**Title**

Cross-spousal influences on mature-aged Australians' transitions in and out of employment 2001-2017

**Authors**

Professor Lyn Craig
Brendan Churchill

School of Social and Political Sciences
University of Melbourne

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**Abstract**

This paper uses data from the longitudinal Household, Income, and Labour Dynamics in Australia (HILDA) survey to examine cross-spousal influences on workforce transitions by men (n=4,667) and women (n=5,051) aged 50-69. We assess how gender patterns in employment (full- and part-time work) and non-employment activity (unemployment, non-employment and homemaking) changed amongst this age group over the period 2001 and 2017, which included the Global Financial Crisis (GFC) of 2008. Notwithstanding that more men than women were in fulltime work, and more women than men were employed part-time or were homemakers, over the period there was an overall rise in employment for both genders, which following the GFC continued most strongly for women. Random effects logistic regression on partnered men and women showed that prior to the GFC one spouse transitioning out of the labour market was associated with significantly higher odds of the other spouse also doing so. This implies coordination, for example spouses retiring together. In contrast, following the GFC, one spouse leaving paid employment was associated with higher odds of the other taking up work or increasing their hours, suggesting the economic slowdown encouraged an added worker effect in those households, with one spouse compensating for the job loss of the other. The finding was apparent for both men and women.

**Cross-spousal influences on mature-aged Australians' transitions in and out of employment 2001-2017: a comparison between men and women**

## Introduction

Populations are ageing across the developed world. This presents fiscal and economic concerns for governments and policy-makers, including the fear that there will be insufficient younger workers to generate the tax revenue necessary to finance the needs of the elderly (Productivity Commission, 2013). Many argue that some consequences could be moderated by more workers remaining employed at older ages (Mayhew, 2005; Walker, 2002; Walker & Maltby, 2012). By the early 21st Century, Baby Boomers were already working longer for reasons including more tertiary education, better health, changing retirement funding plans and the growth of less physically demanding jobs (Johnson, 2012; McDonald & Kippen, 2000). A major part of the change was in women's employment, which went up substantially, including for the mature-aged (McDonald, 2011; Ong et al., 2017). Indeed, some suggest that as their children are older and domestic demands lessen, the mature years are an opportunity for women to participate in both the workforce and the home on more equal terms with men (Sayer et al 2016; Craig & Brown 2017).

However, workforce participation is also affected by other factors, including labour market conditions and family characteristics. Labour market conditions have undergone significant change since the turn of the century becoming even more challenging following the Global Financial Crisis (GFC) of 2008. Globally, the number of unemployed increased by an estimated 34 million between 2007 and 2009 (International Labour Organization 2010), and subsequently wage stagnation and underemployment have become more pervasive (Munnell & Rutledge, 2013; Standing, 2011; Watson, 2017). Family factors, including spousal characteristics, are also related to workforce participation, in ways that differ substantially by gender (Crompton 2011; Gornick & Meyers 2003) yet are seldom highlighted in research on mature-aged workers. This paper adds to the literature by examining whether and how the influence of one partner's market participation on that of the other partner amongst Australians aged between 50 and 69 years has changed since 2001, given the fluctuations in economic conditions. To reflect the experiences of both men and women, it looks at both employment (fulltime, part-time work) *and* non-employment (being out of the labour force, homemaking), using longitudinal data over a 16-year time span (2001-2017).

## Background

*Mature-aged workforce participation during economic downturns*

Mature-aged workers can be advantaged in economic downturns due to their seniority and experience. They are less likely to be retrenched than younger workers because letting them go involves higher business loss on investment in their skill and knowledge, and because their terms of employment are more likely to preclude easy dismissal (Junankar, 2015; Munnell, Muldoon, & Sass, 2009). However, any protective effect may now be eroding due to the increasing precarity and insecurity in job tenure across the workforce (Munnell & Rutledge, 2013; Standing, 2011; Watson, 2017). There is evidence that the GFC did have less impact on matured-aged workers than on younger workers (Junankar, 2015), but the following downturn was more far-reaching than most. In the USA, although the immediate impacts were not as bad as on younger workers (Bell & Blanchflower, 2011a, 2011b; Cho & Newhouse, 2013), more late-career workers experienced job loss than in previous recessions, many with longer than usual jobless spells (Johnson, 2012). Age discrimination can preclude rehiring (Ong et al 2017). So although mature-aged workers can be advantaged in economic slowdown if seniority ensures their jobs are secure, if they suffer job loss, it can be very hard for them to find new work (Johnson, 2012; Munnell & Rutledge, 2013). This is likely to be more so for blue collar workers, who are also more at risk of deeper wage scarring from recessions (Cockx & Ghirelli 2016).

*Gendered workforce participation during economic downturns*

However, there are important gender implications. Men and women are positioned differently in the domestic sphere as well as in labour markets (Rubery and Rafferty 2013). Over the life course their workforce participation is more constrained by family demands than is men's (Sayer et al. 2016; Craig & Mullan 2009), which means mature-aged women are more likely than mature-aged men to have had disrupted work histories (Bianchi & Milkie, 2010). Women are particularly at risk in recessions if social and employment policies frame them as contingent labour, rather than part of the 'core' workforce (Rubery & Rafferty, 2013; Walby, 2015). For example, in many contexts women are disproportionately concentrated in low-quality casual jobs which are likely first to disappear in difficult times (Kushi & McManus, 2017; Williams & Tait, 2011). On the other hand, labour market downturn threatens many traditionally male jobs. If male-dominated sectors, such as manufacturing and construction are most subject to workplace change, male workers are at risk (Cho & Newhouse, 2013; Congregado, Golpe, & van Stel, 2011; Williams & Tait, 2011). Conversely, female dominated industries, such as health and social care, could offer more opportunity as they are growing in association with the ageing population (Churchill, Denny and Jackson 2014).

*Gender, family and cross-spousal added worker effects*

The job losses of economic downturn can in turn have significant impacts upon the family. Some economic theory sees the family as offering an 'intra-household risk-sharing mechanism' when downturns occur (Gong 2011). In this view, job loss for one partner can prompt the other to counter the loss of shared income through an 'added worker effect', which could involve either seeking employment or taking on more hours in their existing job (Bredtman, Otlen and Rulff 2018; Gong 2011). This response can ameliorate both the current loss of income, and the expected decline of future income (Stephen 2002).

