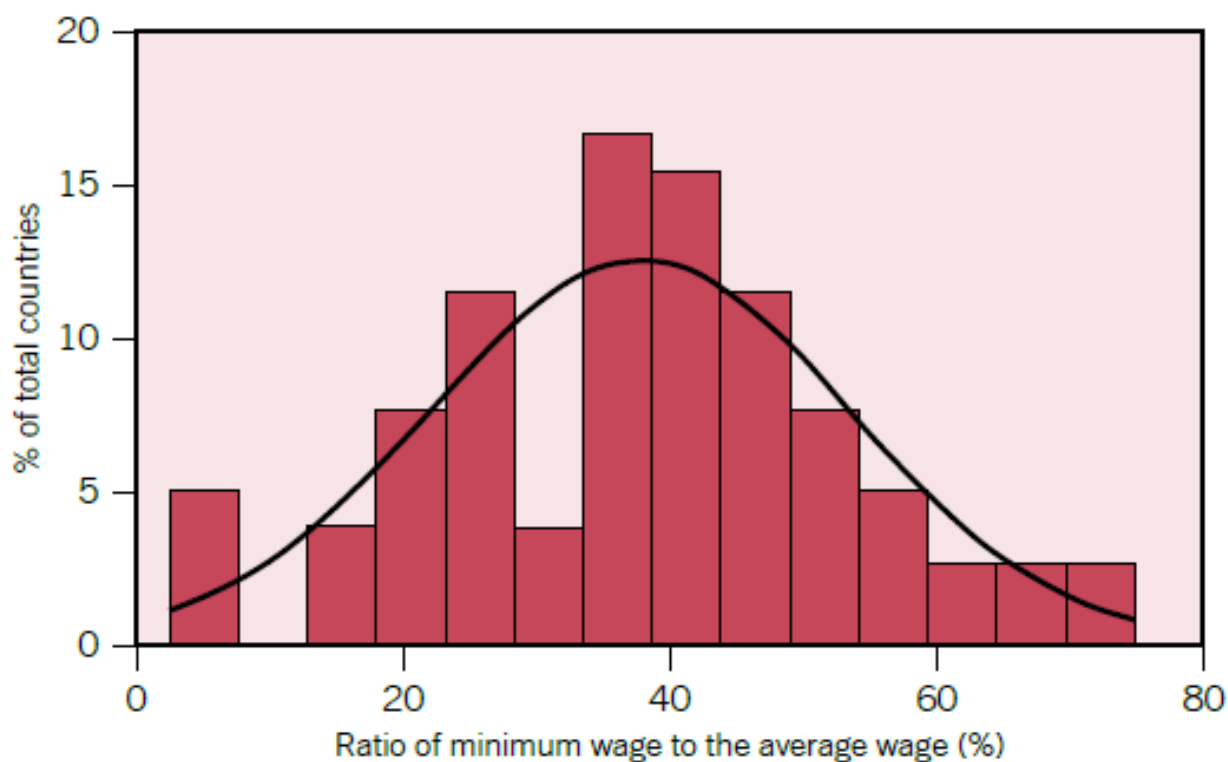
There have been many attempts by various non-governmental organizations, academics and government policy makers at measuring the impact and the outcome of raising the minimum wage and estimating its interaction with the wider economy. The traditional economist covering such modelling typically adhere to neo-classical notions of the orthodoxy of price competitive models. However, time and again such predictions fail, due to the assumptions of perfectly competitive markets. As such these models have little bearing on the real world where companies enjoy significant informational and institutional advantages relative to workers. For example, much of the neo-classical economic models predicted large job losses in Alberta, Ontario and British Columbia. Yet the current unemployment rate for Canada is at a forty-year low. In Alberta, minimum wage increases have not led to job losses, and indeed the province has continued to grow and is expected to keep growing in 2019 regardless of the increase in minimum wage. The better question now is: why has there not been much in terms of wage gains for workers? Part of the answer is the reluctance to raise the minimum wage, which gives employers the ability to keep wages low regardless of the overall performance of the economy.

The reality is that current public policy centers on there being no set formula, combined with an ideological bend used by economic institutions that influences many governments in determining the minimum wage level. A recent International Labour Organization (ILO) research paper concludes that

“While many countries appear to have set up national minimum wage commissions, the actual minimum wage fixing “machinery” typically varies... One striking feature, however, is their impressive diversity. Some countries implement relatively straight forward national minimum wages – which are economy-wide wage floors which apply to all workers, with some possible variation by regions or broad categories of workers from country to country.”

They noted and compiled a range of countries’ metrics that compare the minimum wage to the average and median wage for different labour jurisdictions. The ILO states that most countries have a minimum wage as a proportion of the average wage falling between the 50%-60% levels. However, the ILO warns against using simple statistics to overtly determine such a complex process as setting a minimum wage level and promotes a wider stakeholder consultation approach that makes use of a wide variety of metrics and expert’s judgement.

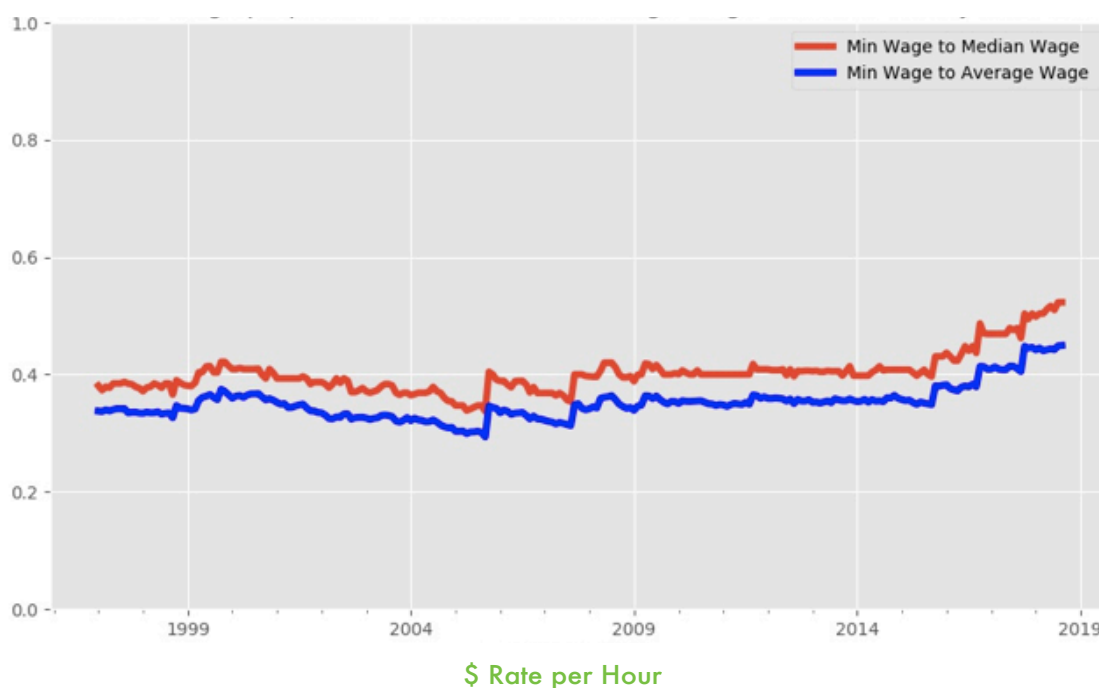
Ratio of minimum to mean wages in 75 countries



