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What explains trends in Australian working-time arrangements in the 2000s?

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ABSTRACT

The 1980s and 1990s witnessed a deterioration in working-time arrangements for employees in Australia, driven by globalisation, demographic and structural change and labour market deregulation. Yet, working-time arrangements in the first decade of the 2000s have either improved for employees or stayed relatively unchanged despite continued global pressures and further reforms of domestic labour law. Fewer employees are working long hours or at antisocial times, hours variability has fallen and employee control over working time has increased. This paper attempts to explain the apparent levelling out of previous downward working time trends using data from the Household Income and Labour Dynamics in Australia (HILDA) Survey. Decomposition analysis shows that the improvement in working-time arrangements can be partly attributed to an increase in the skill level and earnings potential of the workforce and a general improvement in economic conditions. We show that the Fair Work industrial relations reforms of 2009 may have also contributed to the overall improvement in working-time arrangements, but this was partially offset by the negative effects of the global financial crisis.

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Fair Work Act; hours of work; job insecurity; Work Choices Act; Working time flexibility

Introduction

Both employers and employees have a stake in the determination of working-time arrangements – the length, variability and timing of paid work over the day or week. For employers, the ability to vary how long, when and how often employees work helps tailor labour resources to demand, reducing costs and better meeting business needs. For employees, working-time arrangements can affect their health and wellbeing as well as the extent to which work conflicts with or supports other aspects of life such as caregiving.

Like other working conditions, working-time arrangements reflect bargaining power. In this paper, we consider those particular working-time arrangements which can be costly from the perspective of employee's health. These work-health relationships are most clearly evident for long, unsocial, variable and inflexible working-time arrangements. For example, work at non-standard times of the day or week is associated with a higher risk of cancer (Megdal et al. 2005), cardiovascular disease (Härmä 2006), obesity (Zhao et al. 2011), muscular skeletal disorders (Trinkoff et al. 2006), depressive symptoms

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(Strazdins et al. 2006) and children's health and wellbeing (Strazdins et al. 2006, 2004). While the negative impact of long work hours on physical and mental health and wellbeing, including obesity, depression and anxiety, is well established (Di Milia and Mummery 2009; Magee, Caputi, and Iverson 2011; Abramowitz 2014; Ko et al. 2007; Au, Hauck, and Hollingsworth 2013; Courtemanche 2009; Virtanen et al. 2011). By contrast, predictable hours and employee control over work time (including start and stop time and breaks) are associated with positive health and wellbeing (Joyce, Pabayo, and Critchley Julia et al. 2010; Lewchuk, Clarke, and De Wolff 2008; Craig and Powell 2011; Bohle et al. 2004).

The 1980s and 1990s witnessed a movement away from the standard model of working time in Australia. Working hours became more polarised (Wooden 2001, 2003; Campbell 2007; Gregory 2004; Watts and Burgess 2000) and work at night and on weekends increased (Venn 2008). There was also growth in unpredictable or fractured shift-work arrangements, such as irregular shifts, split shifts and on-call arrangements (Campbell and Brosnan 1999), as well as in casual employment (Campbell 1996; Campbell and Brosnan 1999; Borland, Gregory, and Sheehan 2001), which is associated with variable and unpredictable working time.

Various explanations have been put forward for these trends. Most debates has centred on the role of labour market deregulation, which has been pursued by both sides of politics since the late 1980s, especially through the promotion of enterprise-based bargaining (Briggs and Buchanan 2000; Campbell and Brosnan 1999; Potrafke 2010; Townsend, Wilkinson, and Burgess 2013). The centrality of labour market deregulation in driving working time trends is debated. However, most authors agree that the dismantling of the award system and the rise of enterprise bargaining during the 1980s and 1990s created an environment that gave employers greater prerogative to extend working hours and hire workers on casual and other non-standard contracts (Campbell and Brosnan 1999; Campbell 2007; Wooden 2003; Heiler 1998).

Production and demographic changes also shaped working-time arrangements during this period. Allan, Brosnan and Walsh (1998) suggest that consumer demand and production technologies (e.g. the growth in demand for take-away food and just-in-time manufacturing processes), may have been more important determinants of work at non-standard times than labour market regulation during this time. Bosch (1995) argues that firms' incentives to extend working hours derived from capital intensification in the manufacturing industries and the shift towards the service sector. Changes in the composition of the labour force also played a role, with increased employment of women and students driving the growth in part-time work and increasing demand for work at certain times of day (Bosch 1995; Venn 2008).

