



# Research report 4/2018: Part II

## **Prospects for research on the employment effects of minimum wages in Australia**

Outcomes from the Fair Work Commission research roundtable on 8 March 2018

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## 1 Introduction

The objective of this report is to describe and evaluate opportunities for future research on the employment effects of minimum wages in Australia. It is the final stage of a three-stage process initiated by the Fair Work Commission (Commission) to explore the topic.

The first stage was the preparation of summary reports on: (i) methods used in international research on the employment effects of the minimum wage (Borland, 2018); and (ii) research on impacts of increases in the minimum wage in the United Kingdom (UK) (Richardson, 2018). The second stage was a Research Roundtable at the Commission on March 8 2018. At the Roundtable the authors of the reports met together with several leading Australian labour economists to discuss the prospects for research in Australia on the employment effects of minimum wages. A list of attendees at the Roundtable is included as Appendix 1.

The material in this report draws extensively from the earlier reports and the discussion at the Roundtable. It is important therefore to acknowledge the major contribution that participants at the Roundtable have made to the preparation of this report. However, sole responsibility for the content and opinions expressed in this report rests with the author.

Section 2 of the report gives an overall assessment of the prospects for research on the employment effects of minimum wages in Australia. Section 3 presents ideas for future research.

## 2 Overall assessment

This section summarises the prospects for research on the employment effects of minimum wages in Australia. Three main points are made in the summary:

- doing research on the employment effects of the minimum wage in Australia is difficult—due to the complexity of the wage setting system and data limitations;
- notwithstanding the difficulty, there is scope for doing extra research. However, there is no simple way forward that has been missed by researchers, and which could be quickly applied and would transform knowledge of how minimum wages affect employment in Australia; and
- future research will be most valuable if it is directed to questions that are relevant to the process for setting minimum wages in Australia.

### 2.1 A difficult topic for research in Australia

The main obstacle to research on the effect of minimum wages on employment in Australia is the multitude of wage minima, each applying to a different group of workers. This complexity has made it difficult, using available data sets in Australia, to match workers to the wage minima that apply to them, and hence to study the employment effects of changes to minimum wages.

In most countries, wage minima vary by factors such as geographic region or a worker's age. In this circumstance, it is straightforward to match workers to the minimum wage which applies to them, and to study employment effects of changes to the minimum wage. For example, if minimum wages in a country vary at the state-level, it is straightforward to assign workers to the minimum wage which applies to them by identifying the state in which they work, and therefore the impact on employment of an increase in a state-level minimum wage can be studied by examining what happens to employment outcomes in that state.

By contrast, under the award system in Australia, the minimum wage that applies to an individual worker depends on a wide range of job and worker characteristics—such as a worker’s skill level, industry, location and age (for further details see Borland, 2018: 2). The multiple factors on which minimum wages depend makes it more difficult to match each worker to the minimum wage minima that applies to them. Furthermore, what has made the task of matching virtually impossible (at least until recently) is that the organisation of workers into industry, occupation and skill groups in the award wage system differs from how workers are classified into those categories in standard databases in Australia (for example, any Australian Bureau of Statistics (ABS) unit record surveys). Even if it was possible to make this linkage, it is also necessary to know whether workers are being paid at or above the award wage rate that applies to them. In summary, lacking the capacity to match workers to the modern awards and minimum wages which apply to them imposes a severe limit on the scope to study the employment effects of increases in minimum wages.

Nor has the difficulty of estimating the employment effects of the minimum wage in Australia been alleviated by the existence of a National Minimum Wage (NMW) over the past decade. The Commission’s Expert Panel for annual wage reviews must review modern award minimum wages and the NMW order for employees who are not covered by a modern award or agreement. The NMW is included as the base rate of pay in about 45 modern awards (Yuen et al., 2018). Having a NMW has not, however, created any extra leverage for empirical analysis of the employment effects of the minimum wage. This is because so few workers appear to have their wages directly determined by the NMW. A distinctive feature of the Australian wage distribution is the absence of a spike at the NMW level (Healy and Richardson, 2006, p.8); and even approaches to calculating the proportion of workers to whom the NMW may apply, which measure the percentage of ‘low pay’ workers whose wage rate is within a specified range of the minimum rate, generally find that it is 2 to 4 per cent of workers (Yuen et al., 2018).

