Assessing What We Know about Employment Effects of Minimum Wage Increases

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In this report, I will examine the extensive literature on the impact of minimum wages on employment outcomes with the goal of understanding the implications of the results in that literature of an increase in BC’s minimum wage to $15.

1 Using the Employment Rate as the Impact Measure

Following the literature, my main focus will be on impacts on the employment rate - the ratio of the number of people who are working to the population. For Canada, the main source for employment rate data is Statistics Canada’s Labour Force Survey (LFS). The LFS is a monthly survey in which Statistics Canada asks a representative sample of approximately 60,000 households across Canada about their labour force status and personal characteristics.

Economists tend to focus on the employment rate rather than the unemployment rate from this data because they view the employment rate as a cleaner measure of the strength of the labour market. To understand this point, we need a few definitions. A person is defined as unemployed if s/he is not working but searching for work. S/he is defined as in the labour force if s/he is either working or searching for work (unemployed). Thus, the labour force is the number of people who are either working or seem to be ready to work. The unemployment rate is the proportion of the labour force who are unemployed. The unemployment rate is intended to be a measure of under-use of labour resources because it reveals what proportion of those who want to work are not actually working. The problem with using the unemployment rate as a measure is that it can move in ways that are not easily related to movements in the strength of the economy. For example, during an expansion in the economy, some people who were previously not working and not searching for work may start looking for work because they think that jobs are now easier to find. The entry of these previously ‘discouraged workers’ can and sometimes does generate increases in
the unemployment rate during strong labour market periods. In comparison, the employment rate would increase during an expansion because there are more jobs being created and filled.

The distinction between the employment rate and the unemployment rate can be quite important when thinking about measuring minimum wage impacts. If the minimum wage is increased, we expect it to have two effects. The first is that it makes labour more expensive and firms might cut back on how many workers they hire (the demand side effect). The second is that some individuals who were not interested in working when the wage they can get is $10 per hour may want to work when it rises to $15 (the supply side effect). An increase in the minimum wage can increase the number of unemployed workers for both reasons - because some workers lose their jobs and have to search for a new one and because some previously uninterested individuals join the group of job searchers. It is not clear that we want to count the supply side effect as a problem. In essence, we are now offering an increased probability of getting a higher wage if a person works and for some people that means joining the workforce is more attractive. On the other hand, there is reason for concern about any declines in employment that result from minimum wage increases. The employment rate captures only these (demand side) effects.

2 Minimum Wages and Overall Employment Rate Movements

The minimum wage is, of course, only one element in the determination of the employment rate in an economy. In Figure 1, I plot the employment rate for BC for all individuals age 15 and over from 1976 to 2016 (the longest series available in the LFS). The red lines in the figure correspond to the three biggest increases in the minimum wage in the last 4 decades: in 1988, the Social Credit government of BC raised the minimum wage from $3.65 to $4.50 (a 23% increase); in 1995 the NDP government raised the minimum wage from $6 to $7 (a 17% increase); and in 2011 the Liberal government raised the minimum wage from $8.00 to $9.50 (a 19% increase). The three increases are followed by three completely different movements in the employment rate. The 1988 increase was followed by a sizeable increase in the employment rate. The 1995 increase was followed by a drop in the employment rate. And the employment rate was virtually unchanged in the year after the 2011 minimum wage increase.
The reader may be concerned that just looking at the employment rate masks the true effect of the minimum wage. For example, the late 1980s was a boom period across most of Canada but the 1988 minimum wage increase might have implied that the BC employment rate gains fell behind those of other provinces. As a rough check on this, in Figure 2 I plot the difference between the BC employment rate and the Canadian employment rate for the same age group and year. Again, the red vertical lines correspond to the three large minimum wage increases. Making this adjustment does not change the conclusions from the first figure: BC surpassed the rest of Canada in employment rate growth after the 1988 minimum wage increase; fell behind after the 1995 increase; and roughly maintained its position after the 2011 change.
The key conclusion from this exercise is that the minimum wage is something of a bit player in the determination of the overall employment rate in a province. Certainly, it is difficult to discern the influence of these minimum wage changes in overall employment rate trends even though each one represents a sizeable increase by historical standards. For that reason, claims that increases in the minimum wage of the size we have seen in the past four decades will lead to economic cataclysm are simply not credible. I will return to the question of whether the same can be said of an increase to a $15 minimum wage later in the report.