Most research into the added worker effect has been concerned with women's responses to their partner's job loss (Bredtman, Otlen and Rulff 2018, Stephen 2002). International research on the female added worker effect in recessions suggests the impact varies cross-nationally and across regions. Bredtman, Otlen and Rulff (2018) found that following the GFC across Nordic countries, there was weak evidence that women move from being inactive in the labour market to looking for work following a partner's job loss. In Continental Europe, women with unemployed partners were more likely to transition from part-time to full-time employment. They found no evidence of an added worker effect in Anglo-Saxon countries, but rather the opposite: women were actually less likely to become employed when their male partner experienced job loss. In contrast, in Mediterranean countries, there was a strong and significant added worker effect whereby wives moved into employment or looked for work following the loss of their partner's employment. Women in these countries were also more likely to move from part-time to full-time work and increase their hours following their partner's job loss. The authors concluded that these differences across countries were likely due to varying workforce composition and welfare state benefits (Bredtman, Otlen and Rulff (2018). These factors can ameliorate the size and strength of the added worker effect (Gong 2011), as well as gendered participation patterns overall (Gornick & Meyers, 2003). Gendered work patterns differ across countries because "… the role played by the state, in the form of the tax and welfare systems, [shapes] work incentives", and influences women's employment options (Rubery and Rafferty 2013: 21).

There has been no prior investigation of the effect of the GFC on cross-spousal participation in Australia. Looking at the period prior, Gong (2011) found that in Australia partnered women who were already in the workforce either increased their part-time hours or moved into full-time work following their partner's job loss but were less likely to move from being out of the workforce to employment (Gong 2011). That research did not consider the effect of a woman's job loss on her male partner and did not focus on the mature-aged. Yet this age group is important because it is close to retirement, and many couples will wish to move out of work simultaneously at a time of

their own choosing. However, if older people lose jobs before they plan to, they can take longer than younger cohorts to find new ones (Munnell and Rutledge, 2013). Also, for Australian women, work in the older years can offer the chance to participate more fully after a life time of fitting family care around part time employment (Charlesworth et al 2011). For many older couples, it is a crucial period of building retirement savings (Austen, Jefferson, & Ong, 2014). We therefore extend the literature by investigating whether added worker effects amongst those aged 50-69 arise from female as well as male job loss, and whether patterns in cross-spousal influence vary across economic downturn and economic expansion for men and women.

*The Australian context*

Australia has distinctive labour market features in relation to age and gender. Over the last 30 years, the share of Australians over the age of 50 who are employed rose 22 to 35 percent. Much of this reflects change for women. In 1985, just over 10 percent of women that age was employed. Three decades later, it is 29 percent. Mature-age Australians are also gaining *share* of fulltime employment. In 1985, Australians over 54 held nine percent of fulltime jobs; in 2015 they held 17 percent (Gahan, Harbridge, Healy, & Williams, 2017). The cohort effects in rising education, expectations of standard of living in retirement and the changing characteristics of employment seen internationally also apply in Australia (McDonald & Kippen, 2001; Temple & McDonald, 2017).

Notwithstanding growth over time, Australia has relatively low female labour force participation (OECD, 2015). A life course approach argues that gender role attitudes and patterns in paid and unpaid work established in earlier adulthood can endure into later life (Bisdee, Daly and Price, 2013). Work-family arrangements both reflect and perpetuate cultural norms and values and Australia remains quite traditional in this regard (Gornick and Meyers 2009; van Egmond et al 2010). There is a strong normative preference for parental and later in life, grandparental, care of children (Craig and Jenkins 2016; Craig and Churchill 2018; Baxter 2015). This care is mostly provided by women, for whom part-time employment is the norm (Baxter 2013). They are also more likely to be in casual and temporary jobs with little career progression, so they can provide family care (Charlesworth et al 2011). Perhaps due to unwritten sanctions from employers, Australian fathers rarely take up 'family friendly' arrangements such as flexible working hours, part-time work, shift work or working from home (Baxter 2019). The gender pay gap for fulltime work is 14 percent (ABS, 2018). Due to the wide gender gaps in participation, hours and earnings, the government-mandated contributory retirement savings scheme, introduced in the early 1990s, has left women with average balances less than half those of men (Austen, Jefferson, & Ong, 2014).

Such factors risk exposing women to accumulated economic disadvantage over their life course, which may leave them vulnerable in their later years. They are also at odds with the goal of encouraging greater mature-age workforce participation, which has been articulated in a broader framework contained in Intergenerational Reports (IGRs), the de facto population policy in Australia (Churchill, Denny and Jackson 2014). Published periodically since 2002, IGRs are intended to inform and justify future policies and to explain how governments will balance future federal expenditures and revenues in the face of demographic change. The report frames mature-aged workers and women as key drivers to economic performance:

> *If we are to achieve these goals we need to encourage those currently not in the workforce, especially older Australians and women, to enter, re-enter and stay in work, where they choose to do so* (Commonwealth of Australia, 2015: iii).

These goals are likely to have been impacted by the business cycle. In Australia, the GFC was preceded by marked economic expansion (driven by a mining boom) and followed by a lengthy lackluster economy (Watson, 2017; Masters & Thart, 2012; Quiggin, 2014). Employment was partly bolstered by arrangements to protect jobs at lower hours and frozen pay levels and a government economic stimulus package, which created new construction jobs (Plumb, Baker and Spence 2010). The boost to the male-dominated industry suggests a privileging of male jobs as 'core' rather than 'buffer' workforce (Rubery & Rafferty, 2013). At the same time, there were service and staff cuts imposed on the public service (Masters & Thart, 2012; Quiggin, 2014). Women were potentially most vulnerable to these policy changes because they are more likely to both use social services and to work in the public sector (Kushi & McManus, 2017; Rubery & Rafferty, 2013; Walby, 2015). There was some support directed to mature-aged people through modest subsidies to businesses which hired mature-aged workers (Gahan et al., 2017; Saunders & Wong, 2011).

*Research focus*

This background suggests that the workforce participation of men and women aged 50 to 69 will be affected by both labour market conditions and family factors, but that the influence of the latter will be strongest upon women. Because men and women's work and family commitments differ over the life course, to understand change in gendered participation it is important to acknowledge non-market activity including domestic duties as well as employment (Gornick & Meyers, 2003; Siegrist & Wahrendorf, 2009). This paper therefore analyzes patterns in unemployment, and in both employment (fulltime, part-time work) *and* non-employment (being out of the labour force,

homemaking). It uses longitudinal data to look at trends and couple-level data to capture intra-household and cross-spousal effects on participation.