The task of doing empirical analysis in Australia on the employment effects of minimum wages has been further complicated by the likelihood that increases to the minimum wage for a group of workers will spill over from workers who are being paid the minimum rate to workers being paid above the minimum rate, making it difficult to identify reasonably comparable groups of workers who are and are not affected by changes to the minimum wage. At present, about 25 per cent of workers in Australia have their wage set directly by the award rate, but the Reserve Bank of Australia estimates that the wage rates of around an extra one-fifth of workers are indirectly affected by minimum wage decisions (cited in Richardson, 2018: 5). Identifying groups of workers who are and are not affected by changes to the minimum wage is also made difficult by the process of regular, annual and modest adjustments to the NMW and to all awards.

## **2.2 No magic bullet, but scope for progress**

It is the difficulty of doing the research, rather than negligence or a lack of creativity by researchers, that explains the relative paucity of high-quality studies of the employment effects of minimum wages in Australia. Put another way, there is no magic bullet, such as an existing data set or method used in international research hitherto neglected or not known about, that offers the prospect of a dramatic jump in our knowledge on this topic. Nevertheless, there does seem to be scope in coming years for doing extra research.

A variety of extra methods, new data sources and policy changes can be identified that might be used in future research, which could incrementally add valuable knowledge on the employment effects of the minimum wage in Australia. Some ideas on possible approaches are described in section 3. Evolution of research in this way would represent a continuation of the gradual

development of research on minimum wages in Australia over the past two decades—with notable recent examples being the application of geographic differences in minimum wages (Leigh, 2003); identifying whether workers are affected by increases to the minimum wage by their position in the distribution of wages (Productivity Commission, 2015); and using linked data on jobs and the award wages applying to them from micro data obtained from the ABS Wage Price Index (WPI) (Bishop, 2017).

Research studies on the employment effects of minimum wages that apply new methods or data sources are likely to involve varying costs and expected benefits (for example, in the value of what will be learned). Hence, if the Commission was making decisions about types of research to support, it seems important that those decisions should incorporate a benefit-cost analysis. For example, research that can be completed with existing data sets (or by linking existing data sets) would generally be less expensive than creating a new data source; so that unless there is a vast difference in what would be learned from those approaches, using existing data sources would be preferred. As well, in considering the value of what might be learned from future research, it is important to take into account that increases in knowledge are likely to be incremental. Partly for that reason, and partly due to the conflicting interests of the main parties that contest over minimum wages, it is likely that evidence on the employment effects of minimum wages in Australia will remain contentious.

### **2.3 What research is relevant?**

Research on the effects of minimum wages on employment encompasses a variety of types of changes to minimum wages. Some examples of possible types of changes to minimum wages are: regular (small) annual increases to a state or national minimum wage; a large one-off increase in a state or national minimum wage; an increase or decrease in the minimum wage applying to youth relative to adults; a one-off increase in the minimum wage for workers in a specific occupation or industry.

An understanding of this diversity in the types of minimum wage changes that can occur suggests two important points for future research. One point is that future research in Australia will be most valuable where it is about the types of changes to minimum wages that take place (or might take place). For example, if the policy environment is such that the main type of increases in minimum wages that will occur is through the regular annual wage reviews, then studying the employment effect of this type of minimum wage increase seems of most interest. Or if there was to be a proposal for a large one-off increase in minimum wages, understanding the impact of that type of change would be of primary interest.