Source: ILO Global Wage Database

As a percentage of the mean wage Alberta has moved back and forth centering on the mid 30% mark of the minimum wage as a proportion of the mean wage. This is definitely falling well outside the normal range of countries experiences. With the rise of the minimum wage over the recent past the proportion of minimum to mean wage rate has risen to just above 40 per cent placing it just below the norm for most countries. The median shows similar results.

Minimum Wage proportion of Median and Average Wage Alberta Monthly 1997-2018



Source: Statistics Canada LFS Micro File

Yet despite the obvious need for a much more objective and inclusive rate setting mechanism, for the past 40 years Alberta has shown very limited progress in setting an effective minimum wage. With a history of business-friendly governments, the main process of setting the minimum wage has been heavily influenced by business interests. The current government finally brought representative stakeholders into the rate determining process, and concluded that the wage rates required substantive historical adjustment. Hence over the last three years there has been some increases in the minimum wage that contain some historical “catch-up” components to the minimum rate adjustments.

2. The Costs and Benefits of Giving Low Wage Workers a Raise

One of the larger issues in the debate surrounding the minimum wage is a veritable lack of measurement outcomes for the benefits to workers. This is typically caused by providing measurement tools that are strictly designed to measure costs. If one were to have better designed sources of data on the benefit side of measurement it would allow for a much wider, balanced and fair assessment. However, much of the costs of poverty are not directly measurable, and therefore quite difficult to assess beyond qualitative studies. A large amount of research from many

studies have shown empirically that poverty is negatively correlated to health, education, and other positive social outcomes. Going through the literature the following framework outlines some of the highlighted costs and benefits that ideally would form within the decision-making process. Not all have measurable tangible data available to be measured. Hence, why such a commission or stakeholder process is used to provide expert analysis and judgement where accurate measurement cannot be obtained.

COSTS

1. The direct wage costs are the amount of new wages that would be incurred by firms in all industries to raise all low waged workers to the new higher minimum wage level.
2. Indirect costs focused on the secondary wage push that results from a rise in the minimum wage. These are not automatic as indirect wage gains are related to wage bargaining power. There are many factors involved in determining a worker's bargaining power, and it would be difficult to predict these indirect wage costs given the variances in bargaining power of such workers. However, some methods using historical minimum wage data have proven some level of effectiveness in such estimation.
3. Change in employment are the most typically cited costs. However, economists have a mixed view on the outcomes of minimum wage raises. The pessimistic predict that wage hikes will push costs for some companies into a space where their business model is not sustainable and therefore create a net loss of employment. Other more optimistic economists predict a net gain in the number of jobs as new spending brought about by the minimum wage levels will expand the aggregate demand within the economy. Other economists, most recent Card, et al., have noted a neutral net effect predicting that some losses mainly in smaller businesses will be balanced by new wage expenditure, resulting in a small net change to zero net affect. Recent studies of American cities such as Seattle that have increased their minimum wage support this assessment, as well as the most comprehensive analysis of the literature. The experience in Alberta since 2015 also supports the neutral impact hypothesis.
4. Inflationary price pressures; the wage and pricing mechanism, can pressure costs in the economy to rise. This is difficult to predict given the complexity of the industrial organization of the many sectors that make up the Alberta economy—particularly in oil and gas. Most low wage jobs are located in non-export sectors, as well as in sectors that have a low input/output connection in terms of intermediate goods and value adding. Therefore, prices will be restricted to sectors for the most part that are distribution or end service related. Therefore, the downstream wage multipliers that would drive costs into other vertically and horizontally integrated sectors is quite minimal.

BENEFITS

1. Reduction of individuals caught within poverty, sometimes referred to as the working poor.
2. Reduce gender and other wage discrimination practices.
3. Increased wages will incentivize greater labour force participation.
4. Net Jobs created due to increased aggregate wages being paid. Minimum wage workers have a higher propensity to spend such new wages, a very efficient stimulus.
5. A decrease in wage inequality across the economy.

The Cost of Raising the Minimum Wage

The question remains, if there is no one correct set of methods or deterministic formula for establishing a minimum wage, then what can be done to provide adequate information to help determine the outcomes of such policy. The following section implements a transparent and data centric labour market simulation method to provide some guidance on the impact of the planned minimum wage increase. To complete the research the following critical path was followed:

1. Estimated number of workers who earned less than \$15.00 per hour— using the Labour Force Survey to provide a very timely and accurate estimate of workers
2. Estimated the increased direct wage cost for 2017 to bring all workers up to the new \$15.00 per hour minimum wage level. Simulate the 2017 labour market using employment levels, hours worked and wages. By trading off accuracy with fixed model parameters the intent is to reduce difficulty in modelling and produce a robust estimate on the size of the direct wage costs for the new minimum wage. Recall the goal is to estimate the order of magnitude of cost.
3. Examine and assess the indirect wage cost through “wage bumping” from past minimum wage increases using recent empirical data from Alberta and Ontario. More recent data has the strength of consistency of minimal changes to a complex interplay of economic dynamics. Given that the industrial sectors minimum wage workers are located in are non-core value adding industries, the multiplier effect of downstream value change vertically integrated suppliers will be minimal. Lower waged workers are located in service sectors like retail, accommodation, and food services industries.

1. How many workers in Alberta are earning below \$15.00 per hour?

Using the monthly labour force survey micro file, an estimate was made of the annualized averages for the 2017 Alberta labour market. It is estimated that in 2017 the annual average number of employees in Alberta earning below \$15 per hour was 17% of the total employees in the workforce or 323,000 employees (Table 1). The proportion is much lower than that reported for Canada where over 23 per cent or 3.8 million employees are estimated to be earning below \$15.00 per hour (Table 2). Women workers, by a wide margin, make-up of the majority of these low wage workers, where 62.4 per cent or 201,500 women reported a wage lower than \$15.00 per hour. These numbers exclude self-employed workers as the labour force survey does not collect wage data for the self-employed. The survey does estimate for Alberta that there are over 136,000 self-employed individuals that were not incorporated and had no employees working for them, i.e., they were not working owners of companies. It is estimated using the same proportion of low wage workers as the population of employees, that some 23,000 additional self-employed workers earning below \$15.00 per hour could exist and therefore the worker counts below are very much an underestimate. Adjustments were made to the costs to account for the under sampling and exclusion of the self-employed.