Our hypotheses are:

1. In couple households, each partner's labour force status and workforce transitions in will affect the other
2. Cross-spousal effects on workforce transitions will be strongest upon women
3. Partners will most commonly make the same transition, but in the economic downturn following the GFC there will be more evidence of an added worker effect

**Data and Method**

*Data*

HILDA is a large household panel survey with a specific focus on dynamics in three key research areas: family and household, income and welfare and labour. The survey commenced in 2001. The reference population for the initial wave was all members in private dwellings across Australia. From the sampling frame, 11,693 households were identified. and 7,682 were interviewed, resulting in 66 percent household response rate for Wave 1. From the responding households, 13,969 persons over the age of 15 were interviewed. Since then, 65.6 percent of initial wave respondents have been re-interviewed over the course of 15 waves and a top-up sample was introduced in 2011 (see Summerfeld 2014 for more details about the data). For this paper, the sample was restricted to all responding persons aged between 50 and 69. The analytic sample was unbalanced to include individuals who enter and exit over the course of the survey (men n=4,667 and women n=5,051). Respondents may enter the survey through partnering with a respondent or exit due to household dissolution or death. There was no missing data on either the dependent or key explanatory variables. Sample characteristics are presented in Table 1.

**[Table 1 here]**

*Dependent variables*

We constructed a categorical main activity variable derived from respondents' labour force status and 'main activity during time spent neither working nor looking for work'. It represented each respondent's main activity at each wave: (1) employed, fulltime (35 or more hours per week); (2) employed, part-time (less than 35 hours per week); (3) unemployed; (4) not in the labour market (NILF); (5) homemaking and caring duties. Note that although homemaking and care can be a subset of NILF, in the descriptive analyses we separate it out due to the gender implications.

We also constructed a series of binary variables which capture whether, at the next wave of data collection, respondents have transitioned to a new main activity. For simplicity, at this stage of the analysis we collapse non-employment activities (unemployment; not in the labour force (NILF) and home-making and caring duties) into one category; 'out of the labour force'. The measures indicate respondents who, at the next wave, (1) transitioned in fulltime work; (2) transitioned in part-time work; and (3) transitioned out of the labour force.

*Analytic approach*

The research aims to capture trends over time, any influence of the business cycle and the household characteristics associated with change in mature-aged men and women's activity status. First, to show population trends and average within-gender changes over time, we present a descriptive overview of the proportion of mature-aged men and women aged 50-69 engaged in each of the activities in each year from 2001 to 2017.

Second, to focus on intra-household factors we restrict the sample to couples only (n=2,594). We include both married and cohabiting couples and use the terms 'partner' and 'spouse' interchangeably. We run two sets of logistic regression models with random effects to estimate the odds, at each wave, of respondents transitioning into (1) into employment, full-time; (2) into employed, part-time; and (3) out of the labour force. The first set of models tests the effects of their *partners* current labour force status: (1) employed, full-time; (2) employed, part-time; and (3) out of the labour force. The second set of models tests the effects of a partner's labour force *transition* at the next wave: (1) into employment, full-time; (2) into employed, part-time; and (3) out of the labour force. To capture cross-spousal effects before and after the GFC, we construct a dichotomous variable: (1) period pre-GFC between 2001 and 2007; and (2) period post-GFC between 2008 and 2017 and interact it with both partners' current labour force status and partners' labour force transition at last wave. We stratify the models by gender because the impact of partner and family characteristics are known to be stronger upon women than men.

The models also include statistical controls that may independently affect participation in employment and non-employment activities: age category (0=50-54, 1=55-59, 2=60-64 and 3=65-69)*;* highest level of education (1=tertiary; 2=diploma; 3=completed high school; and 4=incomplete high school; country of birth (1=Australia, 2= born in an English-speaking country and 2=born in a non-English speaking country); and location (1=resides in an urban area and 2=resides in a non-urban area). Also included are continuous measures household income logged*;* self-rated health

(1=excellent health and 5=poor health) and unemployment rate of area of residence (higher values mean higher levels of unemployment). We also control both respondents' and partners' number of hours spent caring for children under the age of 17 and hours spent caring for others (disabled spouse, disabled adult relative, elderly parents or parents-in-law) because caring could constrain taking up employment, especially for women. We control for respondents' and partners' attitudes towards gender roles (with higher scores indicating more traditionalism), because traditional attitudes have been associated with lower female force participation amongst women (Thornton and De-Marco 2001). The full results are shown in Tables A1 and A2, but due to space constraint we discuss only selected control variables in the text.

**Results**

*Descriptive analysis (see Figure 1)*

*Market and non-market activities of men aged 50-69*

In 2001, just over 46 percent of Australian men aged between 50 and 69 were employed full-time in the labour market and just under 11 percent were employed in part-time work. Around 38 percent were not in the labour force (NILF). Just over three and a half percent were unemployed and a further 0.5 percent were in home-making and caring duties. In the economic upturn between 2001 and 2008, there was an increase in the proportion of mature-aged men employed; their fulltime work grew by 5.2 percentage points, and their part-time work grew by 0.9 percentage points. Over the same period, there were decreases in mature-aged men's non-employment main activities, particularly NILF, which went down by 4.9 percentage points. Unemployment dropped two percentage points and home-making and care was static.

Overall, the pre-GFC boom period drew men into the labour force and out of non-market activities. Following the GFC, men's participation in work flatlined. The proportion of mature-aged men in fulltime work remained static at around 53 percent and unemployment increased by 1.2 percentage points each between 2009 and 2017. The proportion in part-time employment decreased by 0.6 percentage points. Those NILF went down by 0.2 percentage points and the proportion of mature-aged men in home-making and caring duties increased 0.2 percentage points.

*Market and non-market activities of women aged 50-69*

In 2001, just under 39 percent of mature-aged women were NILF, which was a similar proportion to their male counterparts. Compared to men, women were a lot less likely to be in full-time employment with just 21.6 of mature-aged women in full-time work. They were significantly more

likely than their male counterparts to be in part-time work, at around 20.7 percent. Around 17 percent of mature-aged women were in home-making and caring duties. Less than two percent were unemployed, looking for work. Between 2001 and 2008, the proportion of women employed grew substantially; fulltime employment by 5.2 percentage points and part-time employment by 5.4 percentage points. Concurrently, there were lower proportions of women NILF (down 2.7 percentage points) and in home-making and caring duties (down 7.7 percentage points).