Yet the trends towards long, unsocial, variable and inflexible working-time arrangements appears to have stalled, and in some cases, reversed in recent years. Wilkins and Wooden (2014) report a fall in the share of workers working long hours since 2003, while the casual employment share has remained constant since the late 1990s for men and fallen for women. Similar trends are also noted by the Productivity Commission (2007) and Borland (2011). This reversal in time fragmentation remains largely unexplained, challenging extant accounts. Many of the factors that shaped working time trends in the 1980s and 1990s, such as the shift towards the service sector and demographic changes in the composition of the labour force, continue today. Globalisation and privatisation of

public enterprises have increased pressure on businesses to reduce costs, while technological changes have made work more portable, uncoupling both time and place from work and by enabling practices such as telecommuting (Bittman, Brown, and Wajcman 2009; Bittman and Rice 2002; Productivity Commission 2014). Decentralisation and deregulation of working-time arrangements continued into the first decade of the 2000s, culminating in the Work Choices reforms of 2006, which rendered many regulations, including those relating to working time and leave arrangements, subject to being bargained away (Stewart 2006).[1] On the other hand, strong wages growth and falling unemployment for much of the 2000s may have given employees greater bargaining power to demand more favourable working-time arrangements (Wooden 2003).

The aim of this paper is therefore twofold. First, we describe trends in the incidence of a broad range of working-time arrangements – work at non-standard times, long hours, underemployment and variability and employee control of working time – to give a more nuanced understanding of how working time has evolved during the 2000s. Second, we seek to explain observed trends in working-time arrangements during the 2000s using regression decomposition analysis. We examine the importance of worker and employer preferences for various working time arrangements as well as shifts in the relative bargaining power of industrial parties in explaining the changes observed. To our knowledge, this is the first paper to examine trends in such a wide range of working-time arrangements in Australia during the 2000s, as well as exploring possible explanations for observed changes.

The data set

Data for the study are taken from the Household Income and Labour Dynamics in Australia (HILDA) Survey. All adults in a representative sample of households have been interviewed each year since 2001 (Watson and Wooden 2012). The HILDA Survey covers a range of issues relevant to Australian households including health, education, expenditure, income, employment, household structure and attitudes and values. The survey is designed so that the same households are interviewed every year so a picture emerges as to how lives are changing through time. The initial survey interviewed around 12,000 individuals in 7800 households. A top-up sample was introduced in 2011 to ensure that the sample remained as representative as possible of the Australian population, notably of migrants arriving after 2001. The HILDA Survey therefore enables us to track the behaviour of a representative sample of Australian adults in terms of labour force participation; working arrangements; care arrangements; participation in education and training; and household formation.

The main reason for using the HILDA Survey rather than data from the Australian Bureau of Statistics (ABS) is that the HILDA Survey has consistent measures of a range of working-time arrangements over a sufficiently long period to examine trends, and additional data to control for changes in the characteristics of the workforce and jobs. By contrast, there are no publicly available ABS microdata which contain consistent measures of working-time arrangements over the first decade of the 2000s, apart from for casual or fixed-term employment and long hours.

Table 1. Working time variable definitions.

Variable name	Definition
Night work	Works regular evening, regular night, rotating, split, irregular shifts or on-call in main job
Weekend work	Usually works on Saturday and/or Sunday in main job
Long hours	Usual weekly hours in all jobs of 50 hours or more
Underemployed	Part-time workers who would prefer to work more hours
Casual	Self-identified casual contract in main job
Variable shifts	Works rotating shifts, irregular schedule or on call in main job
Flexible times	Has flexible start and finish times in main job

Source: HILDA Survey, 2002–2012.

Table 1 shows the seven working time variables examined in this paper, taking in four key dimensions of working time: non-standard times (night and weekend work); length of hours (usual hours of 50+ hours per week and underemployment)[2]; variability (variable shifts and variable work hours, proxied by having a casual contract[3]) and control of working time (flexible start and finish times). These measures were chosen to capture as many dimensions of working time as possible using the data available to test whether improvements in one dimension (e.g. length) were being offset by a deterioration in others (e.g. scheduling). All variables refer to the situation in the main job, except for long hours and underemployment, which are based on total weekly hours in all jobs. All variables are available from 2002 to 2012, except for weekend work which begins in 2004.[4]

The sample comprises those who are employees in their main job. No age restrictions are imposed. Small numbers of respondents who have missing information about working-time arrangements are excluded from the analyses. These missing values comprise a very small proportion of the sample, except for 'Flexible times', which is taken from the Self-Completion Questionnaire (SCQ) and for which almost 13% of respondents have missing data.[5] A further 8% of the sample was excluded because they had missing values for one or more explanatory variables, notably work experience and firm characteristics.[6] All analyses use weights supplied by the HILDA Survey to correct for overall non-response, but not for non-completion of the SCQ.

Working-time arrangements in the 2000s

Table 2 shows that working-time arrangements that could affect employee health and wellbeing are currently relatively widespread across the workforce. In 2012, 37% of Australian employees worked either nights or weekends, or both, while just under one-third were employed as casuals or on variable shift arrangements. Around one in three employees worked either long hours or was underemployed and around half did not have flexible start and finish times.