A second point is that what can be learned about the impact of minimum wages on employment, or the way in which the impact can be identified, may differ depending on the type of increase in minimum wages. Suppose, for example, that increases in the minimum wage occur through regular relatively small annual adjustments, and that this sequence of adjustments can be forecast relatively precisely by employers. This makes it likely that any response by employers to increases in the minimum wage will be via hiring strategies rather than varying employment of their existing workforce after a minimum wage increase (see for example, Strain and Brummond, 2016). Empirical analysis of the impact of regular adjustments to the minimum wage will also be made difficult where the impact of each increase in the minimum wage occurs over a period of time that overlaps with future increases. By contrast, consider the case of a large one-off increase in minimum wages which was not anticipated by employers. This type of minimum wage increase

may cause employers to adjust both their current level of employment as well as future hiring strategies; and it is likely to be easier to identify short-run and long-run impacts on employment.

### 3 Ideas for future research

This section presents a range of ideas for future research on the effects of minimum wages on employment in Australia. Several types of research are proposed:

- analysis of the impact of changes to the NMW and modern award minimum wages on labour costs;
- the application of new methods to identify the effect of changes to minimum wages on employment;
- how to focus analysis on types of workers and adjustment channels where the effect of minimum wages on employment is most likely to be evident; and
- the scope for application of new data sources and evaluation methods.

#### 3.1 The impact of award wages on labour costs for employers

An increase in the minimum wage would only be expected to affect labour demand and employment where it causes an increase in labour costs for employers. Such an outcome cannot be assumed to automatically occur. First, employers may not comply with the decision to increase the minimum wage; that is, workers who should earn the minimum wage may be paid a wage below that level. Second, employers may find ways to offset the effect of a higher minimum wage on labour costs—for example, by forcing them to complete a larger volume of work in their paid work time, or decreasing non-wage components of compensation. Third, the impact on labour costs may be offset by adjustments that occur as a result of the increase in the minimum wage—such as reduced employee turnover, increased productivity or a higher quality of applicants for new jobs.

Examining whether increases in minimum wages affect wages paid to workers and labour costs is therefore a sensible starting point for analysis of the impact of minimum wages. Richardson (2018: 8) notes that the UK academics she consulted with ‘...all submitted that the first step to identifying an employment effect is to quantify the impact of an increase in minimum wages on hourly wages received...’ and ‘...posited that if there is little effect, then it may not be worth spending time looking for the consequences of that effect.’ This is not a topic, however, that has received much attention in the Australian literature (although Bishop, 2017, is an exception).

#### 3.2 Possible approaches for identifying the impact of minimum wages

The basis for any study of the employment effects of the minimum wage is to identify groups of workers who have and have not been affected (or who have been affected to different extents) by an increase in the minimum wage. In Australian research to date, approaches that use differences in changes in the minimum wage by geographic region and by workers’ age, job or position in the distribution of wages have been applied (for a review see Borland, 2018). Some alternative approaches, which seek to replicate methods used in international research, or use episodes of changes to minimum wages in Australia not thus far used, could also be considered.

A first possibility is to use geographic variation in the incidence of workers whose wages are determined by awards to identify groups of workers who are differentially affected by increases in minimum wages. To take an extreme example, suppose that in one region all workers have their

wages set at award rates of pay, and in another region all workers are outside the award system and wage-setting is not influenced by award rates of pay. In this example, increases in the NMW and modern award minimum wages should affect employment in the first region and not the second region. A difference-in-difference analysis of the change in employment in the two regions would then identify the effect of the increase in the NMW and modern award minimum wages. This approach of using geographic variation in the 'bite' of the minimum wage is similar to the approach applied in some UK research (see for example, Stewart, 2002; and Dolton et al., 2010, 2012, 2016). For this approach to be feasible in Australia, it would be necessary to be able to identify geographic variation in the incidence of the NMW and modern award minimum wages at a sufficiently disaggregated level, to have data on employment available at the same level, and to be able to control for other influences on employment that differ between regions.