3 Estimates of Employment Rate Effects of Minimum Wages

Our ultimate concern is with whether an increase in the minimum wage has adverse effects on the employment in an economy. A natural place to start with an investigation of those effects is by looking at the simple correlation between minimum wage changes and employment rate changes, as we have done in Figure 1. However, we need to be cautious in interpreting such correlations as the final word on the impacts of minimum wage increases. This is true, in part, because minimum wage increases may be correlated with other changes in the economy. Suppose, for example, that provinces have a tendency to raise minimum wages during boom periods (perhaps out of a concern that any negative employment effects of a minimum wage hike would be worse during a recession). In that case, one would tend to find a positive association between minimum wage changes and employment rate changes.\footnote{In a somewhat bizarre example of the opposite type, the National Bank of Canada's report on Ontario's increase in the minimum wage to $15 includes an examination of a substantial increase in Quebec's increase in the minimum wage made by Quebec's PQ government just after they were first elected in 1976 (National Bank of Canada(2017)). The report points out that employment rates in Quebec fell relative to other provinces at the end of 1976 and lays the blame completely at the feet of the minimum wage increase. Given that business capital fled Quebec immediately and in large volumes after the PQ election, to relate employment rate movements only to the minimum wage is, to say the least, a considerable over-reach.} If the true effect of minimum wage increases is to reduce employment then these negative direct effects could be offset by the tendency of the increases to happen during booms, resulting in a near zero observed correlation in the data. This is important because what we care about in the end will be the direct effect of the minimum wage net of any timing issues. If we raise the minimum wage permanently, it is the direct effect that will govern the employment effects over time.

We can think of how to get an estimate of the direct effect by considering an experiment in which we first observe the path of the employment rate over time with the minimum wage kept at its current level and then observe it again after raising the minimum wage by, say, 10\%. Of course, we cannot run this experiment. Instead, we examine a period...
during which there is a minimum wage increase and try to form our best guess of how the provincial employment rate would have evolved if the increase had not happened. The most common approach is to use other provinces, not going through a minimum wage change, as benchmarks. Thus, for the 2011 increase in the minimum wage in BC we would compare the change in the BC employment rate after versus before the minimum wage increase (that is, between 2010 and 2011) with changes in employment rates in the other provinces at the same time. Essentially, we are assuming the other provinces provide a picture of how the employment rate would have changed in BC in the absence of the minimum wage increase. In practice, there have been many minimum wage increases in all the provinces in the past few decades. Rather than looking at each of these individually, we use a regression method to obtain the average effect of minimum wage increases on employment rates. Notice that this helps to get around our initial concern: if minimum wages are increased during booms then the other provinces will tend to be booming at the same time. A direct negative effect of a minimum wage increase would reveal itself if the employment rate in the minimum wage increase province rose less than the employment rate in the other provinces. This approach is called a ‘difference - in - difference’ estimation approach since to implement it we look at the difference in the employment rate before and after a minimum wage increase for a province and subtract it from the change in the employment rate for comparator provinces.

With minimum wages set at the provincial level and varied relatively frequently, Canada serves as an excellent laboratory for studying the effects of minimum wages on all aspects of the labour market. Canadian researchers have used that variation in innovative ways to try to estimate employment effects. The consensus in the large US literature is that a 10% increase in the minimum wage would generate between a 1% and 3% decrease in the employment rate for teenagers (see Belman and Wolfson(2014) for a recent, thorough review of the US literature). Many of these estimates use the difference-in-difference approach, working with US states. However, some researchers have argued that we can get better estimates by comparing adjacent counties in two different states. The idea is that the best comparator for a given county is the counties right around it. Then by comparing the employment rate change in a county in a state with a minimum wage increase to the employment rate change in a neighbouring county in a state without a minimum wage increase, we get to see the effect of the minimum wage increase in what is essentially the same labour market. Studies based on this methodology tend to find smaller or even positive effects of minimum wage changes on employment rates (e.g. Dube et al(2010)’s extension of the classic analysis in Card and Krueger(1995)). This methodology has not been applied to the Canadian labour market to the best of my knowledge.

In Canada, Baker et al(1999) find a much larger elasticity of about -0.6 over the longer run in a very original application of techniques from time series for decomposing effects into high and low frequency variation components. That is, they find that a 10% increase
in the minimum wage would induce a 6% reduction in the employment rate for teenagers - an effect that is double the upper end of the range of US study estimates. Campolieti et al (2006) - using standard difference-in-difference methods - also find effects that are at the upper end of the range of US estimates. Campolieti et al (2005) use a methodology in which they follow workers whose wages in the year before a minimum wage increase are below what the new minimum wage will be (for example, wages below $10 if the minimum wage is going to increase to $10) to see how many of these directly affected workers lose their jobs. Their estimates for 16 to 24 year olds using data from between 1993 and 1999, indicate an elasticity for employment of between -0.3 and -0.5. Thus, the main available Canadian studies all indicate larger effects than what is common in the US literature.

In the technical appendix, we include results from regressions run using the same data and the same empirical specification as in Campolieti et al (2006) extended up to 2016. The results from that exercise fit with several of the main conclusions from the literature.

First, the estimates vary over a relatively wide range. For teenagers, the estimates range from -0.38 (a relatively high number compared to the US literature but more standard in the existing Canadian studies) to 0.059, depending on the time period and the exact specification used. The former number implies that if the employment rate for teenagers is 40% then a 10% increase in the minimum wage would imply a fall in the employment rate to 38.5%. The upper bound estimate would imply a very small increase in the employment rate.