We find that working-time arrangements appeared to stabilise between 2002 and 2012. The incidence of night and weekends work, casual employment, variable shifts and long hours of work declined, while employees gained more control over start and finish times. The incidence of underemployment fell until the onset of the global financial crisis and rose thereafter, but did not again reach the peak of the early 2000s. There was also a decline in the incidence of self-employment and multiple job holding, suggesting that changes in working time that might benefit employee health

Table 2. Incidence of selected working-time arrangements, 2002–2012.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Time trend
% of all employees:												
Night work	26.1	25.2	24.2	23.8	25.1	23.5	21.9	23.5	23.2	22.9	22.4	−0.3***
Weekend work	..	..	31.1	30.4	30.8	29.0	28.1	28.2	28.2	28.3	31.0	−0.2*
Long hours	17.5	17.1	16.6	16.8	16.7	16.5	16.4	16.1	14.6	14.9	16.0	−0.2***
Underemployed	18.0	17.6	16.2	15.5	15.2	13.9	14.0	15.3	15.4	17.1	16.0	−0.1*
Casual	25.6	24.3	24.0	22.3	22.8	21.2	21.2	21.3	21.1	22.4	22.1	−0.3***
Variable shifts	17.4	16.8	16.6	15.8	17.4	15.8	15.1	15.7	16.3	15.6	15.1	−0.2***
Flexible times	47.5	46.9	47.9	49.7	48.0	50.3	51.8	50.5	51.1	52.4	50.1	0.4***
% of all employed:												
Employees	81.7	82.4	83.5	82.9	83.4	83.6	84.8	85.2	84.2	84.9	84.8	0.3***
Self-employed[a]	17.6	17.0	15.8	16.4	16.0	15.9	14.7	14.5	15.5	14.7	14.9	−0.2***
Multiple jobs	8.3	8.6	8.5	9.1	8.8	7.6	7.7	7.7	8.2	8.1	7.9	−0.1**

Source: HILDA Survey, 2002–2012.

Time trends are estimated from probit regressions of a linear time trend on each variable of interest. The table shows marginal effects, representing the percentage point annual average change in the incidence of each working-time arrangement.

.. indicates that data are not available for that year. ***, ** and * indicate that the coefficient on the time trend is statistically significant at 99%, 95% and 90% level, respectively.

[a]'Self-employed' includes employees of own business, employers and self-employed. Unpaid workers in family businesses not shown.

Table 3. Time trends in selected working-time arrangements by gender, age and education, 2002–2012 (percentage points change per year).

	Gender		Age			Education level[a]		
	Women	Men	15–24	25–54	55+	High school	Post-school	Bachelor or higher
Night work	−0.3***	−0.3***	−0.1	−0.3***	−0.3	−0.3**	−0.2	−0.2
Weekend work	0.0	−0.4***	0.0	−0.1	−0.4	0.0	−0.1	0.0
Long hours	−0.0	−0.4***	−0.1	−0.3***	−0.2	−0.1	−0.5***	−0.5***
Underemployed	−0.1	−0.1	0.0	−0.1	−0.1	−0.0	0.0	−0.1
Casual	−0.6***	−0.1	0.1	−0.3***	−0.8***	0.0	−0.2	−0.2***
Variable shifts	−0.1	−0.2***	0.1	−0.2***	−0.5**	−0.2*	−0.0	−0.2**
Flexible times	0.4***	0.5***	0.2	0.6***	0.3	0.2	0.4***	0.7***

***, ** and * indicate that the coefficient on the time trend is statistically significant at 99%, 95% and 90% level, respectively. [a]'High school' includes those who did not finish high school; 'Post-school' includes certificate III and IV, diploma and advanced diploma.

and wellbeing were not offset by an increasing incidence of other forms of 'non-regular' work.[7]

These changes in working-time arrangements were not evenly spread. However, trends for various sub-groups of employees (Table 3) do not contradict the overall finding that working-time arrangements did not polarise significantly over the period. Prime-aged workers saw the biggest improvements in working-time arrangements. Nevertheless, even amongst the more disadvantaged groups in the labour market (youth and those without post-school qualifications) there was relatively little change and importantly no notable deterioration in working-time arrangements.

Explaining trends in working time arrangements 2002–2012

Working-time arrangements reflect employer preferences, working time regulations and relative bargaining power, thus the following section considers their relative role (Leiner-

Killinger, Madaschi, and Ward-Warmedinger 2005). Employer preferences are influenced by production technologies and the temporal nature of demand for their final goods or services, as well as by regulations such as trading hours. We see this most vividly in the high incidence of shift work and work at non-standard times in the mining, hospitality and healthcare sectors (Australian Bureau of Statistics 2013), where technology and consumer demand dictate that businesses operate outside what is normally considered standard working hours.

Worker preferences for working time arrangements are likely to be influenced by their personal and family circumstances, as well as investments in human capital and desire for future advancement (Leiner-Killinger, Madaschi, and Ward-Warmedinger 2005). For example, married workers or those with children may have a strong preference to work during standard working hours in order to coordinate their leisure time with family members. Students may prefer part-time work to fit in around their study commitments. Workers with high levels of education may prefer to work long hours to capitalise on their investment in human capital or to gain promotion.