So, as for mature-aged men, the pre-GFC period drew mature-aged women into the labour force and out of non-market activities. In contrast to men, movement towards greater labour force participation continued for women post-GFC, albeit at a substantially reduced rate. Between 2009 and 2017, mature-aged women's fulltime employment increased by about one percent over the post-GFC period and part-time employment by almost two percentage points. The proportion of women unemployed and NILF stayed the same, and the proportion of women whose main activity was homemaking and care decreased by two percentage points.

**[Figure 1 about here]**

Figure 1 summarises these within-gender differences in activity patterns of those aged 50-69 from 2001-2017, which suggest both market and nonmarket participation was influenced by the business cycle. There were substantial and steady changes towards more workforce participation for both genders pre-GFC. For women, the trend to more employment continued after the GFC. This was not the average case for men, whose economic participation levelled out and flatlined after 2009.

These average population-level trends can mask important differences within and between households. To investigate how individual transitions into and out of the labour market since 2001 were related to family factors we next use random effects logistic regression analysis.

*Random effects logistic regression models and predicted probabilities*

We provide the full results of the random-effects logistic regression models in Tables A1 and A2. We interact GFC with partner's current labour force status (see Online Appendix) and their most recent labour force transition (See Online Appendix) to test whether these partner workforce characteristics affected the likelihood of a respondent themselves moving into full-time work, part-time work or out of the labour force, and whether associations differed before and after the GFC. The models in Tables A1 and A2 show significant effects for both these interactions. To facilitate interpretation of these effects we use the *Stata margins* command to produce predicted probabilities, which we present in Tables 2 and 3 (derived from Table A1 in Online Appendix) and

Tables 4 and 5 (derived from Table A2 in Online Appendix), below. Note that the predicted probabilities are of those who made a transition, not of the whole sample population.

*Probabilities of transitions into full-time, part-time or out of the labour force and partner's current labour force status*

Table 2 shows the predicted probabilities of men's labour force transitions being affected by their partner's labour force status, before and after the GFC.

**[Table 2 about here]**

Overall, of the men who made a labour force transition, most were likely to transition into the same employment status as their partner currently held. That is, men with partners in full-time work were most likely to move into full-time work, men with partners in part-time work were most likely to move into part-time work, and men with partners out of the workforce were most likely to move out of the workforce (see Table 2). This overall concordance with partners' status was apparent both before and after the GFC, but the strength of the associations differed. Compared to the pre-GFC period, afterwards there was a higher probability of men moving into full-time work if their partner was employed part-time (5 percentage points) or was out of the labour force (7 percentage points) and a lower probability (11 percentage points) of men moving out of the labour force if their partner was also out of the labour force.

Table 3 shows the predicted probabilities of women's labour force transitions being affected by their partner's labour force status, before and after the GFC.

**[Table 3 about here]**

By and large, women followed the same pattern as men in that if they made a move, it was most likely to be into the same labour force status as their partners currently held. However, again there were differences pre- and post-GFC. For example, for women with a fulltime employed spouse, there was a lower probability post-GFC of also moving into full-time work (5 percentage points) and a higher probability of them moving into part time work (2 percentage points) or out of the labour force (3 percentage points) at the next wave (see Table 3). Also as for men, women with a partner out of the labour force had a lower probability (8 percentage points) of themselves transitioning out of the labour force post-GFC, and a correspondingly higher probability of moving into full-time and part-time work (4 percentage points in both cases) by the next wave if they had a partner out of the labour force.

Taken together, these results suggest a strongly predominant concordance between one partner's labour force status and the other partner transitioning to that same status (should they make a transition), which was substantially attenuated post-GFC. This was most the case in relation to moving out of the work force. For both men and women, the likelihood of moving to this status if their partner was already currently in it were significantly lower after the GFC than before it.

We now turn to the models testing how a partner's workforce *transition* at the most recent wave of data collection affected respondents' own transitions, and whether associations differed over the business cycle. If, after the GFC, we see less spousal concordance and more respondents taking up paid work in association with their partner leaving the workforce, this would be clear evidence that the downturn generated a cross-spousal added worker effect.

*Transitions to full- and part-time employment or out of the labour force and partner's labour force transitions*

**[Table 4 about here]**

Table 4 shows that over the whole period, most men who transitioned did so into the same labour force status as the one their partner had also recently transitioned into. For example, men with partners who had transitioned to full-time work at the last wave were most likely to themselves transition into full-time work (if they made a transition). This concordance between partners' transitions also held true for moving into part time work and out of the labour force. As with partner's labour force status, there were some differences between the pre-GFC and post-GFC periods. Men with a partner who had transitioned into part-time work at the last wave were still more likely to transition into part--time work in the post-GFC period, but the probability was about eight percentage points less. Correspondingly, compared to before the GFC, following it there was a higher probability (4 percentage points) of these men moving into full-time work at the next wave and a higher probability (2 percentage points) of them leaving the labour force. However, the largest change was in relation to spousal concordance in leaving the labour force. In the pre-GFC period, of men who made a transition, those with a partner who had recently transitioned out of the labour force had an 80 percent probability of also transitioning out of the labour force. However, post-GFC the probability of this spousal concordance was reduced by 14 percentage points as higher proportions of men whose partners had left the workforce at the last wave opted to transition into full-time work (up 10 percentage points) and part-time work (up 3 percentage points). This implies that they were reacting to a partner's job loss not as the occasion to join them in retirement as

seems likely to underpin the high pre-GFC concordance, but as a spur to taking on (more) paid work. It is evidence of an added worker effect amongst mature-aged men.

**[Table 5 about here]**

Table 5 shows similar outcomes for women. Whilst both before and after the GFC, the strongest probabilities were that women who made a move would transition into the same status as their partner recently had, the magnitude of spousal concordance differed substantially between the two time periods. The probability of women with a partner who had moved into full-time work at the last wave themselves doing so at the next wave was nine percentage points lower post-GFC than pre-GFC, largely accounted for by these women having higher probabilities of moving out of the workforce (by 5 percentage points) or into part-time work (by 3 percentage points). There was also a significant drop (12 percentage points) between the two periods in the probability of women moving into part-time work at the next wave if their partner had made that same transition at the last wave. There were corresponding rises in this group of women moving out of the workforce (a 6- point increase) or into full time work (a 3-point increase). Finally, as for men, women with a partner who had transitioned out of the labour force at the last wave were much less likely (11 percentage points) to also leave the workforce by the next wave in the post-GFC period than they were pre-GFC. There was a significant increase in the probability of these women moving into full-time work (up 6 percentage points) and part-time work (up 4 percentage points). Thus, the results suggest that for both men and women, the GFC generated an added worker effect, with a partner's withdrawal from paid work associated with higher likelihood of a respondent's paid work rising in the downturn than prior to it.