Second, although it is not universally true, when using Campolieti et al (2006)'s own specification, the larger negative effects tend to arise when we use older data. Using their specification, the estimated effect for teenagers is -0.32 when I use data for their time period (1981 - 1997) but 0.059 when I use the full sample (1981 - 2016). All of the previous papers use data that ends in the late 1990s and so it appears that the larger estimates in the Canadian literature compared to the US literature may relate to the time period of the estimation. Exactly why the earlier data yields larger estimates is unclear but it could relate to the depth of the recessions in the early 1980s and the early 1990s. Clemens and Withers (2016) examine US data in the period of the 2008 recession and find that a minimum wage increase that was implemented in that period had large, negative impacts on employment for low skilled workers. They argue that this reflects an interaction of declining labour demand with the minimum wage increase. This suggests that it is reasonable to pay attention to the state of the economy at the exact point of onset of minimum wage increases.

Third, the results indicate that, while minimum wages generally have negative effects on the employment rates of teenagers that are statistically significant (i.e., cannot just
be attributed to statistical randomness), the effects for young adults (aged 20 to 24) and older workers are much smaller and often not statistically significantly different from zero. Thus, my estimates of minimum wage effects for young adults are typically in the range of -0.03 to -0.05 (i.e., one-tenth to one-sixth the size of the estimated elasticities for teenagers) and for the whole working age population (age 15 to 64), the estimates are in the range of -0.01 to -0.03. To put this in perspective, if the minimum wage were increased by 10%, the latter estimates implies that the employment rate for the overall workforce would decline by between 0.1% and 0.3%. Thus, if the employment rate in the economy were 64% (approximately our sample average) then a 10% increase in the minimum wage would imply a decline to between 63.8% and 63.94%. Again, the effects for the young adult sample and the overall sample are typically not statistically significantly different from zero, implying these small effects are well within the range one would expect to see just due to sampling error when the true effect is zero.

The result that the only sizeable and statistically significant effects of minimum wage changes are for teenagers is very common in the literature. Most studies do not even bother to report estimates for workers older than age 24 because it is so well known that those effects are zero. The obvious implication is that for minimum wage changes that are within the range of variation used in obtaining these estimates, claims that minimum wage increases can cause economic cataclysm for the overall economy are simply not credible. The key question is whether the same is likely to be true for an increase to $15, which is outside the range of minimum wages that have been implemented before. I will return to that question below. But it is important not to simply extrapolate estimates for teenagers to the economy as a whole. In 2011, just before the substantial increase in the minimum wage described earlier, the Fraser Institute put out a report predicting that the increase ‘could lead to over 52,000 job losses’ for workers aged 15 to 24 (Veldhuis and Karabegovic(2011)). This would have corresponded to 1 in 6 of workers in this age range losing their job. This is the upper end of their range of estimates (though it is the only number reported in their conclusion) and was obtained by applying the largest available employment effect for teenagers to 20 to 24 year olds as well as teenagers. It is extrapolations of this type that I want to warm against. What was actually observed for this age group was quite different. Between 2010 and 2013, the employment rate for 15 to 24 year olds in BC declined by 1.6 per cent - one-tenth of the Fraser Institute prediction - though this was largely offset by an increase in the percentage of individuals in this age group attending school and, therefore, likely does not represent a labour demand reduction effect. Over the same period the employment rate for this age group in other provinces was essentially unchanged. Thus, as we saw in figure 1, it is not obvious that this minimum wage increase ($8 to $10.25) had substantial effects on the path of employment in the province.

One might wonder why the literature focuses so strongly on the teenage labour market. It is worth keep in mind that the economics literature on minimum wages has two goals.
One is to assess the effects of this specific policy but the other is the more general goal of trying to estimate the elasticity of labour demand (the extent to which firms reduce employment in response to any wage increase). For the latter goal, one needs to examine the impact of changing a minimum wage for a group where there is real impact - examining the employment response of engineers, for example, is unlikely to tell us anything about labour demand since engineers all make much more than the minimum wage. Teenagers in general earn low enough wages that the minimum wage is often binding so we really do get to see how firm employment responds. The question is then whether the lessons learned for teenagers can be extended to other workers. I believe there are good reasons to doubt such extensions. In particular, teenagers are likely to be a group with a particularly high labour demand elasticity since they have no accumulated skills and, as a result, can be easily substituted for by more experienced workers or by capital. Moreover, teenagers are a very special group in terms of their connection to the labour market. In our data, the employment rate of 16-19 year olds is only 40%, compared to approximately 63% for 20 to 24 year olds and 64% for 25-64 year olds. Much of this, of course, has to do with their schooling choices. To the extent they move in and out of school in response to economic changes (including minimum wage changes), estimation of their employment responses to a minimum wage change will conflate the type of labour demand responses we are interested in for other workers with education choice decisions. We saw this in the example with the 2011 BC minimum wage change where the decline in employment following the minimum wage increase among teenagers and young adults appears to correspond almost entirely to an increase in their propensity to be in school. I believe that the most reasonable conclusion is that teenagers offer a poor basis for trying to figure out the labour demand responses relevant for other workers who are similarly exposed to the minimum wage (older women, for example).