TABLE 1 | Alberta 2017: Number of Workers Earning Below \$15.00 per hour

Age Range	Male	% Male	Female	% Female	Total
15-19	33,472	27.6%	40,152	19.9%	73,624
20-24	31,050	25.6%	45,006	22.3%	76,056
25-34	23,080	19.0%	38,513	19.1%	61,593
35-44	11,652	9.6%	29,982	14.9%	41,634
45-54	9,021	7.4%	21,514	10.7%	30,535
55-64	8,143	6.7%	20,797	10.3%	28,940
65+	4,877	4.0%	5,579	2.8%	10,456
Total	121,295	100.0%	201,543	100.0%	322,837
	38%		62%		100%

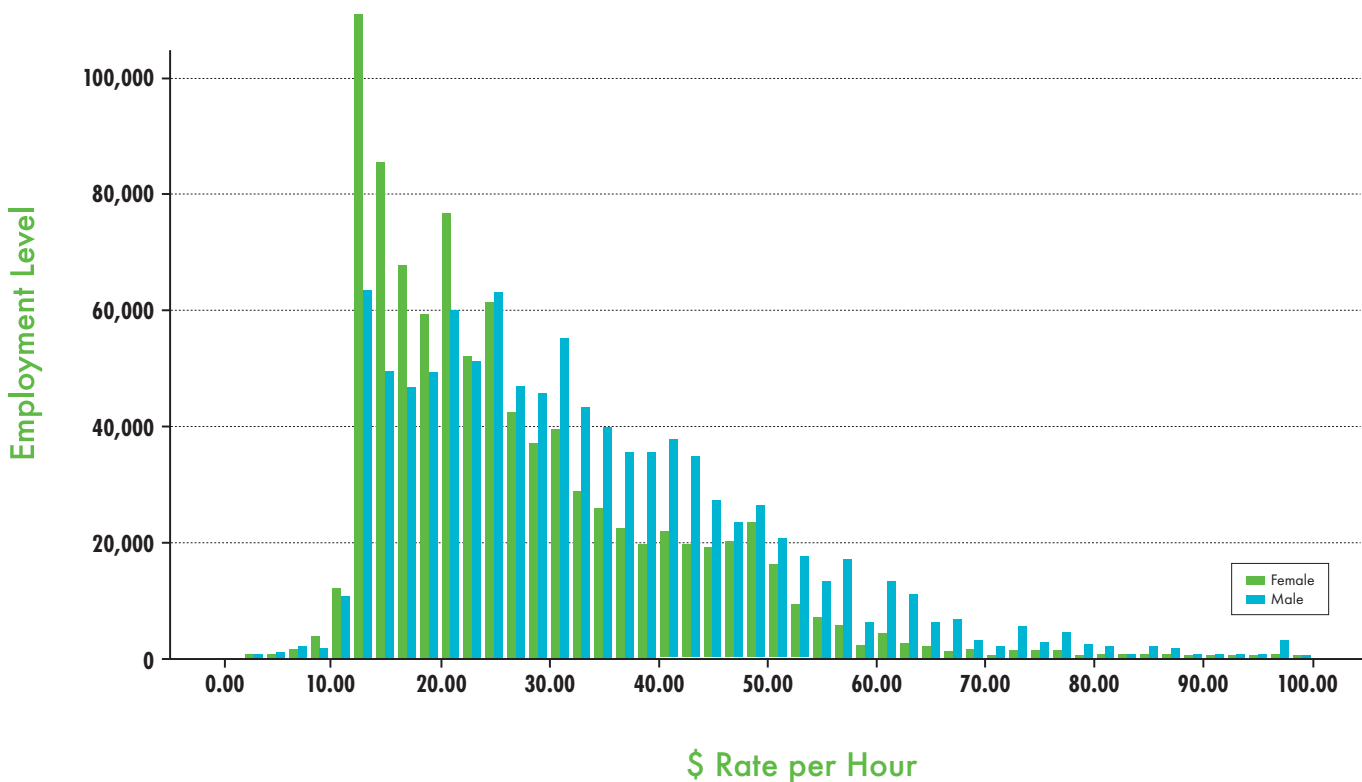
TABLE 2 | Canada 2017: Number of Workers Earning Below \$15.00 per hour

Age Range	Male	% Male	Female	% Female	Total
15-19	346,379	21.9%	386,638	17.5%	733,017
20-24	401,884	25.4%	482,188	21.9%	884,072
25-34	287,161	18.1%	380,908	17.3%	668,069
35-44	165,461	10.4%	291,259	13.2%	456,720
45-54	160,033	10.1%	309,659	14.1%	469,693
55-64	153,932	9.7%	277,326	12.6%	431,258
65+	70,372	4.4%	75,112	3.4%	145,485
Total	1,585,222	100.0%	2,203,090	100.0%	3,788,312
	42%		58%		100%

LOW WAGES AND WOMEN

Women make up nearly 2/3 of those earning below \$15.00 per hour, within a concentration of several historically lower waged occupations. The debate around the setting of minimum wage has become very much a debate that encompasses the history and future of women in the workplace, thus requiring a special consideration of women.