In both sets of models for men, all else equal, their own gender role traditionalism was associated with lower odds of moving into fulltime work, and higher odds of moving out of the workforce. Their partner's gender role traditionalism was associated with men having lower odds of moving into full time work and higher odds of leaving the workforce and (in Model 2) of moving into part time work.

For women, all else equal, their own gender role traditionalism was not associated with significant differences in workforce transitions, but their partner holding traditional views was associated with them being less likely to move into full time work (Model 1), and more likely to leave the workforce (Models 1 and 2).

For men there were no associations with their own time caring for children or others in Models 1 and 2. However, increases in their partner's time spent caring for others and partner's poorer health predicted lower odds of men moving into full time work, and higher odds of them moving out of the

labour force (Models 1 and 2). Partner's increase in time with children predicted higher odds of moving into part-time work and lower odds of moving out of the labour force at the next wave (Models 1 and 2).

Similarly, for women, their own time spent caring for others was not associated with significant differences in workforce transitions in Model 1. However, in Model 2, their increases in time spent caring for children was associated with higher odds of moving into full-time work and out of the labour market all together at the next wave. Increases in their partner's time spent caring for others and their partner's poorer health was associated with lower odds of women moving into full-time work and higher odds of moving out of the labour force all together (Models 1 and 2). Partner's poorer health was also associated with lower odds of women moving into part-time work (Model 1 and 2).

Focussing on partners, these findings highlight how partners gender traditionalism and care arrangements have an impact upon men and women's labour force transitions. Greater traditionalism amongst their partner saw increased odds in men entering part-time work and women exiting the labour force all together at the next wave. These transitions are in line with traditional attitudes towards gender roles which emphasise a gendered division of labour (van Egmond et al. 2010). Having a partner who increased their time caring for children, increased men's odds of moving into part-time work and decreasing their odds of exiting the labour force all together, suggesting economic reasons. Similarly, partner's poorer health pushed both men and women into work at the next wave, most likely due to economic reasons because partner's were unable to work themselves.

**Discussion and conclusion**

This paper used data from the Household, Income and Labour Dynamics in Australia survey to examine mature-aged men and women's employment and non-employment activity from 2001-2017. The period began with an economic boom, but was punctuated in 2008 by the GFC, which brought economic slowdown and exacerbated trends towards a less secure and more uneven labour market (Masters & Thart, 2012; Quiggin, 2014; Watson, 2017). Against this background we examined how market and non-market activity patterns changed among Australians aged 50-69 since 2001. Then, taking a new focus on cross-spousal links, we examined whether one partners' labour force status or labour force transitions affected the other partner's transitions in and out of the labour force, whether cross-spousal influences differed by gender, and/or over the pre- and post-GFC business cycle.

There have been considerable shifts in mature-aged men and women's activity patterns since the turn of the century. The largest occurred in the earlier years of the millennium, a period of strong economic growth, in which Australian labour force participation increased significantly overall (Wilkins & Wooden, 2013). In line with this trend, there were substantial declines in the proportion of mature-age Australians who were out of the labour force. For men, this reflected a decrease in being unemployed or NILF, and for women, it was mainly a decrease in homemaking and care. Thus, during the economic upturn 2001-2008, fewer mature-aged people were on the margins of the labour force. These trends are likely due to the strong economy attracting and retaining workers as well as to longer-term cohort effects including increasing longevity, changing attitudes and more women gaining an education and wishing to earn a living (Chomik and Piggot, 2012; Johnson, 2012; McDonald, 2011). As expected, the slowdown after 2008 also affected participation trends. The rate of growth in fulltime work slowed and stalled. However, in contrast to younger people, who suffered significant job loss in the downturn (Craig, Churchill and Wong 2019; Denny and Churchill 2016), the pre-GFC workforce participation gains of mature-aged people levelled out, rather than fell, in the post-GFC contraction, suggesting business cycle effects on employment were relatively muted for the mature-aged.

However, our results show significant gender contrasts, in that although mature-aged men and women both improved their market position over the period, they did so in different ways. In the upturn, mature-aged men's growth in fulltime work was higher than women's, who increased in both fulltime work (from a much lower base than men) and in part time work. These trends resulted in some convergence in activity patterns, although wide gender relativities remained. In both 2001 and 2017, mature-age men were twice as likely as mature-age women to be in fulltime work. Also, mature-aged men were very much at the margins of non-market work at all time points. The outcomes reflect men's stronger position in the labour market and Australia's historical preponderance of part-time jobs for women (Charlesworth et al., 2011; Wilkins & Wooden, 2013). They confirm that the gender patterns prevalent in the broader Australian labour market wherein women's paid work is more 'peripheral' and not as 'core' as men's (Charlesworth et al., 2011; Karamessini & Rubery, 2013; Pocock et al., 2012) continue to pertain amongst mature-aged people. The implication is that any effects of the business cycle are secondary to ongoing structural gender differences in the Australian workforce and in family care arrangements. Women's homemaking and care fell between 2001-2008 and remained lower in 2016 than at the turn of the millennium, but this was because women withdrew from it in favour of employment, rather than because men took it up. This is consistent with the idea that the mature years are an opportunity for women to participate in both the workforce and the home on somewhat more equal terms with men (Sayer et

al 2016; Craig & Brown 2017; Craig & Mullan 2009), but also indicates that convergence in activity gaps are being driven by women's patterns becoming more like men's than vice versa. Overall, the average story is that more mature-age Australians are in the workforce, but that gender differences in both paid and unpaid work remain wide.

However, family and household characteristics underly average patterns and couples' employment choices are not independent of each other. In a new contribution, our modelling directly probed these spousal links, and how they changed over the business cycle, by gender. Several things became apparent. First, when one spouse made a workforce transition, it was most frequently to the current workforce status of the other spouse. In relation to moving out of the workforce, for example, this suggests couples' movements are highly coordinated with each other. Since our sample is of mature-aged people between 50 and 69, this implies that retirement decisions are often taken together. Underscoring this spousal concordance, we also found that one partner's *transition* to a certain labour force status was frequently followed by their partner making the same transition by the next year. Again, in relation to moving out of the workforce, it implies mature-aged couples tend to do so at a similar time. With some magnitude differences reflecting the average gendered participation patterns noted above, the findings regarding spousal transition concordance pertained for both men and women.