Relative bargaining power is also important. Factors that improve employee bargaining power may result in a decrease in the incidence of working-time arrangements that employees see as inferior. For example, Berg et al. (2004) suggest that economic conditions and the value of employee skills and experience to individual employers can affect workers' control over working time. The influence of trade unions and collective bargaining, as well as industrial relations regulation, is also likely to affect individual and aggregate working-time arrangements (Campbell and Brosnan 1999; Campbell 2007; Wooden 2003; Heiler 1998). In summary, we expect that changes in firms' production technologies, worker preferences and their relative bargaining power could lead to changes in working-time arrangements. Shifts in the demographic or industry composition of the workforce during the 2000s may also contribute to any changes in working-time arrangements.

In order to better understand how much of the observed improvement in working-time arrangements is due to changes in the composition of the workforce, the types of jobs available or employee bargaining power, we use a regression decomposition technique pioneered by Oaxaca (1973) and Blinder (1973), and adapted for non-linear regression models by Fairlie (2006). The change in the incidence of each working-time arrangement between 2002 and 2012 can be decomposed into two components: (i) that due to differences in the characteristics of workers and jobs between 2002 and 2012; and (ii) an unexplained component that can be attributed to unmeasured changes in factors such as the regulatory environment, work practices, workers' preferences and technologies. In order to increase the sample size and reduce the impact of factors that are specific to a particular year, data for the start and end years for the decomposition are pooled across two years. That is, the results show changes between 2002/2003 and 2011/2012.

Fairlie's (2006) decomposition is performed in Stata 13.0 using the command *fairlie* by Jann (2006) using a probit model with 1000 repetitions. The reference coefficients used in the decomposition are those from a model where data for the start and end years are pooled together. The results can be sensitive to the ordering of categorical explanatory variables (Fairlie 2006), so the order of inclusion for categorical variables is randomly changed over in each repetition. The command *fairlie* does not estimate standard errors

for the unexplained component, so these are estimated by bootstrapping with replacement with 1000 repetitions.

A range of factors are controlled for in the regression models, including demographic characteristics that reflect worker preferences (age, gender, family responsibilities, birthplace), the nature of production and consumer demand (measured by industry and firm characteristics), and relative bargaining power of employers and employees (measured by workers' occupation, education, tenure and experience, union membership, local unemployment rate, employees' subjective views of future job prospects and objective and subjective measures of job security). A full list of the variables included in each regression is shown in Appendix 1.

Table 4 provides a summary of changes in the average characteristics of workers and jobs over the period 2002–2012. Ageing of the workforce is evident, as well as is an increase in migrants from non-English-speaking backgrounds. Educational attainment rose, there was a shift to higher-skilled occupations and a small increase in average work experience and job tenure. There was a structural shift away from manufacturing towards construction and services, as well as a shift towards larger workplaces and firms. Employment shares grew in the mining states of Queensland, Western Australia and the Northern Territory. Trade union membership fell and job security increased, while there was a general improvement in economic conditions. Similar trends were found by Wilkins and Wooden (2014) in their survey of the Australian labour market since the 1990s.

Table 4. Change in characteristics of jobs and employees, 2002/2003–2011/2012 (% of total employees except where noted).

	2002/2003	2011/2012
15–24 years	22.0	19.8
25–54 years	69.2	66.1
55+ years	8.9	14.1
Born in Australia	75.6	71.7
Born in English-speaking country	9.5	10.4
Born in non-English-speaking country	14.8	17.9
Non-mining states (NSW, Vic, SA, Tas, ACT)	70.4	67.9
Mining states (Qld, WA, NT)	29.5	32.0
Work experience since leaving school (average years)	17.2	18.1
Tenure with employer (average years)	5.7	6.2
Bachelor degree or higher	24.3	30.9
Post-school non-tertiary	27.5	30.9
Secondary school or less	48.1	38.2
Agriculture, fishing, forestry, mining industries	3.2	3.6
Manufacturing industry	12.7	8.4
Construction, utilities, transport industries	10.6	12.2
Services industries	73.5	75.8
Managers and professionals	31.0	34.4
Technicians and trades	13.0	12.2
Community and personal service	10.5	11.5
Clerical and sales	27.0	25.5
Machinery operators, drivers and labourers	18.4	16.5
0–99 employees in workplace	68.4	66.4
100+ employees in workplace	31.6	33.7
Multiple workplace firm	65.1	71.3
Trade union/employee association member	28.8	25.3
Local unemployment rate (% of labour force)	5.6	5.0
% chance of finding job as good as current job	63.5	65.5

Source: HILDA Survey, 2002–2012.

Table 5. Decomposition of the change in incidence of selected working-time arrangements, 2002/2003–2011/2012 (percentage points).