A second possibility is to examine individual sectors in the economy and to use variation in the incidence or 'bite' of the NMW and modern award minimum wages between establishments in a sector to identify the effect of minimum wages on employment. This could be done for sectors where it is known that relatively large proportions of workers are likely to be covered by awards—such as takeaway restaurants or old age homes; or for specific groups of low-paid workers within those sectors. This approach has been used in UK research on the effects of the minimum wage in the residential care sector (Machin et al., 2003; Machin and Wilson, 2004). In the United States (US), Giuliano (2013) has examined the impact of the 1996 Federal minimum wage increase on store-level employment for a large retail firm. For this approach to be feasible in Australia, it would be necessary to be able to identify variation in the incidence of the NMW and modern award minimum wages at establishment-level within some sectors, and to have data on employment and explanatory variables available at the same level.

A third possibility is to use policy changes to identify the effect of the minimum wage on employment. A suggestion sometimes made is that the many changes to award wages due to the process of award modernisation in Australia could provide the basis for identifying groups of workers affected and not affected by changes to the minimum wage. On January 1 2010 employees who had been covered by Federal awards became covered by modern awards, as did most workers covered by State awards. However, the prospects for using this episode seem limited. A major constraint is the complexity of the reclassification of workers (moving workers from about 3700 transitional instruments to 122 modern awards) together with limitations of available data sets for matching workers to awards (described above). This is compounded by the five-year transition period during which workers were moved onto modern awards.

Another suggestion is that episodes where there have been changes to penalty rates for specific groups of workers (perhaps within a particular state or industry) might be used to identify the effect of changes to minimum wages. Difficulties with using changes to penalty rates for this purpose are that this is quite a different type of wage change to a general change in the minimum wages, and it can be difficult to find a credible counter-factual to compare with workers whose penalty rates have been altered. For the most recent revisions to penalty rates, this is compounded by the adjustment and phasing-in of penalty rates and the NMW and modern award minimum wages occurring simultaneously on 1 July.

### **3.3 Looking where the action is**

Seeking to estimate the employment effects of increases in the minimum wage has been likened to looking for a 'needle in a haystack' (Kennan, 1995: 1955). Predicted changes in employment due to increases in the minimum wage can be relatively small compared to usual time-series variation in



employment. For that reason, many recent studies focus on groups of workers for whom it is believed changes to minimum wages will have a relatively large impact on their cost of employment and hence on employment outcomes—with the objective being to more precisely estimate the impact of the minimum wage on employment. In US research, for example, the focus has been on groups such as young workers, low-paid workers, and workers in the fast food sector. A suggestion in the same vein is for minimum wage research in Australia, where possible, to focus on workers most likely to be paid at award wages and with the greatest scope for variation in their employment outcomes—such as casual employees.

Amongst workers earning at or just above the minimum wage, the employment impact of increases to the minimum wage may vary depending on the type of work they are doing. For example, recent studies for the US find evidence that the largest negative effect of the minimum wage on employment is for workers doing routine cognitive jobs, who it is suggested can be most easily replaced by automation (Aaronson and Phelan, 2017; Lordan and Neumark, 2018). Hence, analysis of how minimum wages affect employment of workers according to their types of skills and jobs is a topic that could be explored in future Australian research.

Another aspect of looking for the action is to recognise the variety of ways in which employers might adjust to increases in the minimum wage. Australian research thus far has focused on outcomes for workers who were employed prior to an increase in minimum wages and tracks changes in employment for those workers. However, employers can also adjust employment by changing their rate of hiring new workers. And there may also be a general equilibrium type adjustment via changes in the rates of exit and entry by firms in the economy. Evidence from several countries does indicate that increases in the minimum wage may reduce flows by workers out of and into employment—for example, Brochu and Green (2013), Dickson and Papps (2016) and Dube et al. (2016); and recent research by Aaronson et al. (2013) for the restaurant sector in the US also supports the importance of a general equilibrium perspective with the finding that employment adjustment occurs mainly through exit and entry of establishments. There are also other ways that employers may seek to adjust to an increase in the minimum wage—such as raising hiring standards, changing training practices, increasing prices, reducing wage increases for other employees or reducing profit margins (see for example, Moore et al., 2017). Broadening the perspective of Australian research to take into account these alternative channels through which minimum wages may affect employment and other outcomes is an important task for future research.