Also apparent was that the pattern of spousal concordance in workforce transitions, though dominant throughout the whole period studied, was significantly attenuated post-GFC. In the downturn, there was a significantly higher likelihood that one partner leaving the workforce would prompt the other to take up employment or increase their work hours. This suggests that, post-GFC, mature-aged couples became more likely to enact the 'intra-household risk-sharing mechanism' (Gong 2011) suggested by economic theory, and less likely to act similarly to one another. That is, it confirms an added worker effect (Bredtman, Otlen and Rulff 2018), wherein one partner steps into earn more money when the other's income is lost. The overall implication is that in times of economic upswing most mature-aged couples move into non-employment together, but that in the economic downturn they are less able or willing to do so. Coordinated couple moves were much less evident in the uncertain labour market, perhaps due to near term financial necessity, or to raised anxiety over future household income loss (Stephen 2002). Because most prior research into the added worker effect has looked at women's responses to their male partner's job loss (Bredtman, Otlen and Rulff 2018; Stephen 2002; Gong 2011), it is a new contribution to show that in mature-aged Australian couples both men and women responded to their partner leaving the workforce in similar ways.

We have also contributed to the literature by identifying population-level trends in gendered employment and non-employment activity patterns. We acknowledge as a limitation that main activities are a blunt measure and that time use data could provide more detail of gender gaps in activities including housework and care. However, this would lack the strengths of longitudinal data in showing change over time. In this paper we were able to follow individual movements of men and women over the business cycle and demonstrate how workforce transitions relate within couples, net of other individual and family characteristics, including education, health, time spent caring for children or others and both respondents' and their partners' gender role attitudes, which affect men and women differently (Thornton and De-Marco 2001). We cannot be definitive as to the intra-household decision-making processes behind partners being less likely to undertake similar workforce transitions simultaneously. However, a diminution in couples' modal tendency to synchronise their employment status and coordinate their transitions out of the labour market in the period following financial shock has ongoing implications for work and family life and for the ability of mature-aged Australians to enjoy a secure retirement together. The current economic disruption caused by the spreading COVID-19 pandemic may intensify the trend to less spousal concordance as more Australians including mature-aged men and women face heightened risks of income loss and financial stress.

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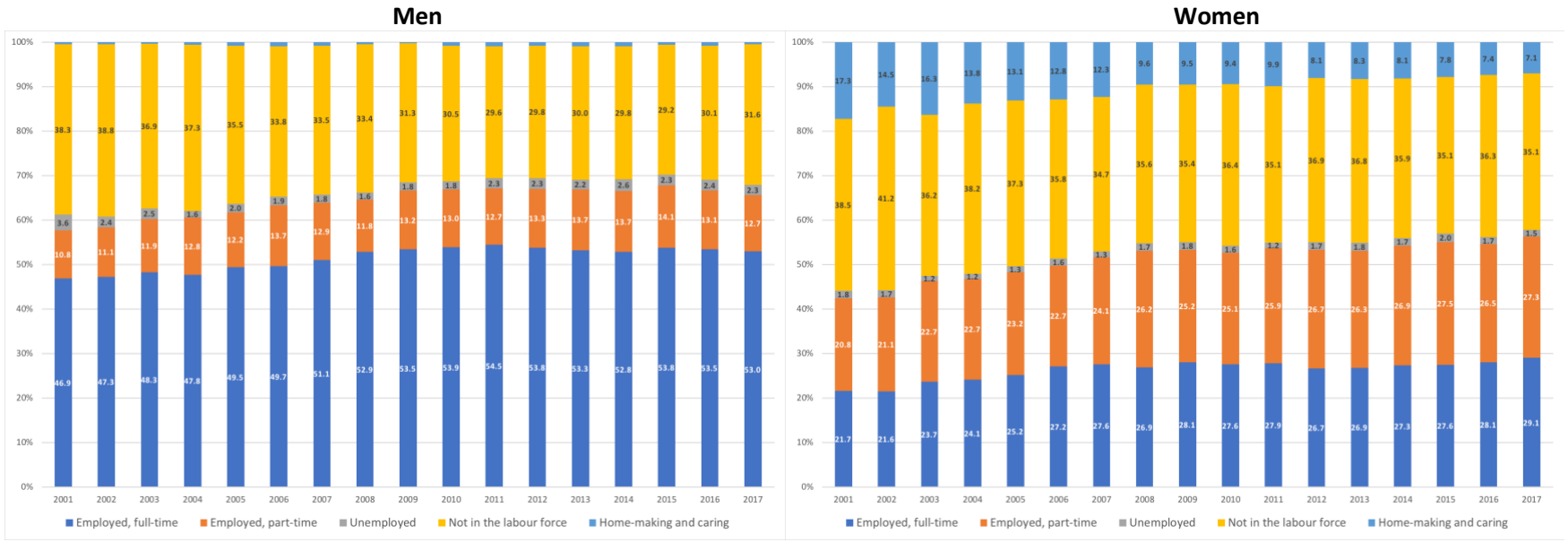
**Table 1. Sample characteristics of 55-69-year-olds by sex, pooled observations 2001-2017**

| Variable | Men | Women |
|---|---|---|
| **Main activity** | | |
| *Employed, fulltime* | 40.78 | 19.59 |
| *Employed, part-time* | 14.71 | 21.67 |
| *Unemployed* | 1.96 | 1.16 |
| *Not in the labour force (NILF)* | 41.88 | 46.76 |
| *Homemaking and care* | 0.66 | 10.82 |
| **Educational qualifications** | | |
| *Tertiary qualifications* | 23.07 | 22.06 |
| *Diploma-level and certificate-level qualifications* | 40.78 | 25.40 |
| *Completed senior secondary schooling (year 12)* | 8.14 | 9.12 |
| *Incomplete senior secondary schooling (year 11)* | 28.01 | 43.41 |
| **Age categories** | | |
| *50-54* | 30.53 | 30.35 |
| *55-59* | 26.86 | 26.94 |
| *60-64* | 23.16 | 22.95 |
| *65-69* | 19.46 | 19.76 |
| **Self-rated health** | 2.83 (.01) | 2.80 (.01) |
| **Unemployment rate** | 5.34 (.01) | 5.34 (.01) |
| **Country of Birth** | | |
| *Australian-born* | 71.09 | 72.11 |
| *Born in an English-speaking country* | 14.61 | 12.91 |
| *Born in a non-English-speaking country* | 14.30 | 14.98 |
| **Location** | | |
| *Regional/rural* | 46.57 | 46.57 |
| *Urban* | 53.43 | 53.43 |
| **Gender role traditionalism** | 3.50 (.01) | 3.50 (.01) |
| **Respondent's time spent caring for children** | 1.79 (.06) | 3.18 (.07) |
| **Respondent's time spent caring for others** | 1.89 (.03) | 1.60 (.03) |
| **Partner's time spent caring for children** | 3.18 (.07) | 1.79 (.06) |
| **Partner's time spent caring for children** | 1.60 (.03) | 1.89 (.03) |
| **Partner's gender role traditionalism** | 3.50 (.01) | 3.50 (.01) |

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017

**Figure 1 - Employment and non-employment activities of men and women aged 50-69, 2001-2017 (%)**




Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.