	Night work	Weekend work	Long hours	Underemployed	Casual	Variable shifts	Flexible times
Incidence in 2002/2003	24.7	30.0	18.0	17.6	22.7	16.6	47.4
Incidence in 2011/2012	21.8	29.1	16.2	16.4	20.2	14.9	51.3
Difference	−2.9	−0.9	−1.8	−1.2	−2.6	−1.7	3.9
Explained by differences in:							
Demographics	0.0	−0.1	−0.3***	−0.1***	0.3***	−0.0	−0.3***
State	0.0	0.0**	0.0	−0.0*	−0.0**	0.0	−0.1*
Industry	0.0	0.1	0.2*	0.1	−0.3***	0.2*	−0.0
Firm characteristics	0.6***	0.2***	0.2***	−0.1*	−0.4***	0.5***	0.3***
Education	−0.2**	−0.1	0.6***	−0.2*	−0.5***	0.0	0.9***
Experience	−0.1**	−0.1*	0.1**	−1.4***	−0.6***	−0.0	0.0
Occupation	0.0	0.1*	0.5***	−0.3***	−0.3***	0.1	0.2***
Union membership	−0.4***	−0.3***	−0.0	0.0	0.2***	−0.3***	0.3***
Economic conditions	−0.7***	0.1	−0.1	0.3	−0.5*	−0.8***	1.2***
Job security	−0.4***	−0.0**	0.1***	−0.6***	..	−0.3***	0.0
Unexplained	−1.8***	−0.9	−3.0***	−0.1	−0.5	−1.1**	1.5*
Sample size	29190	29262	29151	29867	29280	29190	25631

Source: HILDA Survey, 2002–2012. See Appendix 1 for a full list of variables included in regressions.
Decomposition is done using pooled coefficients. ***, ** and * indicate that component is significantly different to zero at 99%, 95% and 90% significance level, respectively. Columns may not add to totals because of rounding.

Table 5 shows the results of the decomposition analysis between 2002/2003 and 2011/2012. The reported incidence of working-time arrangements in Table 5 may be slightly different to that in Table 2 because some of the sample was excluded due to missing values for explanatory variables. The observed change in the incidence of each working time arrangement can be broken down into the component explained by changes in each of the explanatory categories, and an unexplained component. For example, the incidence of night work fell by 2.9 percentage points, of which changes in experience, education, union membership, economic conditions and job security contributed to significant reductions in night work, firm characteristics contributed to a significant increase, while 1.8 percentage points of the decline is unexplained.

Overall, demographic changes in the workforce were associated with a reduction in long hours, underemployment and inflexible hours (associated with an increase in employment of migrants from non-English-speaking backgrounds) and an increase in casual employment (mainly associated with an increase in employment of older workers). The changing geographical distribution of jobs had little impact on working-time arrangements.

An increase in the skills and experience of the workforce was generally associated with an improvement in working-time arrangements, except for the incidence of long hours which tends to be higher for highly-skilled workers. Shifts in the industry composition of employment were associated with small reductions in casual employment and increases in long hours and variable shifts. The trend towards larger workplaces was associated with a decline in casual employment and underemployment but an increase in the incidence of the other working-time arrangements examined. Improvements in economic conditions and job security as well as declining union membership tended to

be associated with improvements in working-time arrangements. An exception was the increase in casual employment associated with declining union membership.

Overall, the decline in the incidence of casual contracts, underemployment and weekend work is explained entirely by changes in the observable characteristics of the workforce and jobs, leaving no significant unexplained component. By contrast, there was a relatively large and statistically significant unexplained change in night work, long hours, variable shifts and inflexible hours.

What role for labour market deregulation?

The unexplained component identified in the previous section captures the effect of changes in factors that may not be accurately measured in the data (such as local labour market conditions), as well as factors that are not easily measureable (such as changes in the regulatory environment, work practices and technologies). Previous research has highlighted labour market deregulation as a possible driver of trends in working-time arrangements in Australia (Campbell and Brosnan 1999; Campbell 2007; Heiler 1998). In this section, we attempt to better understand the extent to which the unexplained improvement in working-time arrangements during the 2000s can be attributed to changes in labour market regulation.

There were two major changes in industrial relations regulation over the period examined: the Work Choices reforms, which came into effect on 27 March 2006; and the Fair Work reforms, which came into effect on 1 July 2009. While both reforms encompassed broad changes, several key aspects may have directly affected working-time arrangements.

Under Work Choices, a general shift in bargaining power away from employees, coupled with the removal of the no-disadvantage test for collective and individual agreement-making, is likely to have increased employers' control over working time (Hall 2006; Stewart and Forsyth 2009). Exemption of small firms from unfair dismissal provisions may have increased job insecurity, making employees more likely to accept poorer working-time arrangements. Indeed, several researchers found that job security declined, penalty rates were reduced and working-time arrangements became more unpredictable after the introduction of Work Choices (Pocock et al. 2008; Peetz 2007).