Overall, it is important not to lose sight of the forest for the trees. If one is concerned with the impact of minimum wages on employment in general, there is consensus on that point: for minimum wage increases in the range we have seen in recent decades, that impact is very small. This is important because one of the main arguments against a minimum wage is that it will cause substantial problems for economic efficiency and, therefore, growth in an economy. It is hard to see how one can make that case when any estimate of the impact of minimum wages on overall employment is vanishingly small. Again, though, we need to consider carefully whether conclusions based on past minimum wage increases can be extended directly to the question of the effects of a $15 minimum wage.
4 Moving Beyond Employment Rate Effects

4.1 How to View Labour Markets

At this point, I believe there is value in a short discussion of what these results imply about how we think labour markets operate. This may sound like an esoteric topic but if you bear with me, I believe I can make the argument that understanding how to think about the functioning of labour markets can have important impacts on how to make the best policy choices.

One reason given for concerns about minimum wages is a claim that we know from standard economic theory that an increase in wage costs will likely be to the detriment of employment for the group we are most concerned with helping. In the most standard model, workers are paid a wage equal to the amount they contribute to the revenue of the firm. That is, in a fully functioning labour market, a worker who is paid a wage of $5 per hour is paid this little because he is not very productive. Now consider what happens if the government introduces a $10 minimum wage. No firm would be willing to hire the workers formerly paid $5 per hour because they only contribute $5 to the revenue of the firm but have to be paid a wage of $10. Indeed, if this is how wages are determined then the minimum wage has very little to recommend it. The set of workers one would hope to help with the policy - the lowest wage earners - would all be laid off and unable to find employment.

There are reasons to think that this is not an accurate - or, at least, a complete - depiction of how wages are determined. One key piece of evidence contradicting this depiction comes from the effects of the minimum wage itself. According to this standard model, there is no reason for there to be a mass of workers making exactly the minimum wage. Workers whose productivity is below the minimum wage simply can't find work and those at or above it continue to make their same wage. There could be a brief time when firms keep on some of the sub-minimum productivity workers and pay them the minimum wage just in order to keep the business operating but eventually those workers should be replaced by some combination of physical capital and more skilled workers. Yet, in North American labour markets, it is clear that there is a whole set of workers being paid exactly the minimum wage.

Another piece of evidence comes from a study that I did with Pierre Brochu in which we examined the impact of minimum wages on hiring rates (the proportion of unemployed workers who find a job in a given month), quit rates (the proportion of employed workers who leave their job voluntarily in a month), and layoff rates (the proportion of employed

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3This is not quite an accurate depiction of the results of these models. For reasons that I will not go into here, some of the workers with productivity that was formerly below the minimum wage will be kept on with wages just above the minimum wage but even then there is no reason for them to be paid exactly the minimum wage.
workers who leave their job because they are laid off by their firm in a month) (Brochu and Green(2013)). We find that increases in minimum wages reduce hiring rates but they also reduce layoff rates for workers in their first year after being hired.\footnote{That minimum wages reduce job termination rates has also been found in Europe (Portugal and Cardoso(2006)) and the US (Dube et al(2017)).} There is no clear way to explain this lay-off pattern in the standard model of how wages and employment are set. Thus, from these two pieces of evidence, something is wrong with the standard model of wage setting.

At the same time, there is something right about the notion that more productive workers are paid more. More skilled and more productive workers do get paid more. But it is also the case that different people with the same skills seem to make different wages and that workers believe that there are good job firms, where wages are high and the work conditions good, and bad job firms, where neither of these is true. This notion is captured in an alternative depiction of how wages and employment are determined. In this alternative notion, unemployed workers have to search for jobs - they are not perfectly easy to find. Because of that, workers will take jobs, even if they are not the best, and good job firms and bad job firms can co-exist. Firms also have trouble finding workers to fill their vacancies and so will hire any worker who looks good enough.

If a worker and firm do meet, they can produce output worth a certain value each month. Both the worker and firm compare this amount to their next best option. For the worker, that consists of remaining unemployed and searching for another job. For the firm, it consists of not hiring this worker and continuing to search for another. If the value of what they can produce together is worth more than the combination of their alternative options then they will stay together. At this point, they bargain a wage. That wage is still related to productivity - workers can’t demand a wage that is higher than the value of what the worker and firm will produce together. But it is also determined by the value of their alternatives. If the worker has other good options then the wage she can bargain is higher.

One might wonder why bad job, low wage firms can’t undercut higher wage firms and compete them out of the market. White Spot, for example, is often viewed as a good job firm, offering better wages, working conditions, and benefits than other firms - even other firms within the same fast food market. How can White Spot stay in business when facing competition from lower wage restaurants of the same type? The answer is that good job and bad job firms can co-exist because they face different types of costs. Good job firms have high wage costs but workers stay with them and so they face low turnover costs. Bad job firms have lower wage costs for the workers they actually employ but their workers are constantly looking for better options and so the firm faces high turnover costs.

What does a minimum wage do if this is the way wages and employment are set? First, if the minimum wage is set above the value that a worker produces in a given job, the firm will eliminate that job. This is the same logic as in the standard model - the wage cannot
be excessive relative to the value of what the worker is producing.