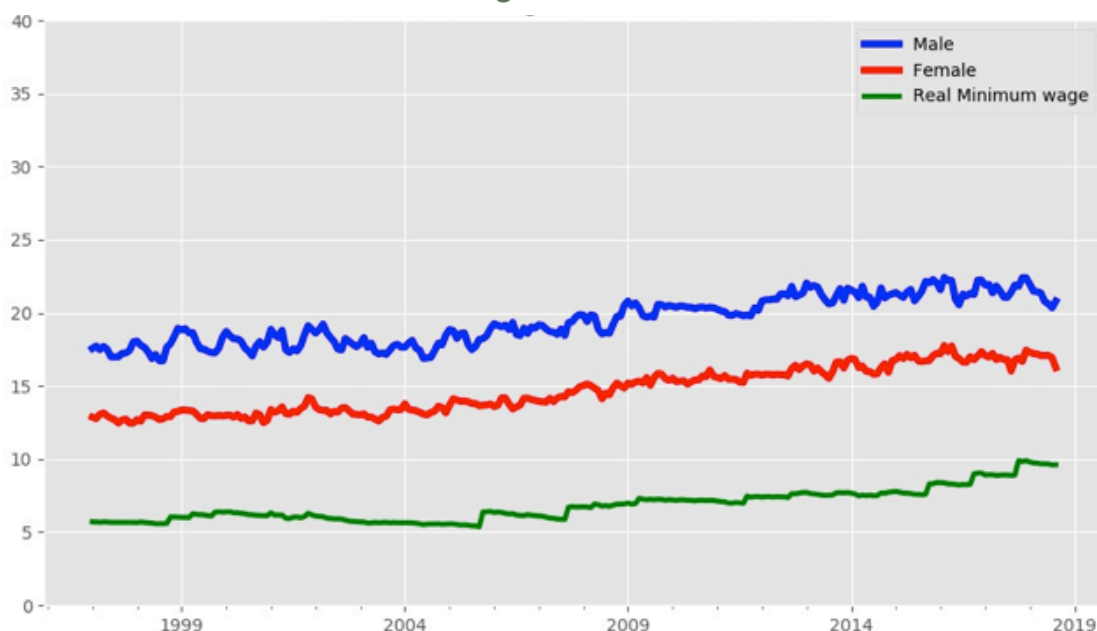
Worker Hourly Wages - Alberta Annual Average 2017



Source: Statistics Canada LFS Micro File

Examining wage levels in Alberta, for women compared to men, it is quite a contrast in terms of wage distributions. The participation rate of women within the workforce has been on a 30-year increase and recently hit its highest point in history at nearly 78% of working aged women. It is by no coincidence that women increasingly entered the workforce while at the same time low wage work has grown. As seen in the chart below, the median wage for women is much closer to the minimum wage level than men.

Real Median Wage in Alberta 1997-2018



\$ Rate per Hour (CPI Adjusted = 2002 dollars)

Source: Statistics Canada LFS Micro File

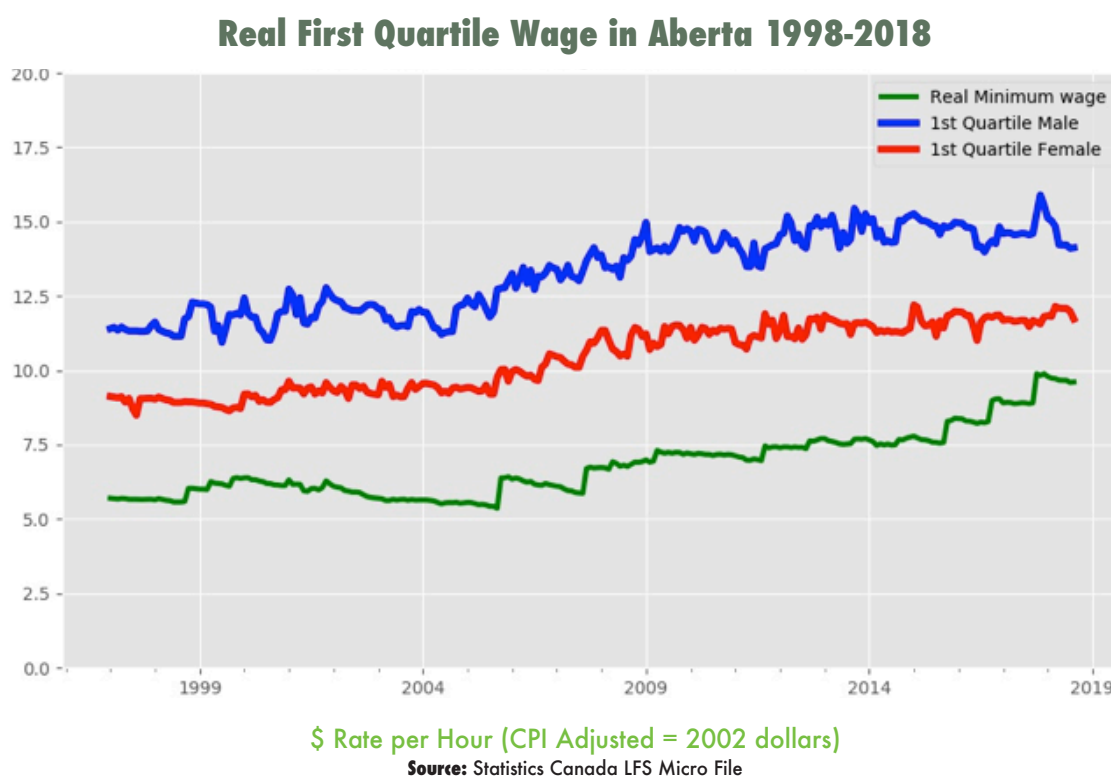
Some would argue in parts of the economics profession that wages are set by the demand for skill. Yet many high supply skilled occupations have been and continue to be subject to such biased wage outcomes. There is a complexity to such forces that factor into helping women and others escape poverty wages, and provide for more equal wage outcomes, especially for such high supply skills. As noted by the ILO in their 2012 study on minimum wages and gender aspects related:



The over-representation of women in low-wage jobs seems to be a universal characteristic of labour markets, and the fact that women predominate in low-wage employment has a negative effect on the gap in average wages between men and women (ILO, 2010a). Part of the explanation in some countries has to do with women's disadvantageous situation in terms of educational opportunities and, hence, their lower levels of skills and productivity; a situation which calls for policy measures to improve the education and skills (or "employability") of women. At the same time, in many places the gender pay gap has decreased slowly in spite of an increasing alignment among the educational achievements and work experience between men and women; this points towards the continued existence of discriminatory wage practices against women.



As women have entered into many such low wage occupations, it is becoming clear that minimum wage legislation must change how it interprets and sets the level in which labour is assigned a wage at such boundaries of the labour market. In Alberta, the role of the minimum wage setting mechanism is finally catching up to the fact that women and other groups contained within the lower waged levels must be allowed a living wage and be welcomed to a seat at the decision making table. Recall that the minimum wage has much more impact on wages at the lower ends of the wage distribution. The first quartile of women wage earners is much closer to the minimum wage than men and are almost directly impacted by such wage rises. And with the increases to the minimum wage we can see that the lower bounded quartile is now quite close to the minimum wage. This suggests that the minimum wage level is now compressing wages and pushing up from the bottom the wage gains for people who need it most.