By contrast, the Fair Work reforms expanded the legislated safety net, introducing a right to request flexible working arrangements for parents, carers and employees with disabilities (Louw 2009). The reinstatement of unfair dismissal protection for most workers in small businesses is also likely to have improved job security and workers' bargaining power. However, award rationalisation/modernisation took place under both regimes, with possible ramifications for the working conditions of award-reliant employees (Fair Work Australia, 2015). We speculate that the two reforms are likely to have had different effects on working-time arrangements, and that this would be evident in the unexplained component of the decomposition. To test this, we replicate our decomposition analysis to examine changes in working-time arrangements between three distinct eras characterised by different industrial relations regimes:

(i) Pre-Work Choices era (1 January 2002–9 October 2004);
(ii) Work Choices era (27 March 2006–24 November 2007) and
(iii) Fair Work era (1 July 2009–31 December 2012).

We exclude the periods between the Federal Election of 9 October 2004 and the coming into effect of the Work Choices reforms, and between the Federal Election of 24 November 2007 and the coming into effect of the Fair Work reforms. This is done because it is possible that employees and employers changed their behaviour pre-emptively. Observations are allocated to each period based on the date on which respondents completed their personal questionnaire rather than including the whole wave for each of the years in each era.

Comparing the average characteristics of workers and jobs in the three periods, we find that there was a continuation of the general trends described in the previous section: skill levels rose, there was a steady shift towards the service sector and the employment of older workers and migrants increased. Two exceptions are evident. First, union membership declined for our sample in the early part of the decade but remained relatively unchanged between the Work Choices and Fair Work eras. Second, economic conditions improved between the pre-Work Choices era and the Work Choices era, then declined during the Fair Work era as the global financial crisis hit Australia. The average local unemployment rate in our sample was 5.4% in the pre-Work Choices era, 4.1% in the Work Choices era and 5.1% in the Fair Work era.

Table 6 shows the results of the decomposition by era. Panel A shows changes between the pre-Work Choices and Work Choices eras; Panel B shows changes between the Work Choices and Fair Work eras. While the magnitude of the effects is different, the changes in working-time arrangements associated with demographic change, improving skills and changes in industry and firm size were in the same direction across both eras. The reduction in importance of union membership between the two panels is largely because union membership was relatively stable between the Work Choices and Fair Work eras.

By contrast, improving economic conditions tended to improve working-time arrangements in the Work Choices era but the onset of the global financial crisis and the subsequent increase in unemployment during the Fair Work era was associated with further fragmentation of working-time arrangements.

In both periods, changes in the incidence of casual employment are explained entirely by changes in the observable characteristics of the workforce or economic conditions, with no significant unexplained component. There was a significant unexplained improvement in other working-time arrangements during the Fair Work era, whereas the unexplained component during the Work Choices era was associated with an increase in night work and variable shifts and no significant change in other working arrangements. The exception was underemployment, which had an unexplained reduction during the Work Choices era and an unexplained increase during the Fair Work era. This may reflect changes in economic conditions that are not fully captured by our controls for economic conditions or job security. Jefferson and Preston (2010) point out that traditional measures of labour market health, such as the unemployment rate, did not capture the full impact of the Global Financial Crisis, which was characterised by a shift from full-time to part-time employment, especially for men, rather than a large increase in unemployment.

Discussion and conclusion

In contrast with the 1980s and 1990s, working-time arrangements likely to support employee health and wellbeing generally stabilised or improved in Australia between

Table 6. Decomposition of the change in incidence of selected working-time arrangements, by era (percentage points).