Second, however, even if the minimum wage is above what the worker and firm would have bargained without the minimum wage, the job may not be terminated. For example, if the worker produces an amount valued at $11 in each hour and the worker and firm bargained a wage of $9 per hour then a minimum wage of $10 per hour will not eliminate the job. The firm would be making less profit than under the bargained wage but would still be making some profit and so would not end the job. As noted in the first point, though, if the minimum wage were set above $11 then this job would be eliminated.

Third, in this case there will be a mass of workers earning the minimum wage. Everyone who formerly earned below the new minimum wage and whose jobs are not eliminated by the minimum wage, will make exactly the minimum wage. In essence, what the government is doing, in part, is going to the bargaining table for workers and insisting on a wage of a certain level.

Fourth, we could see a reduction in the layoff rate. A potential reason for this comes back to our explanation for how low wage and high wage firms can co-exist even in the same product market. Low wage firms face high turnover both because workers quit and because the firm is forced to lay-off workers who are not working hard enough at the offered wage. A minimum wage essentially makes pursuing the low wage/high turnover model too expensive. Firms can’t afford to pay the minimum wage and bear high turnover costs at the same time and so more of them switch to a model in which workers are treated in a way that reduced turnover. At the same time, returning to the first point, they will also tend to hire at a lower rate because they have fewer workers leaving. That means that workers may face more ‘good’ jobs with a higher minimum wage but they also find it harder to get those jobs. I don’t know of any papers that examine the question of whether this is a trade-off workers prefer.

Related to this last point, in Brochu and Green(2013), we find that minimum wage increases actually have an effect on labour markets for workers other than teenagers - its just an effect that does not turn up in the employment rate. In particular, even for older workers, we find that both layoff rates in the first year and hiring rates decrease. But those two effects exactly offset each other, leaving the overall employment rate unchanged. For teenagers, we observe the same sized reduction in layoff rates but a larger decline in hiring, resulting in a smaller proportion of teenagers in employment. Thus, if minimum wages do induce firms to shift toward a more stable work model, it appears to be something that happens even for older workers.

To sum up these points, observed minimum wage effects do not fit with a standard model in which all workers who formerly earned below the new minimum wage would be laid-off. Instead, they fit with an idea of how the labour market works in which minimum wages act like the government going to the bargaining table for low wage workers; reductions in employment would not be as large; and minimum wages may act to push firms toward
using ‘good jobs’ models even for older workers.

4.2 Effects on Prices

Should we conclude from this discussion that minimum wages should be mainly seen as a direct transfer from employers to employees? The answer from existing research is not entirely and, possibly, not at all. Even firms facing tough competition and having small profit margins may be able to pass the increase in their labour costs caused by a minimum wage increase onto their customers to some extent. In recent work, Renkin et al(2017) use data on prices in US grocery stores to study the extent to which minimum wages are passed through into food prices. They conclude that there is full pass through and thus, that ‘consumers rather than firms bear the cost of minimum wage increases.’ They also conclude that there is no differential in the price effects for goods consumed more by poor versus rich households but because poor families use a larger proportion of their income on food, these minimum wage effects are like a regressive tax (e.g., like the GST). Other studies examining the impact of minimum wages on fast food prices and calculating the net effects on the incomes of poorer households (e.g., MaCurdy(2015)) reach the same conclusions.

It is worth keeping in mind four points when thinking about these price effects of minimum wages. First, full-pass through of minimum wage increases into prices does not mean that the prices increase dollar-for-dollar. For example, a $1 increase in the minimum wage does not imply a $1 increase in the prices of goods in which minimum wage work is involved. The pass-through will be proportional to the importance of minimum wage workers in the total costs of the firm. For example, if the wages paid to minimum wage workers make up 10% of total costs for a firm then full pass-through would imply that a $1 increase in the minimum wage will cause a 10 cent increase in the price of the good (assuming one hour of the worker’s time is needed to produce one unit of the good). So, the increases in prices may be small. Second, increases in food prices and other prices imply a reduction in the amount that low wage workers can buy but these effects are still smaller than their gains in wages from the minimum wage increase. That is, these price effects serve to mitigate the redistributive effects of minimum wages to some extent (offsetting about 10% of their wage gains according to Renkin et al(2017)) but they do not eliminate them. Third, depending on how much consumers cut back their demand for goods in response to the price changes, this may explain why measured employment effects tend to be small - firms are able to pass the added costs on to consumers and so do not need to lay off workers. Fourth, all policies have costs. The standard claim is that the cost of minimum wages ultimately falls on workers in the form of reduced employment. These results suggest that the majority of the costs may, instead, fall on consumers through higher prices. If the goal of minimum wages is to redistribute income and reduce inequality then this may be judged as an appropriate effect.