2. Estimating the Direct Cost of a \$15.00 per hour Minimum Wage

The question in simple terms is: what would it have cost Alberta employers in terms of new wages paid to bring all workers up to the new minimum wage of \$15.00 per hour, at the usual hours worked? The majority of economic modelling relating to wage and price interactions are based upon past relationships and derived from historical data. There are a variety of techniques that have proven to be useful and can aid in providing some significant insights into predicting the future behavior and outcomes of actors within the economy. Through such it was decided that the modelling would make use of a simulation-based method in which a historical weighted agent based aggregation approach would be simulated.

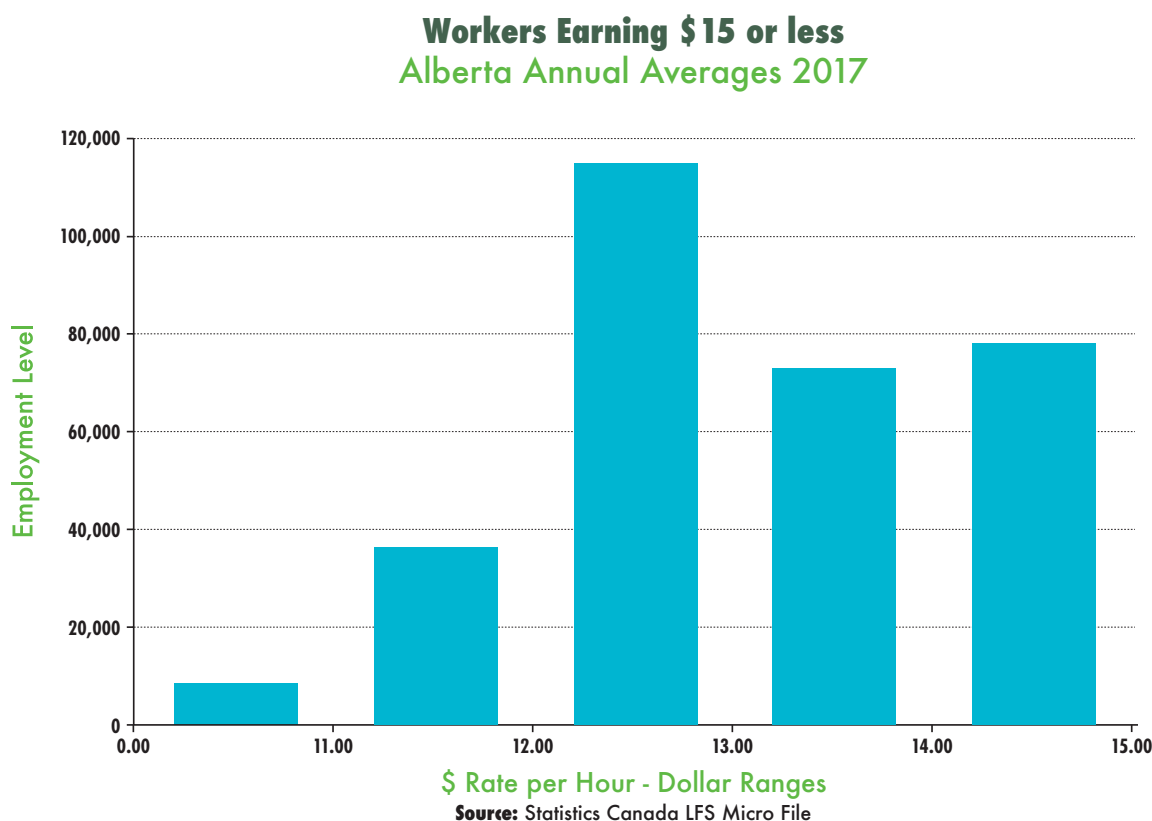
That is, the simulation was set up with initial parameters and then the simulation was run, statistical measures were weighted and aggregated from such actor behavior, and the changes inherent to the inner workings of the markets would be inherently reproduced. Given the goal is to measure the direct costs of raising wages, the agents within the model would be designed in a quite rudimentary fashion, the employer and worker agents will keep prices and wages fixed that is contained within the LFS survey. Prices and wages other than the minimum wage hike will remain constant and will ignore any changes to the demand for labour elasticities or product outputs. One could develop a more rigorous model and simulate elasticities for price and wage changes using empirical data on the many minimum wage increases over the past. Such advanced modelling is useful but it would only refine the level of detail, the goal of this research is to obtain an estimate on order of magnitude as to provide guidance.

A data file from the twelve monthly files of 2017 was combined containing all workers reporting \$15.00 per hour and less. Monthly data was used rather than annual due to the presence of significant seasonality of some industries containing low wage workers.

The goal is to estimate the following scenario; simulate a new minimum wage implemented on January 1, 2017 (prices and wages are fixed at those in which the agents experienced historically throughout the 2017 year) save for the implementation of a new minimum wage hike. The model then aggregates the wages at this new level for the usual hours worked for all workers that fell below the \$15.00 per hour. The simulation was then run 12 times, once for each month to estimate the seasonal aspects. The time frame was then estimated at an annual basis. Equation 1 provides the details (with quality assurance measures and reliability checks implemented at appropriate points).

EQUATION 1 |

Direct Cost Monthly Wage change= $\sum (\text{Min. Wage} - \text{Worker Wage}) * \text{Usual Hrs work} * \text{LFS Weight}$



Using the above criteria, Table 3 provides the monthly estimates of the cost to employers to raise all worker's wages to the \$15.00 per hour threshold. An adjustment to account for self-employed workers was made using an extrapolation using the proportions of those measured for employees and added an additional \$61 million to the annual estimate of direct costs. This resulted in a final increase in wage costs of \$914 million for 2017 in direct labour costs.

TABLE 3 | Alberta Derived Monthly Direct Costs of Additional Wages – 2017

Alberta 2017	Workers Below \$15/hr	Monthly New Wages	Total Hours Worked	Average Hours Worked	% Employees who are Low Wage
January	330,803	\$72,400,640	8,733,240	26.4	17.7%
February	327,090	\$76,251,136	8,887,880	27.2	17.5%
March	335,041	\$76,690,016	9,080,770	27.1	17.9%
April	325,970	\$73,616,192	9,009,130	27.6	17.4%
May	338,919	\$81,538,912	9,651,410	28.5	17.6%
June	337,514	\$77,607,296	9,819,220	29.1	17.4%
July	341,220	\$82,313,920	10,299,500	30.2	17.8%
August	325,602	\$73,254,688	9,822,130	30.2	17.0%
September	315,543	\$71,983,392	8,819,620	28.0	16.5%
October	303,324	\$63,515,712	8,420,180	27.8	15.8%
November	296,060	\$53,948,960	8,107,590	27.4	15.4%
December	296,961	\$49,810,176	8,377,740	28.2	15.5%
	322,837	\$852,931,040		28.1	17.0%