	Night work	Weekend work	Long hours	Underemployed	Casual	Variable shifts	Flexible times
A. Work Choices era (compared to pre-Work Choices era)							
Pre-Work Choices era	24.4	30.2	17.6	16.7	22.4	16.4	47.3
Work Choices era	23.3	28.7	17.1	13.9	19.8	16.0	49.4
Difference	−1.1	−1.5	−0.5	−2.8	−2.6	−0.4	2.1
Explained by changes in:							
Demographics	−0.0	0.0	−0.2**	−0.1	0.2***	0.0	−0.0
State	−0.0	0.1*	0.0	−0.0**	−0.0	0.0	−0.0
Industry	−0.1	−0.1	−0.0	0.2*	−0.2**	0.0	−0.1
Firm characteristics	0.4***	−0.1	0.1	−0.1*	−0.2***	0.4***	0.2***
Education	−0.1	−0.1*	0.2***	−0.0	−0.1***	0.0	0.1***
Experience	−0.1*	−0.0	0.1	−0.2***	−0.2***	−0.0	−0.1
Occupation	−0.1	−0.0	0.1	−0.2***	−0.4***	−0.0	0.1*
Union membership	−0.3***	−0.3***	−0.0	0.0	0.2***	−0.2***	0.2***
Economic conditions	−1.6***	−0.4	−0.6	−0.1	−1.2***	−2.0***	1.3**
Job security	−0.4***	−0.0	0.2***	−0.5***	..	−0.4***	0.0
Unexplained	1.2*	−0.8	−0.3	−1.7	−0.6	1.7***	0.3
Sample size	29535	17347	29515	29511	29559	29535	26412
B. Fair Work era (compared to Work Choices era)							
Work Choices era	23.3	28.7	17.1	13.9	19.8	16.0	49.4
Fair Work era	22.1	28.5	16.0	15.6	19.8	15.2	51.1
Difference	−1.2	−0.3	−1.1	1.7	0.0	−0.8	1.7
Explained by changes in:							
Demographics	0.1**	0.0	−0.1	−0.0	0.1	0.0	−0.1
State	0.0	0.0	−0.0*	−0.0	−0.0	0.0	0.0
Industry	0.1	0.2**	0.1**	−0.0	0.0	0.1	−0.0
Firm characteristics	0.1	0.0	0.0	−0.0	−0.1***	0.1	0.1***
Education	−0.1	−0.1	0.2***	−0.0	−0.2***	0.0	0.5***
Experience	−0.0	−0.0	0.1	−0.0	−0.3***	0.0	0.0
Occupation	0.0	0.1**	0.2***	−0.1**	0.0	0.1	0.2***
Union membership	−0.1*	−0.1**	0.0	−0.0	0.0	−0.1	0.0
Economic conditions	1.3***	0.8*	−0.2	0.8**	0.4	1.1***	−0.8
Job security	−0.0	0.0	0.0	0.0*	..	0.0	−0.1
Unexplained	−2.7***	−1.2*	−1.4**	1.2	0.2	−2.3***	1.8**
Sample size	42679	42677	42636	42669	42824	42679	36980

Source: HILDA Survey 2002–2012. See Appendix 1 for a full list of variables included in regressions.

Decomposition is done using pooled coefficients. ***, ** and * indicate that component is significantly different to zero at 99%, 95% and 90% significance level, respectively. Columns may not add to totals because of rounding.

2002 and 2012. This occurred despite a continuation of some of the underlying trends often associated with working time deterioration in the 1980s and 1990s, including globalisation, technological change and labour market deregulation (for at least part of the period). Our analysis of changes in the characteristics of workers and jobs over the period suggests a number of explanations. In particular, changes in the relative bargaining power of workers explain a substantial part of the observed changes in working-time arrangements.

Berg et al. (2004) argue that in countries like Australia where collective bargaining is relatively weak, 'employees rely largely on their position within the labor market or their value to a particular employer to gain bargaining power and control over working time' (Berg et al. 2004, 347). This is borne out in our results. Improvements in employees' value to employers appear to be important drivers of the improvement in working-time arrangements in Australia during the 2000s. In particular, the increase in the general skill level of the workforce, as measured by education, experience and occupational structure, and in job-specific skills as measured by job tenure, was associated with less variable, more standard and more autonomous working-time arrangements, the exception being long hours.

Economic conditions also played a major role. During the early part of the 2000s, declining unemployment was associated with improvements in working-time arrangements, whilst the opposite is true for the period after the global financial crisis. Our estimates suggest that during the Work Choices era, cyclical pressures were substantially more important than regulatory changes in affecting aggregate working-time arrangements. By contrast, Table 7 shows that working-time arrangements would have improved substantially more than they did in the Fair Work era if it were not for the negative effects of the global financial crisis.

To the extent that the unexplained component of the decomposition reflects changes in the regulatory environment, the results suggest that the two major industrial relations reforms of the 2000s have had contrasting effects on working-time arrangements. During the Fair Work era in particular, there is a relatively large unexplained shift in working-time arrangements that are likely to benefit employee health. Such a shift is not evident during the Work Choices era.

Demographic changes and the structural shift towards the service sector played a relatively minor role in explaining changes in working-time arrangements, as did the expansion of employment in the mining states.

Table 7. Actual and estimated change in the incidence of working-time arrangements in the absence of any change in economic conditions (percentage points).

	Work Choices era		Fair Work era	
	Actual change	Estimated (no EC change)[a]	Actual change	Estimated (no EC change)[a]
Night work	−1.1	0.5	−1.2	−2.5
Weekend work	−1.5	−1.1	−0.3	−1.1
Long hours	−0.5	0.1	−1.1	−0.9
Underemployed	−2.8	−2.7	1.7	0.9
Casual	−2.6	−1.4	0.0	−0.4
Variable shifts	−0.4	1.6	−0.8	−1.9
Flexible times	2.1	0.8	1.7	2.5

Source: HILDA Survey, 2007–2012.
[a]Estimated from results in Table 6 by assuming that the explained component due to changes in economic conditions (EC) is equal to zero.

Our findings on the positive effect of the Fair Work Act on working-time arrangements are speculative, as they are based on the interpretation of the residual unexplained effect. Further research is needed to determine whether and how individual reforms implemented under the Fair Work Act, such as the right to request flexible working arrangements, have impacted on the ease with which employees can improve their working-time arrangements. Preliminary research suggests that the Fair Work Act has had a very limited effect on actual 'flexibility' practices. Between 2009 and 2012 there was no increase in the number of individuals requesting flexible work arrangements (Skinner, Hutchinson, and Pocock 2012). However, this may be explained at least in part by the low awareness of the new provision (Skinner, Hutchinson, and Pocock 2012).