### **3.4 Extra data sets and modern evaluation methods**

Advances in international research on the employment effects of the minimum wage have relied on finding new and better ways to identify workers who are and are not affected by increases in the minimum wage. New and better ways of identifying these groups of workers have generally come from finding a new data source and/or applying a new empirical method for policy evaluation. One example has been the application in recent studies in the UK of a new data source which links firm-based employee survey data to other longitudinal data on those employees obtained by matching with their social security numbers (for example, Aitken et al., 2017). Another example, from the US in the early 1990s, was the application of the natural experiment and difference-in-difference methodology as the basis for the geographic case study approach for identifying workers who were and were not affected by increases in state-level minimum wages (for example, Card and Krueger, 1994; Dube et al., 2010).

Early research on employment effects of minimum wages in Australia was confined to using ABS time-series data from the Labour Force Survey. New data sets, however, have constituted an important part of recent developments in minimum wage research in Australia. Examples are the use of the Household, Income and Labour Dynamics in Australia Survey by Olssen (2011); the administrative Research and Evaluation Database by the Productivity Commission (2015); and WPI data by Bishop (2017). Understanding more about strengths and limitations of these data sources for further application in minimum wage research seems important. An example is the unit-record WPI data. This data set has the considerable strength of linking jobs to awards, and the information on wage rates is likely to be measured with little error. However, it would be valuable to understand more about the process by which businesses in the WPI survey choose the jobs that will be included in the data set, and also the impact of businesses with less than five employees being excluded since the December 2009 survey. Further, the possibility that employer-based surveys of pay for jobs will under-estimate non-compliance with award rates needs to be taken into account.

The other major opportunity appears to derive from new administrative data sets that are becoming increasingly available in Australia. This might involve using data sets that have already been generated. An example is the Business Longitudinal Analysis Data Environment (BLADE) method for linking business related data sets which may provide the opportunity for studying the impact of changes to award wages and employment outcomes at the firm level. However, as BLADE currently does not capture data on method of setting pay, linking any existing and new administrative data sets would be beneficial to allow new research.

As a way to judge the value of new data sets that might become available to investigate the effect of minimum wages on employment in Australia, and as a guide to designing new data sets for that purpose, it is useful to consider what would constitute the ideal data set for research on this topic (see Richardson, 2018: 6–7 for discussion of this issue). As an example, an ideal worker-level data set for research in Australia would need to have at least the following features:

- the capacity to track employment outcomes over time for populations who were employed and not employed prior to and after changes in minimum wages;
- a relatively short frequency (for example, collection of data on a quarterly basis);
- the capacity to link workers to the award wage rate that applies to them (including, for example, taking into account whether a worker is a casual employee);
- information on the contracted hourly wage rate paid to a worker, as well as their actual hours of work and hourly wage;
- information on other aspects of employment conditions such as non-wage benefits and training; and
- information on characteristics of the populations of workers and non-workers.

Of course, to study some impacts of the minimum wage, such as on firms' profits or pricing, other types of data would be necessary.

When it comes to empirical methods, Australian research on minimum wages has moved with the trends in international research (albeit sometimes with a lag). The methods applied have been appropriate for the data that were available; and awareness of methods being used in international research appears to have driven innovation in Australian research. A notable example is the Productivity Commission (2015) study which uses the position of workers in the distribution of

wages to identify whether their wage would have been affected by an increase in the minimum wages. The current vogue in quasi-experimental research is towards using the regression discontinuity method (for example, Lee and Lemieux, 2010). Situations where the minimum wage changes at a threshold point—such as a worker’s age—seem ideally suited for this methodology. What is most important, however, is that research methods continue to be chosen to fit the data that are available.

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**Attendees at Roundtable at Fair Work Commission, March 8 2018**

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