As can be seen in the above chart from the aggregations generated by the monthly simulations of the Alberta labour market, the total hours worked is tabulated and from such a weekly average for hours worked is calculated. The actual hours worked by each worker in the month was used to factor into the estimation. Given the fact that during 2017, after the minimum wage increased in Alberta to \$13.60 per hour, there has been no significant loss in employment, these hours of work are a reasonable approximation. Given that the provincial economy has rebounded somewhat, the estimates could be underestimating the costs for 2018. This is why the simulation is not an actual precise estimation of 2018 that much larger and complicated models could achieve. The output is useful in the sense of orders of magnitude. It is more for guidance in terms of expectations. In that regard, the simulation clearly predicts a very small economic impact on the economy at \$916 million of additional wages. This amounts to a small 0.6 per cent increase in total wages paid in 2017 of \$157 billion paid to workers in Alberta. The Bank of Canada in their report *The Impacts of Minimum Wage Increases on the Canadian Economy*, outlined a much bigger and more complicated model with a lot more resources to predict that the minimum wage increases across Canada and concluded:



From reduced-form estimates of direct minimum wage pass-through, we find that consumer price index (CPI) inflation could be boosted by about 0.1 percentage point (pp) on average in 2018. A structural general equilibrium simulation suggests that minimum wage increases would reduce the level of gross domestic product by roughly 0.1 per cent by early 2019 and boost CPI inflation by about 0.1 pp. While the net impact on labour income would be positive, employment would fall by 60,000—a number that lies in the lower part of a range obtained from an accounting exercise (30,000 to 140,000).



This essentially states that the minimum wage increases across the country would have a small impact on the economy mainly through inflation caused by an unstated amount of direct wage increases- and with a small amount of job loss. In fact the amount of job loss is less than the rounding error. Despite the differences, the model employed in this paper agrees with the BOC prediction that the relative impact on the economy will be small. However, missing in the BOC predictions are the large benefits afforded to many workers.

For comparative purposes the simulation was run for Canada and Ontario levels; and the outputs included below. As can be seen, the estimates at the Canada level are a 1.1 per cent increase in total wages paid. For Ontario the simulation estimates a 1.4% increase in total wages paid to all workers. Again both are small, given the large estimates, therefore it is best to conclude that they would have a similar or even smaller impact in Alberta.

Given the outcomes, and the conclusion reached by the Bank of Canada, it is quite apparent that the minimum wage increase to \$15.00 per hour in Alberta will not generate a massive level of cost to the economy—measured in terms of lost jobs, inflation, or other negative outcomes. This is not to conclude that the size of the minimum wage costs in and of itself will be determined by the direct costs only. As stated, the indirect costs of wage bumping workers in wage levels above the minimum wage will impact the costs for employers and must be factored into the decision-making process of setting the minimum wage level.

TABLE 4 | Canada Derived Monthly Direct Costs of Additional Wages – 2017

Canada 2017	Workers Below \$15/hr	Monthly New Wages	Total Hours Worked	Average Hours Worked	% Employees who are Low Wage
January	3,731,790	\$1,046,843,200	105,175,000	28.2	24.5%
February	3,727,420	\$1,044,829,760	104,642,000	28.1	24.4%
March	3,761,200	\$1,043,947,840	106,675,000	28.4	24.6%
April	3,762,210	\$1,050,915,840	106,891,000	28.4	24.6%
May	3,908,810	\$1,125,309,120	114,466,000	29.3	24.8%
June	3,978,000	\$1,187,759,040	119,784,000	30.1	25.0%
July	4,111,700	\$1,272,506,560	127,560,000	31.0	25.9%
August	3,976,530	\$1,209,287,040	123,038,000	30.9	25.1%
September	3,617,820	\$1,011,341,760	105,467,000	29.2	23.1%
October	3,626,640	\$986,177,920	103,881,000	28.6	23.1%
November	3,620,860	\$957,478,080	102,834,000	28.4	23.0%
December	3,636,770	\$944,191,040	102,541,000	28.2	23.1%
	3,788,313	\$12,880,587,200		29.1	

TABLE 5 | Ontario Derived Monthly Direct Costs of Additional Wages – 2017

Ontario 2017	Workers Below \$15/hr	Monthly New Wages	Total Hours Worked	Average Hours Worked
January	1,559,440	\$448,730,880	44,854,500	28.8
February	1,569,930	\$445,523,520	44,567,100	28.4
March	1,532,350	\$425,696,960	44,180,600	28.8
April	1,538,060	\$429,644,800	44,497,600	28.9
May	1,620,360	\$462,317,440	47,999,500	29.6
June	1,632,860	\$469,822,080	48,696,000	29.8
July	1,704,220	\$523,827,200	52,295,500	30.7
August	1,682,430	\$509,762,240	51,546,600	30.6
September	1,510,960	\$433,284,800	44,577,200	29.5
October	1,523,520	\$410,515,040	43,673,400	28.7
November	1,545,640	\$409,782,464	43,735,300	28.3
December	1,522,270	\$400,980,320	42,614,900	28.0
		\$5,369,887,744		

3. Indirect Wage Costs and “Wage Bumping”

As stated above there is no quick and easy method to determine the indirect costs and the impact the minimum wage increase will have on other workers higher up in the wage scale. It is a complicated aspect that includes many factors, intervening variables, and complicated causal pathways to untangle. It would be quite difficult to accurately measure with accessible and available data. Unfortunately, the data that does exist to achieve this goal is unreliable, hard to obtain, and not detailed enough. The data also lacks the reliability needed as the sample sizes used in the Labour Force Survey are not designed for such precise measures. However, there is another method for assessing the impact of such minimum wage raises and the associated level of wage bumping. It is through the use of examining historical wage data and comparing pre and post minimum wage increases levels and the flows into and out of various wage bins of workers. The size of the wage bins is determined by the sample size of the survey, the smaller the wage bins the higher the sample size needed. Researchers have used such methods to predict future impacts on such employment flows to assess job losses or gains in minimum wage studies internationally.