It is worth noting at this point that small and medium sized business owners, often
facing razor thin profit margins, often predict that upcoming minimum wage increases will cause them to reduce employment and hours - potentially by significant amounts (e.g., a CFIB survey of BC businesses reports that 16% of respondents indicate that they have cut employment in response to minimum wage increases). I don’t believe that this type of survey information should be treated as a serious basis for decision making for two reasons. First, when asking about past minimum wage increases, there are clear incentives for respondents to exaggerate negative responses. Second, when considering impacts of future increases, I believe that respondents will tend to think about what would happen if a government employee suddenly walked in and ordered them to increase their wages. Its not clear to me that they also think about how that will play out in prices when their competitors face the same requirements. That is, I believe they may have a tendency to underestimate market level responses. I have no firm evidence in favour of these claims but it does seem to me to be a way to reconcile claims from small businesses about disastrous effects of minimum wages on their hiring with the evidence described earlier that the actual observed effects tend to be negligible. On the other hand, there are responses to these surveys that I believe should be taken seriously. The respondents often call for any increases in minimum wages to be predictable and implemented with sufficient time for response. Unpredictable and rushed policy changes are anathema to investment. This should be taken into account in considering how to proceed.

5 Is the Move to $15 Different?

A key question that has emerged at several points in our discussion is whether the results found in earlier studies provide a good guide to what we should expect in a move to a $15 minimum wage in BC. There are reasons to believe they would not. In particular, the minimum wage both in BC and other provinces has fallen mainly in a range between about 40 and 50 percent of the average wage in recent decades. For example, when the BC minimum wage was set at $10.25, it corresponded to 46 per cent of the average hourly wage. A $15 minimum wage, in contrast, would be approximately 60% of BC’s current average hourly wage. Given this much higher ratio, the set of workers affected by the minimum wage changes. In November 2016, 36 per cent of workers in BC earning less than the minimum wage of $10.85 per hour were teenagers and a further 15 per cent were aged 20 to 24. In comparison, 24 per cent of those earning between $10.85 and $13 per hour were teenagers, with another 21 per cent being young adults. For workers earning between $13 and $15 per hour, only 7 per cent were teenagers and 21 per cent were young adults. So, once we look beyond $2 above the current minimum wage - and, therefore, well beyond historic minimum wage to average wage ratios - the affected workers are mainly not teenagers. Nearly three-quarters of those with wages close to but below a $15 minimum would be over age 25.
These patterns have two implications. First, I argued above the results for teenagers (which constitute the main significant estimates in the existing literature) are not easily applicable to other workers. With teenagers making up such a small proportion of those with wages near the new minimum, this point becomes particularly relevant. There is no reason to believe that the main estimates in the existing literature will carry over to the non-teenage workers who will make up the predominant group affected by a $15 minimum wage. But, second, it is also not clear that existing estimates for older workers provide much of a guide either. The fact that estimated minimum wage effects for 20 to 24 year olds and for workers over age 15 are very close to zero may arise simply because those groups of workers were not very affected by minimum wages set in the historical range. Their wages were too high for the historic minimum wages to be relevant. This will no longer be true for a sizeable group of lower skilled non-teenage workers with a $15 minimum wage. Thus, claims that there will be no employment rate problems from a higher minimum wage because our existing estimates for older age groups are effectively zero also seem not to be based in solid evidence. On the other hand, the results showing that minimum wage increases reduced both hiring and layoff rates for older workers suggests that earlier minimum wages did have some effect on non-teenagers and the conclusion that minimum wage increases lead to longer lasting jobs that are harder to find may continue to hold.

Given all of this, we need to look for other evidence to make predictions about the impact of a $15 minimum wage in BC. One potential source of evidence is found in the recent moves toward $15 minimum wages in several US cities. In particular, Seattle’s $15 policy included a commitment to measure the impacts of the policy, setting up an independent commission (the Seattle Minimum Wage Study) given access to high quality administrative data and tasked with writing reports on the policy impacts. The US and Canadian labour markets have substantial differences. These are reflected, for example, in the fact that the US earnings distribution before taxes and transfers - the most direct reflection of the operation of the labour market - is more unequal than Canada’s. Nonetheless, there are enough similarities in the two labour markets that BC should take the emerging evidence from Seattle seriously.

The Seattle Minimum Wage Study’s first report focuses on the impact of the first steps in the move to $15 - a move from the previous minimum wage of $9.47 to $11 and then the further move from $11 to $13 (all expressed in US dollars) (Jardim et al(2017)). The $15 minimum wage policy was announced in June of 2014 and the first move (to $11) occurred in April, 2015. The second move (to $13) took place in June, 2016, representing quite a rapid and large jump in the minimum wage even before attaining the $15 goal. The data used in the report comes from quarterly data from the unemployment insurance system. This data is filed by firms on an ongoing basis and so is expected to be of high quality (as opposed to, for example, data recalled by workers in surveys asked later). It contains quarterly earnings for each worker and quarterly hours worked for each worker. Importantly,
the authors drop from their data firms that operate at multiple sites because those firms may only be recording the location of their head office rather than where the work is actually done. They report results from surveys suggesting that multi-site (i.e., bigger) firms respond similarly to what they find with their data on single site firms but we have already seen that firm responses on surveys about how they respond to minimum wages are not terribly reliable and this data restriction should be seen as a limitation of the study.