**Table 2. Predicted probabilities of men's labour force transitions at the next wave and partner's current labour force status, pre and post-GFC periods**

| | Respondent's transition at the next wave | | | | | |
|---|---|---|---|---|---|---|
| | ***Pre-GFC*** | | | ***Post-GFC*** | | |
| **Partner's current labour force status** | *Into FT* | *Into PT* | *OUT* | *Into FT* | *Into PT* | *OUT* |
| *Partner FT* | 0.81 | 0.09 | 0.09 | 0.78 | 0.12 | 0.09 |
| *Partner PT* | 0.11 | 0.70 | 0.16 | 0.16 | 0.65 | 0.16 |
| *Partner OUT* | 0.04 | 0.08 | 0.87 | 0.11 | 0.10 | 0.78 |

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.

**Table 3. Predicted probabilities of women's labour force transitions at the next wave and partner's current labour force status, pre and post-GFC periods**

| | Respondent's transition at the next wave | | | | | |
|---|---|---|---|---|---|---|
| | ***Pre-GFC*** | | | ***Post-GFC*** | | |
| **Partner's current labour force status** | *Into FT* | *Into PT* | *OUT* | *Into FT* | *Into PT* | *OUT* |
| *Partner FT* | 0.81 | 0.07 | 0.10 | 0.76 | 0.09 | 0.13 |
| *Partner PT* | 0.15 | 0.59 | 0.23 | 0.16 | 0.57 | 0.22 |
| *Partner OUT* | 0.05 | 0.05 | 0.89 | 0.09 | 0.08 | 0.81 |

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.

**Table 4. Predicted probabilities of men's labour force transitions at the next wave and partner's labour force status transition at the last wave, pre and post-GFC periods**

| | Respondent's transition at the next wave | | | | | |
|---|---|---|---|---|---|---|
| | ***Pre-GFC*** | | | ***Post-GFC*** | | |
| **Partner's labour force status transition at the last wave** | *Into FT* | *Into PT* | *OUT* | *Into FT* | *Into PT* | *OUT* |
| *Partner FT* | 0.67 | 0.15 | 0.17 | 0.62 | 0.17 | 0.19 |
| *Partner PT* | 0.15 | 0.53 | 0.27 | 0.19 | 0.45 | 0.29 |
| *Partner OUT* | 0.05 | 0.12 | 0.80 | 0.15 | 0.15 | 0.66 |

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.

**Table 5. Predicted probabilities of women labour force transitions at the next wave and partner's labour force status transition at the last wave, pre and post-GFC periods**

| | Respondent's transition at the next wave | | | | | |
|---|---|---|---|---|---|---|
| | ***Pre-GFC*** | | | ***Post-GFC*** | | |
| **Partner's labour force status transition at the last wave** | *Into FT* | *Into PT* | *OUT* | *Into FT* | *Into PT* | *OUT* |
| *Partner FT* | 0.64 | 0.09 | 0.24 | 0.55 | 0.12 | 0.29 |
| *Partner PT* | 0.18 | 0.46 | 0.33 | 0.21 | 0.34 | 0.39 |
| *Partner OUT* | 0.10 | 0.08 | 0.77 | 0.17 | 0.12 | 0.66 |

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.

**Online Appendix**

**Table A1 – Estimated odds of men's and women's transitions into full-time, part-time and out of the labour force at next wave from logistic regressions with random effects**

| | FT | | PT | | OUT | |
|---|---|---|---|---|---|---|
| | *M* | *W* | *M* | *W* | *M* | *W* |
| **Post-GFC (Ref: Pre-GFC)** | **0.82*** ** | **0.76*** ** | **1.32** ** | **1.33*** ** | 1.01 | **1.27*** ** |
| | | | | | | |
| **Partner's Employment Status (Ref: Employed, FT)** | | | | | | |
| *Employed, PT* | **0.03** ** | **0.04*** ** | **7.58*** ** | **2.71** ** | **1.94*** ** | **2.62*** ** |
| *Out of the labour force* | **0.01** ** | **0.01** ** | 0.85 | **0.73** ** | **2.16*** ** | **7.82*** ** |
| | | | | | | |
| **Post GFC x Partner's Employment Status (Ref: Employed, FT)** | | | | | | |
| *GFC x Employed, PT* | **1.82*** ** | **1.46*** ** | **0.57*** ** | **0.68*** ** | 0.98 | 0.76 |
| *GFC x Out of the labour force* | **3.88*** ** | **2.73*** ** | 0.97 | 1.19 | **0.50*** ** | **0.42** ** |
| | | | | | | |
| **Age groups (Ref: 50-54)** | | | | | | |
| *55-59* | 1.05 | **0.73*** ** | **0.88*** ** | 1.15 | **1.15*** ** | **1.40*** ** |
| *60-64* | **0.83*** ** | **0.46** ** | **0.77*** ** | 1.13 | **1.66*** ** | **2.10*** ** |
| *65-69* | **1.31*** ** | **0.63*** ** | **0.60*** ** | 1.34 | **1.33*** ** | **1.40*** ** |
| | | | | | | |
| **Educational qualifications (Ref: Degree qualifications)** | | | | | | |
| *Diploma-level* | 0.97 | 0.98 | 0.98 | 0.96 | 1.06 | 1.07 |
| *Completed high school (Year 12)* | 1.03 | 1.16 | 1.17 | 0.93 | **0.80** | 0.93 |
| *Incomplete high school (Year 11)* | 1.00 | 0.99 | 0.96 | 0.96 | 1.03 | 1.04 |
| | | | | | | |
| **Self-rated health** | 1.02 | 0.95 | **0.89** ** | 1.06 | **1.09** ** | 1.00 |
| **Unemployed rate** | 0.97 | **0.94** ** | 1.01 | 0.98 | 1.02 | **1.08*** ** |
| | | | | | | |
| **Country of Birth** | | | | | | |
| *English-speaking country* | 1.00 | 0.93 | 0.93 | 1.06 | 1.07 | 1.00 |
| *Non-English speaking country* | 1.03 | 0.94 | **0.82*** ** | 1.04 | **1.20*** ** | 1.02 |
| | | | | | | |
| **Household Income** | **1.05*** ** | **1.04*** ** | **1.03** ** | **1.03** * | **0.95*** ** | **0.95*** ** |
| **Location (Ref: Urban)** | 0.98 | 1.01 | 1.02 | 1.08 | 1.01 | 0.93 |
| **Respondent's gender role traditionalism** | **0.96*** ** | 1.01 | 1.01 | 0.99 | **1.04*** ** | 0.99 |
| **Respondent's time spent caring for others** | 1.00 | 1.00 | 0.98 | 1.01 | 1.01 | 0.99 |
| **Respondent's time spent caring for children** | 1.00 | 1.02 | 1.01 | 0.98 | 0.99 | 0.99 |
| **Partner's gender role traditionalism** | **0.96*** ** | **0.97*** ** | 1.02 | 0.99 | 1.02 | **1.04*** ** |
| **Partner's time spent caring for others** | **0.96*** ** | **0.95*** ** | 1.02 | 1.00 | 1.02 | **1.04*** ** |
| **Partner's time spent caring for children** | 0.98 | 1.03 | **1.06*** ** | 0.96 | **0.95*** ** | 1.00 |
| **Partner's self-assessed health status** | **0.90*** ** | **0.91*** ** | 0.99 | **0.93*** ** | **1.11** | **1.17** ** |