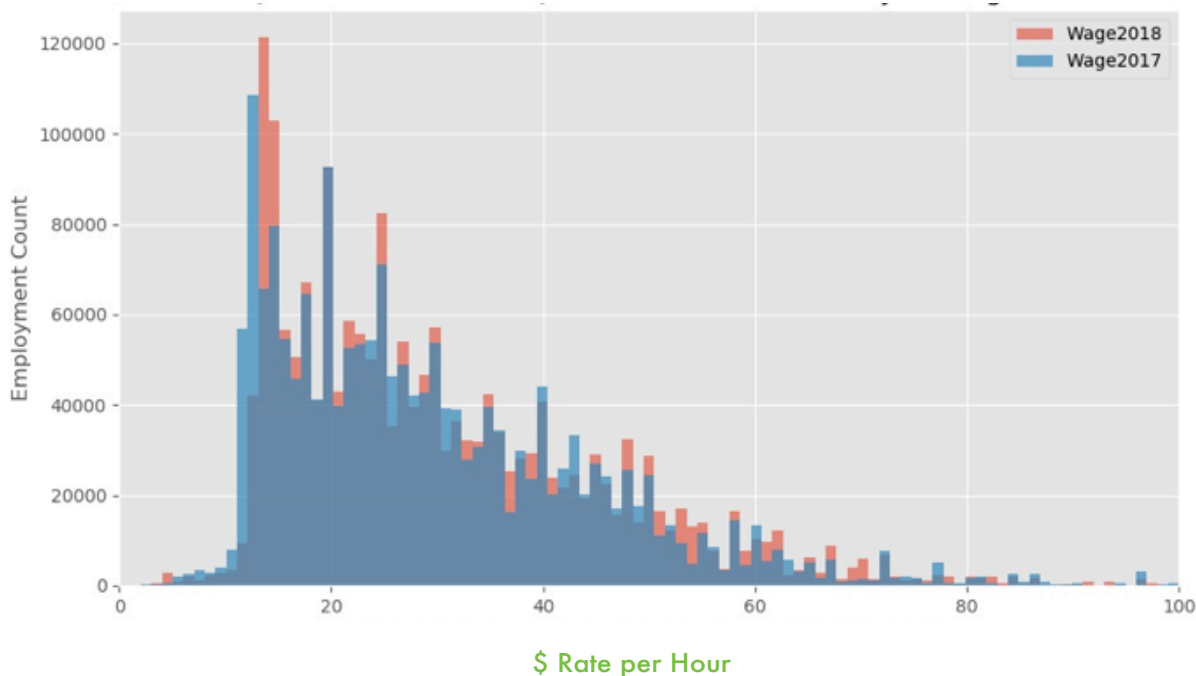
This research will use such a technique to basically assess the level of wage bumping and forego the assessment of employment changes. The technique will not be used rigorously, as typically researchers build a large database of historical minimum wage increases, and then compare the employment and wage distributions before and after. This allows the building up of a set of estimation parameters based upon several critical factors. However, the goal with this research is less encompassing and merely sets out to assess the level of wage bumping impact based upon the last minimum wage increase that occurred in 2017. The increase in Alberta went from \$12.20 to \$13.60 and was implemented on October 1st of 2017. The research will also examine the recent experiences in Ontario where minimum wage levels rose to \$14 per hour on January 1st of 2018. The Ontario raise was somewhat larger than Alberta's but given the time periods, it will provide some critical insight to help guide the results. Having recent data will benefit and potentially help with the accuracy as many of the critical factors in the economy are comparatively similar.

The data from the Labour Force Survey is monthly, and is subject to fairly large standards of error for smaller proportions. With the goal of accurate and reliable estimates of changes in wage distributions it was decided that quarterly data would be used, as the sampling error is somewhat lower. It was observed that the recall rate of respondents in the survey, due to timing of the survey and the new wage phase in schedules, did not line up well. Therefore, the first quarter after the minimum wage increase occurred had a higher degree of error. It was concluded that the first quarter post wage minimum wage increase would be eliminated from the analysis. The data from year over year wage distributions for each quarter were examined.

As can be seen in the following charts, the indirect wage bumping has resulted in a more muted wage increase. Many wages that had been above the previous minimum wage are now either at the new minimum wage or very close to the new rate per hour. It is not possible to untangle in the form of a longitudinal analysis of what occurred with individual wages. However, from a wage binning perspective we can see that the distribution pre and post wage increase have resulted in quite an extensive amount of wage compression at and just above the new minimum wage level. It can be quantified that through the movement in wages the resulting wage costs due to indirect wage bumping is much less than that of direct costs of the minimum wage rise. It is beyond the scope of this paper to allocate a precise cost estimate to wage bumping, but from visual inspection it can be summarized that a large amount of wage compression occurred, thus containing much of the indirect wage costs and this limits the indirect costs associated with the minimum wage increase.

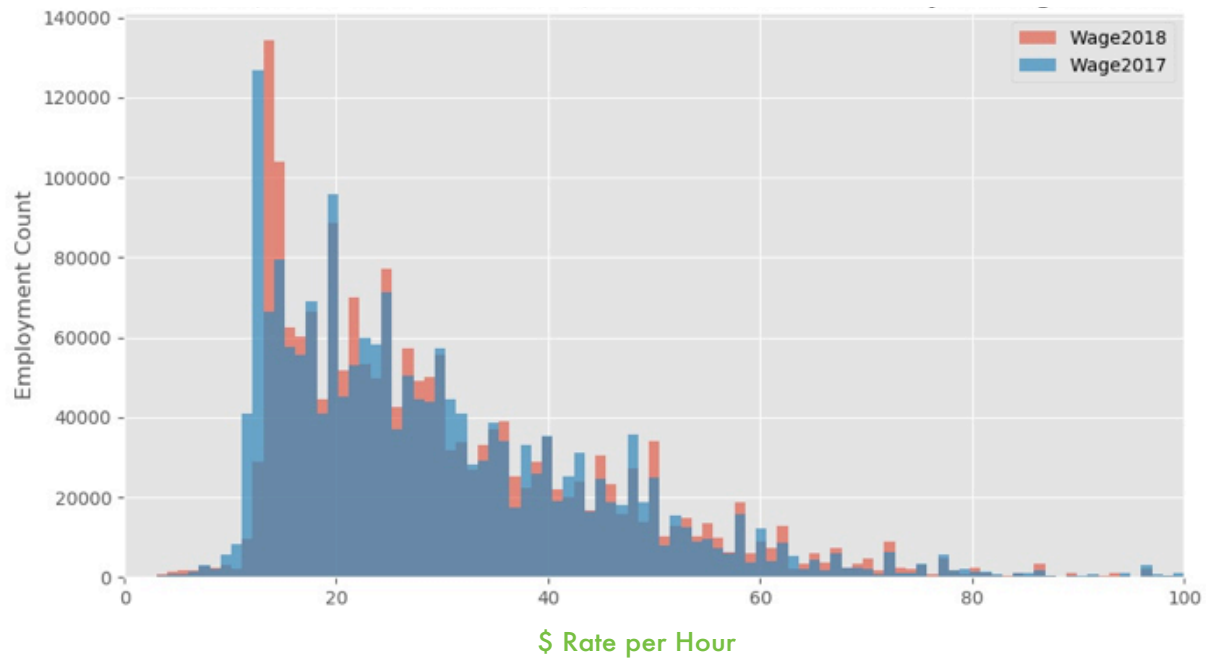
As stated, wage rates may still be adjusting to these new levels and given the schedule of announced rate hikes had been issued, it could be influencing some delayed wage adjustments.