The approach used by the authors of the study is very similar in spirit to the difference-in-difference approach we described earlier. In particular, they examine employment outcomes in Seattle proper relative to those in the cities directly around it (cities such as Tacoma) which did not increase their minimum wages, i.e., continued to be affected by the state-wide minimum wage. As in the earlier discussion about provincial comparisons in Canada, the idea is to use the comparison cities as a benchmark for what employment would have looked like in Seattle in the absence of the minimum wage increase. This is the equivalent of examining impacts in Vancouver by comparing employment trends in Vancouver to those in Burnaby, Richmond, and the North Shore cities.

The authors put a lot of emphasis on what they perceive as an advantage of their rich data - that they can examine the impact of the minimum wage increases on low wage workers (i.e., workers who were earning wages below the new minima) in all industries. In contrast, the prior US literature tended to focus either on teenagers or on all workers in specific low wage industries, with the restaurant industry being a common focus of attention. The authors argue that the previous examinations are flawed because they average in impacts on workers such as mid-level managers whose wages are well above the affected range. Their key finding is that, compared to the surrounding cities, employment for workers earning less than $11 in the first increase and less than $13 in the second increase dropped to near zero. This is as expected since the point of the minimum wage increases was to essentially ban wages below the minima. But, strikingly, there is little to no increase in employment at wages above the new minima. This is especially the case for the move to $13. Thus, these findings, taken at face value, indicate that something like the standard model of labour markets and minimum wage impacts within it is taking place: all workers who previously earned wages below the new minimum are simply laid off. The impact of the minimum wage by this measure is substantially negative and gives pause as to whether one would want to continue with this policy.

The authors also conduct an exercise in which they first calculate average hourly wages for each worker using the ratio of their quarterly earnings to their quarterly hours worked and then use those average wages in combination with employment outcomes to calculate an elasticity of demand (i.e., the percentage by which employment declines for each 1% increase in the wage). Their calculated elasticity is slightly larger than 1 - that is employment drops by more than 1% for each 1% increase in the wage. This is potentially important because of what it implies for the impacts on the well-being of low wage workers.
as a group. To understand this, consider an example of a firm in which there are 10 workers each making $10 per hour. If their wage is raised to $11 and no workers are laid off in response (corresponding to a demand elasticity of zero) then the total wages paid to the original 10 workers (their wage bill) rise from to $100 to $110 per hour. If 1 worker has her hours cut in half (corresponding to a demand elasticity of -0.5) then the total wage bill only rises to $104.50. In this case, there are negative employment effects of the minimum wage increase but, for the group as a whole, these are more than offset by the wage increases. If the workers whose hours were not cut shared their gains with the worker whose hours were cut then everyone could benefit from the policy. In the previous literature, even the largest demand elasticities for teenagers are much less than -0.1, implying that the wage bill for teenagers as a whole increases substantially. To the extent that the group as a whole tends to cycle through jobs (as they and most lower wage workers do), the overall benefits are shared among the group. If, further to that, there is access to effective unemployment insurance then the employment costs of the policy are effectively shared with a much wider group. But, finally, consider a case in which 2 workers are laid off in response to the wage increase in our example and they are not able to find other jobs. In that case, the total wage bill to the original 10 workers falls to $88 and the policy is clearly a failure for the group as a whole. This is what the authors estimated elasticity implies. However, that elasticity is based on working with the ratio of two numbers containing potential statistical error: the quarterly earnings and the quarterly hours. Because of this, the estimated elasticity itself is subject to considerable statistical variability and their reported 95% confidence interval is very wide - including zero within its range. Given this, I think their conclusions about demand elasticities should be treated with caution. However, their direct results on employment effects should be taken seriously and do imply problematic employment effects. In this regard, it is important that the move to $13 showed much larger negative effects than the move to $11. The second stage in the increases corresponds to starting to move outside the range of previous estimates and seems to imply escalating impacts as we move much higher in the wage distribution.

Is this the last word on moves to much higher minimum wages? There are several reasons to think it is not.

First and foremost, the comparison to the cities directly around Seattle is not clean. In the Vancouver comparison, if Vancouver established a new higher minimum wage, we would expect some businesses to relocate to Burnaby or Richmond or, for multi-site firms, to move their work to the neighbouring cities. This means that those cities cannot form a clean comparison in terms of what would have happened to Vancouver in the absence of the minimum wage policy. The authors use a statistical approach (essentially a more complex version of the differences-in-differences approach) that attempts to account for this but I don’t see this as completely satisfactory.\(^5\)

\(^5\)In a competing paper, Reich et al(2017) use a different set of administrative data to examine the Seattle
Second - and related to the first point - it is not clear whether these results can be extended to predict the impact of a provincial level minimum wage increase where the ability of firms to shift work just out of the jurisdiction is substantially less.

Third, the use only of single site firms creates problems for the exercise in which they examine employment at the different wage levels. If some of the workers laid off from single-site firms ended up getting jobs at above $13 in multi-site firms (think, workers laid off at Mom and Pop burger joints getting jobs at McDonalds instead) then the report’s main stark conclusion would be mitigated to some extent.