Several limitations of our research should be noted. Our measure of night work may be inaccurate as it is derived from questions relating to shift work rather than a direct question about working at night. The HILDA Survey also measures usual weekly hours, not actual weekly hours, so we may overestimate or, more likely, underestimate the true incidence of long hours of work. The decomposition analysis also relies on accurate measurement of confounding factors. In household-based surveys like the HILDA Survey, some job characteristics like firm size may be measured inaccurately, and employees' self-reported data on these factors may change over time, even if there is no change in the true values. We have placed less emphasis on the results on the impact of firm characteristics for this reason. Nonetheless, inaccuracies in the measurement of explanatory variables will also affect the size of the unexplained component.

Finally, we have examined variables representing four dimensions of working time: length, antisocial times, variability and employee control. While this represents a broader scope than most other studies of working time in Australia, there are nonetheless several dimensions missing from our analysis. Several studies in Australia and overseas suggest that the intensity and predictability of working time are important factors in determining how paid work interacts with other responsibilities, and that employees may face a trade-off between flexible working hours and increasing intensification (Gallie and Russell 2009; Allan, O'Donnell, and Peetz 1999; Chalmers, Campbell, and Charlesworth 2005; Kelliher and Anderson 2010). Unfortunately, the HILDA Survey does not contain information about the predictability of working time. It does, however, contain several variables that measure the intensity of working time. These were not used in the analysis for this paper because data are only available from 2005 onwards, so analysis of the pre-Work Choices era was not possible. However, the incidence of work intensity increased slightly between 2005 and 2012. Heavy workloads and time pressures can also be detrimental to health (Moen, Kelly, and Lam 2013), thus examination of trade-offs between work intensity and other working-time arrangements may be a fruitful avenue for further research.

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Notes

1. The Fair Work reforms arguably went in the opposite direction, strengthening regulation of working time in legislation and encouraging enterprise, rather than individual, bargaining.
2. Defining long hours as 45+ hours per week results in qualitatively similar results.
3. While not all casuals have variable work hours, unpublished data from the ABS Survey of Employment Arrangements, Superannuation and Retirement show that casuals are more likely than non-casuals to have working hours that vary from week-to-week (36% compared with 17%) and earnings that vary from week-to-week (48% compared with 17%). Casual employees are not legally guaranteed minimum hours of work, even if their usual work schedules are regular.
4. Data from 2001 are not used because of changes in some key variables between the first and second waves.
5. The analyses of each working-time arrangement are conducted separately, so those with missing values on flexible times are only excluded from the analysis of flexible times, not from the analysis of other working-time arrangements.
6. Re-estimating the decompositions excluding work experience from the list of explanatory variables has little impact on the results.
7. It is possible that working-time arrangements of multiple job holders' second or third jobs deteriorated during the period examined, however the HILDA Survey only includes working time data for employees' main job.

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Appendix 1: Variables included in decomposition analysis

Category	Variables
Demographics	Gender and life course: Men 15–24; Women 15–24; Men 25–54 without children (under 15); Women 25–54 without children; Men 25–54 with children; Women 25–54 with children; Men 55+; Women 55+
	Birthplace: Australia; English-speaking country; Non-English-speaking country
State of residence	NSW; Victoria; Queensland; SA; WA; Tasmania; NT; ACT
Experience	Work experience since leaving school (years)
	Tenure with employer (years)
Educational attainment	Masters/doctorate; Graduate diploma/certificate; Bachelor degree; Diploma/advanced diploma; Certificate III or IV; Year 12; Year 11 or less
Industry	Agriculture, Forestry and Fishing; Mining; Manufacturing; Electricity, Gas, Water and Waste; Construction; Wholesale; Retail; Accommodation and Food Services; Transport, Postal and Warehousing; Information, Media and Telecommunication; Financial and Insurance Services; Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services; Administrative and Support Services; Public Administration and Safety; Education and Training; Health Care and Social Assistance; Arts and Recreation Services; Other Services
Occupation	Managers; Professionals; Technicians and Trades; Community and Personal Service; Clerical and Administrative; Sales; Machinery Operators and Drivers; Labourers
Firm characteristics	Workplace size: 0–19 employees; 20–99; 100–499; 500+
	Multiple workplace firm
	Public sector
Union membership	Member of trade union or employee association
Economic conditions	ABS unemployment rate in major statistical area (% of labour force)
	% chance of finding job as good as current job
Job security	Contract type: Casual; Fixed-term
	% chance of losing job in next 12 months

Note: The decomposition technique is sensitive to the ordering of categorical variables, so the order of variables was randomly changed in each iteration. All categories for each variable are shown in this table. Controls for job security are not included in the decompositions for casual employment.