Note: *p <0.05, **p <0.01, ***p <0.001.

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.

**Table A2 – Estimated odds of men's and women's transitions into full-time, part-time and out of the labour force at next wave and partner's labour force status at last wave from logistic regressions with random effects**

| | FT | | PT | | OUT | |
|---|---|---|---|---|---|---|
| | *M* | *W* | *M* | *W* | *M* | *W* |
| **Post-GFC (Ref: Pre-GFC)** | **0.79*** ** | **0.61*** ** | 1.18 | **1.51*** ** | **1.26*** ** | **1.41*** ** |
| | | | | | | |
| **Partner's lagged employment status (Ref: Employed, FT)** | | | | | | |
| *Employed, PT* | **0.06*** ** | **0.07*** ** | **1.11*** ** | **3.38*** ** | **2.13*** ** | **1.77*** ** |
| *Out of the labour force* | **0.02*** ** | **0.03*** ** | **0.69*** ** | 0.86*** | **2.53*** ** | **4.43*** ** |
| | | | | | | |
| **Post GFC x Partner's lagged employment Status (Ref: Employed, FT)** | | | | | | |
| *GFC x Employed, PT* | **1.81*** ** | **2.10*** ** | **0.56*** ** | **0.36*** ** | 0.88 | 1.04 |
| *GFC x Out of the labour force* | **4.23*** ** | **3.19*** ** | 1.25 | 1.08 | **0.32*** ** | **0.34*** ** |
| | | | | | | |
| **Age groups (Ref: 50-54)** | | | | | | |
| *55-59* | 1.04 | **0.60*** ** | **0.83*** ** | 1.22 | **1.19*** ** | **1.66*** ** |
| *60-64* | **0.80*** ** | **0.34*** ** | **0.66*** ** | **1.21** ** | **1.84*** ** | **2.82*** ** |
| *65-69* | **1.24*** ** | **0.47*** ** | **0.55** ** | **1.50** ** | **1.41*** ** | **1.82*** ** |
| | | | | | | |
| **Educational qualifications (Ref: Degree qualifications)** | | | | | | |
| *Diploma-level* | 0.96 | 1.01 | 0.91 | 0.95 | 1.15 | **1.05** ** |
| *Completed high school (Year 12)* | 1.13 | 1.09 | 1.16 | 0.90 | **0.73** ** | **1.03** ** |
| *Incomplete high school (Year 11)* | 1.04 | 1.04 | 0.86 | 0.91 | 1.10 | 1.04 |
| | | | | | | |
| **Self-rated health** | 1.05 | 0.95 | **0.90*** ** | **1.14*** ** | 1.05 | 0.94 |
| **Unemployed rate** | 0.96 | 0.98 | 1.03 | 0.96 | 1.04 | 1.05 |
| | | | | | | |
| **Country of Birth** | | | | | | |
| *English-speaking country* | 0.98 | 0.86 | 0.96 | 1.13 | 1.07 | 1.02 |
| *Non-English speaking country* | **1.11** ** | 0.92 | **0.75*** ** | 1.01 | 1.18 | 1.10 |
| | | | | | | |
| **Household Income** | **1.11*** ** | **1.19*** ** | **1.11*** ** | **1.08*** ** | **0.85*** ** | **0.82*** ** |
| **Location (Ref: Urban)** | 1.01 | 1.12 | 1.13 | 1.14 | 0.93 | **0.83*** ** |
| **Respondent's gender role traditionalism** | **0.95** ** | 1.02 | 1.02 | 1.00 | **1.05*** ** | 0.98*** |
| **Respondent's time spent caring for others** | 1.00 | 1.01 | 0.98 | 1.00 | 1.02 | 0.99 |
| **Respondent's time spent caring for children** | 1.00 | **1.04*** ** | 1.01 | 0.97 | 0.99 | **0.97*** ** |
| **Partner's gender role traditionalism** | **0.94** ** | 0.99 | **1.03*** ** | 0.97 | **1.03*** ** | **1.05** ** |
| **Partner's time spent caring for children** | 0.99 | 1.03 | **1.07*** ** | 0.95 | **0.94** ** | 1.01 |
| **Partner's time spent caring for others** | **0.93*** ** | **0.92*** ** | 1.03 | 1.02 | **1.03*** ** | **1.06*** ** |
| **Partner's self-assessed health status** | **0.85*** ** | **0.86** ** | 1.01 | **0.91** ** | **1.18*** ** | **1.26** ** |

Note: *p <0.05, **p <0.01, ***p <0.001.

Source: Household, Income and Labour Dynamics in Australia (HILDA) survey, 2001 – 2017.