Fourth, the estimated demand elasticities generated in the report are much, much larger than any standard estimate of which I am aware. One approach to predicting the impact of the minimum wage increase is to move away from relying on using wage variation based on previous minimum wage increases. As we have seen, those increases were mainly in a wage range affecting a smaller set of workers with teenagers forming an important group in that set. Other studies have attempted to estimate the impact of wage increases on employment using wage variation for a broader set of workers - including those likely to be affected by a move to a $15 minimum wage. For example, Beaudry et al. (2016) estimate that a 10 per cent increase in the average wage in an industry implies a 3 per cent decline in the employment rate - less than one-third of the impacts in the Seattle report and in line with most of the existing estimates of related elasticities. In my view, these types of estimates stand on a more reliable statistical footing and are at least equally plausible as a basis for prediction. (As full disclosure, I am one of the co-authors of Beaudry et al (2016).)

Suppose these latter estimates were accurate, what would the impact of a move to a $15 minimum wage be? To make predictions that prediction, we need to take account of how much of a wage increase this implies for the affected workers. In particular, only about 5 per cent of all workers would actually experience a full increase in the minimum wage from $10.85 to $15. Approximately 18 per cent of workers with wages between $10.85 and $15 per hour (i.e. the directly affected workers) earn between $14 and $15, which means they would experience less than a $1 increase in their wage.4 Taking this into account, an increase to $15 could imply a 7.6 per cent decline in employment for those with wages between $10.25 and $15 per hour.6 Since workers in this range make up about 13 per cent experience, forming a comparison groups consisting of a wider set of cities across the US rather than just in the greater Seattle area. They focus only on the restaurant industry and do not cut out multi-site firms (see the third point below). Their findings indicate smaller negative employment effects. However, their estimates are actually quite similar in magnitude to those for the restaurant industry in Jardim et al (2017), and they do not provide estimates of the effects on low wage workers across different industries as Jardim et al (2017) do. Reich et al (2017) interpret their results as a rebutle to Jardim et al (2017) but the considerable differences between the two studies make it hard to conclude that one has the right answer and the other the wrong one.

6This result has an interesting parallel in a set of papers that examine the effect of a minimum wage increase on employment by tracking what happens to workers earning between the old and the new minimum wage just before the minimum wage hike (e.g. Campolieti et al, 2005)). While one might predict that most of these workers would be laid off when the wage hike occurs, in fact the estimated effects on employment are
of all workers, the overall implied effect is about a 0.98 per cent decline in the employment rate. That is for BC a decline from something around 63% to 62%.

Is this effect big or small? It is certainly not negligible. At the same time, returning to our earlier discussion, it implies that the total wages (the wage bill) for low wage workers would increase. From there, it is useful to talk about how the employment costs of minimum wage increases are shared among low wage workers through job turnover and more widely through the unemployment insurance system.

6 Conclusion

In attempting to understand the potential employment impacts of a move to a $15 minimum wage increase in BC, I have surveyed the existing literature on minimum wage effects. The main take-aways from that survey are as follows:

1. The previous literature finds negative effects on employment rates for teenagers but little to no effects on the employment rates for young adults or older workers.

2. Based on this evidence, claims that minimum wage increases within the range of what have been implemented in recent decades in Canada will cause economic cataclysm are not credible. Indeed, it is difficult to see their effects on the overall employment rate at all.

3. However, a move to a $15 minimum wage takes us from minimum wages in the range of 40% to 50% of the average wage to about 60% of the average wage and, therefore, into unchartered territory. Neither the zero estimates of previous minimum wage effects on the employment of young adults and adults and certainly not the estimated effects for teenagers may provide a useful guide to what to expect in the move to a $15 minimum wage.

4. The first report from the Seattle Minimum Wage Report group indicates very large negative effects on employment of the initial minimum wage increases in Seattle’s move to a $15 minimum wage for low wage workers. There are reasons to question these results but not to reject them outright.

5. Estimates from the literature on labour demand elasticities in general would imply much smaller, though still negative effects of a move to a $15 minimum wage in BC. These amount to about a 1 percentage point drop in the employment rate. This is non-negligible but still implies a net benefit to low wage workers.

6. Other results from the previous literature may carry over to the effects of the $15 minimum wage. In particular:

    similar to those found in papers that estimate the impact of minimum wages on overall employment.
Minimum wage increases appear to largely be passed through to consumers through price increases, implying that the real distributional issue is between consumers and low wage workers rather than between firms and low wage workers.

Minimum wage increases reduce both layoff rates and hiring rates for workers of all ages. Thus, they induce a shift toward higher wage, more stable jobs but getting those jobs in the first place is more difficult.

There is some evidence of larger negative impacts of minimum wage increases during economic downturns.

Business groups reflect the concerns of their members that minimum wage increases need to be predictable and made with sufficient notification in order to minimize negative effects on investment.

7. Taken together, my reading of the existing research is that there are likely to be negative employment effects but that these may not be sizeable enough to negate the benefits of the policy. But I use the words 'likely' and 'may' in the two parts of this statement on purpose. There is considerable uncertainty in how the policy effects will unfold and it will need to be studied as it unfolds.

7 References

Beaudry, Paul, David A. Green and Benjamin Sand (2016). 'In Search of Labor Demand,' UBC, Vancouver School of Economics working paper.