First Quarter 2017 vs First Quarter 2018 Worker Hourly Earnings - Alberta



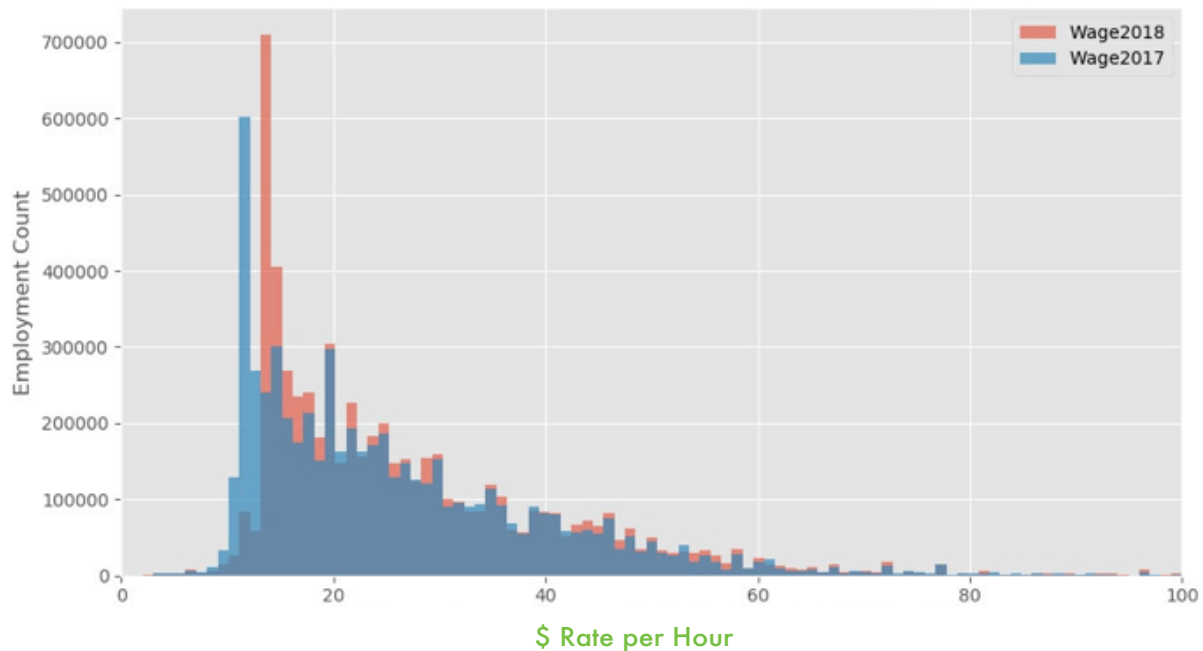
Source: Statistics Canada LFS Micro File

Second Quarter 2017 vs Second Quarter 2018 Worker Hourly Earnings - Alberta



In the case of Ontario, given the time lines, we can only look at the second quarter data for a comparison. Due to the larger wage increase of the minimum wage to \$14 in Ontario, the wage bins have much more movement across the different wage thresholds. As such there is a noticeable larger degree of wage bumping.

Second Quarter 2017 vs Second Quarter 2018 Worker Hourly Earnings - Ontario



Conclusion

Using a wage simulation of the labour market of 2017, the research estimated a total increase in annual direct wage costs created by a new minimum wage. The simulation found that if the minimum wage were to have risen to \$15.00 on January 1st 2017, the increase in total wages throughout the Alberta economy would have amounted to \$914 million. This represents a small 0.58 per cent increase in the total wages paid to all workers in the economy. That is \$914 million from a total of over \$157,612 million the Alberta economy reported by the System of National Accounts. Finally, the research empirically shows that the previous minimum wage rise to \$13.60 per hour for Alberta in October of 2017, that the actual wage bumping that occurred produced a wage distribution that resulted in a wage compression for workers above the minimum wage which predicts that such fears of rampant wage and price costs from indirect wage bumping has been much lower than some have speculated. Clearly the combined direct and indirect costs will not amount to more than an 1-2 per cent increase in total wages paid within the economy. Given such a small increase, it is quite difficult to imagine that runaway inflation or massive jobs losses will be incurred.

The facts are quite evident that wage increases for such low wage workers create large benefits in terms of living standards and indirect improvements in quality of life. The new minimum wage will place Alberta's minimum wage workers into a normalized wage level vis-à-vis the rest of the workers in the economy when compared to international rates of minimum wage levels. Also, for the high proportion of workers making minimum wage, an increase to \$15.00 per hour represents a true increase in their real wages, which have been stagnant or declining for decades. Although these benefits are rarely included in such studies, the benefits are very real, especially for female workers who comprise 2/3 of the province's low wage workers.

Historically policy makers have used some combination of minimum wages, progressive taxation and government transfers to help protect workers at the lower end of the wage spectrum. This wage floor prevents the complete erosion of worker bargaining power. However, unions and collective action remain the most robust form of maintaining and expanding workers' bargaining power. Collective action by workers through their unions have had the largest impact on wage determination, as evidenced by a significant "union premium" for wages and benefits. The benefit also expands beyond union workers, as non-unionized employers must offer better wages to attract workers and remain competitive in the labour market. However, unions have declined somewhat in terms of union density rates, but much more so in sectors that minimum wage workers dominate. This has produced large and growing sectors in industries that are non-union with a concentration of low wages and poor working conditions. It is well documented how firms in some sectors have been quite successful at avoiding unionization, and as such have been able to set wages without any collective representation from workers. The large and growing consciousness surrounding the various movements supporting increased minimum wages in North America are almost certainly tied to this dynamic. While minimum wages remain an effective tool in the short-term to ensure workers maintain their bargaining power, only through collective action and collective bargaining can workers meaningfully improve their bargaining power relative to business.

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Who Benefits from a Higher Minimum Wage?

THE PERCEPTION

Teenager

Works part time
after school

Earning extra
spending money

THE REALITY

17% of the Alberta
workforce earns less
than \$15/hr

78% are not teens
they're 20 or older

34% are
35 or older

nearly 2/3 are
women

*Alberta
Federation
of Labour*

