Economics Working Paper Series

2016 - 04

Bonus babies? The impact of paid parental leave on fertility intentions

Micaela Bassford and Hayley Fisher

February 2016

Bonus babies? The impact of paid parental leave on fertility intentions*

Micaela Bassford and Hayley Fisher†

University of Sydney

February 7, 2016

Abstract

Paid parental leave has become an increasingly important part of family policy in OECD countries: by 2004 on average over a year of leave paid at 59% of average wages was provided. Australia's Paid Parental Leave (PPL) scheme was introduced in 2011 and provides 18 weeks of leave paid at the full time minimum wage for the primary carer of a child. Prior to the scheme, federal and state legislation provided paid maternity leave for most state and federal employees. We estimate the effect of access to paid parental leave on women's fertility desires and intentions by exploiting the differential impact of the scheme for women working in the public and private sectors. We find that the announcement of the scheme had no impact on fertility desires or intentions at the extensive margin but that, conditional on intending to have at least one (more) child, the number of children intended increases by 0.28, a 13% increase. This effect is driven by highly educated women who do not already have children. As it has been shown that fertility intentions predict fertility outcomes, these results suggest that even modest paid parental leave programs can increase the fertility of working women and so moderate the declines in fertility rates seen in many developed countries.

*This paper uses unit record data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. The HILDA Project was initiated and is funded by the Australian Government Department of Social Services (DSS), and is managed by the Melbourne Institute of Applied Economic and Social Research (Melbourne Institute). The findings and views reported in this paper, however, are those of the authors and should not be attributed to either DSS or the Melbourne Institute.

†We thank Kadir Atalay, Garry Barrett, Stefanie Schurer and Marian Vidal-Fernandez for helpful comments. Fisher acknowledges the support of the Australian Research Council Discovery Project (DP150101718). Correspondence: Hayley Fisher, School of Economics, Merewether Building H04, The University of Sydney, NSW 2006, Australia. hayley.fisher@sydney.edu.au

1 Introduction

Since 1970, paid parental leave policies have increased in importance in OECD countries, growing in generosity from an average of 17 weeks in 1970 to over one year in 2014 (OECD 2015b). A broad body of research has linked these paid leave policies to increased female employment, improved maternal health, and benefits for children (Adema and Frey 2015). The costs of these schemes vary considerably across countries depending on leave length and payment generosity, from as much as 0.5% of GDP in Nordic and Eastern European countries to 0.07% in New Zealand (and 0% in the United States) (Adema and Frey 2015).

Publicly-funded paid parental leave provides a financial transfer to working women at the birth of a child alongside job security and an improved ability to combine work with early childcare responsibilities. This eases constraints associated with fertility choices and so is expected to increase intended levels of fertility. Previous studies estimating the effect of access to paid parental leave on fertility have mainly focused on countries with generous paid leave schemes, and found modest positive effects of increased generosity, either in terms of leave duration or payment rates. For example, Lalive and Zweimüller (2009) finds that an increase in leave duration from one to two years in Austria caused a 15% increase in fertility, and Malkova (2014) finds that the introduction of one year of paid maternity leave in Russia led to a 5% increase in fertility rates, driven by higher parity births. Studies of recent German reforms that reduced the duration of paid leave from two years to one year but linked payments to earnings and so increased the value of the leave for higher earning mothers have found that a 1000 € increase in the value of the leave increased fertility by 1.2% (Raute 2014; Stichnoth 2014). Less is known about the effects of less generous paid parental leave policies.

In this paper, we examine whether the provision of paid parental leave affects the fertility desires and intentions of working women in Australia. Australia first introduced a federal Paid Parental Leave (PPL) scheme in 2011, providing 18 weeks of paid leave to a newborn's primary carer paid at the full-time minimum wage, equivalent to a 41% replacement rate at the average wage – a relatively modest scheme in an international context. Prior to this, any paid leave was provided either through collective bargaining agreements or at the discretion of employers. This paper therefore contributes an estimate of the impact of a modest paid parental leave scheme on fertility intentions.[1]

We use data on employer-provided paid maternity leave and fertility preferences from the Household Income and Labour Dynamics in Australia (HILDA) survey for working women aged 21 to 45 and estimate how the substantial expansion in paid parental leave provision induced by the scheme's introduction affects fertility desires and intentions.

Estimating the impact of paid parental leave access on fertility intentions is compli-

[1] Due to the recent implementation of the scheme and data availability, we are unable to estimate the impact on realised pregnancy or fertility.

cated by the fact that women are likely to choose their job based on the benefits offered: women with stronger fertility preferences may choose jobs offering paid leave generating a spurious positive relationship between access to paid leave and fertility intentions. We exploit the fact that the introduction of the PPL scheme increased access to any paid parental leave by 54 percentage points for women working in the private sector, but only 13 percentage points for women working in the public sector. This generates exogenous variation in access to paid leave and allows us to identify the causal effect of leave access on fertility desires and intentions. We have three measures of fertility expectations: whether a woman *would like* to have a child in the future; whether a woman *expects* to have a child in the future; and conditional on expecting to have at least one (more) child, how many children the woman expects to have. This allows us to consider both the extensive and intensive margins of fertility intentions.

We find that, on average, women with access to any paid parental leave have higher fertility desires and expectations than women with no paid leave, but that this is explained by whether the woman already has children: women without children have higher fertility intentions and are also more likely to be in a job offering paid parental leave. Exploiting the introduction of the PPL scheme, we find that having access to paid parental leave has no significant effect on fertility desires or on the extensive margin of fertility intentions. Our primary result is the impact of access to paid leave on the intensive margin of fertility intentions: conditional on an intention to have children, access to paid parental leave causes an increase in the intended number of 0.28, a 13% increase. A series of robustness checks show that this is not driven by uncertainty about access to paid parental leave before the scheme's introduction, or by changes in employment status and sector induced by the scheme's announcement. Placebo tests show no statistically significant differences in trends in leave access or fertility expectations between women working in the public and private sectors before the scheme's introduction.

We also find heterogeneity in the impact of paid leave access. The effect on the intended number of children is entirely driven by women who are yet to have children, and by women with above high school education.

These results demonstrate that fertility intentions are influenced by family policy. Coupled with evidence that fertility intentions predict fertility outcomes,[2] these results suggest that even modest paid parental leave programs can increase fertility among working women and so help to moderate the declines in fertility rates seen in many developed countries, including Australia. A corollary of this is that the expected cost of such programs needs to account for these fertility responses.

[2]Using US data, Morgan (2001) shows that average intended parity is "...*relatively* stable and *frequently* provides good/useful estimates of mean completed parity." Schoen et al. (1999) shows the additional predictive power of fertility intentions for future fertility using a different US dataset. For the UK, Berrington (2004) shows that women's fertility intentions are strongly predictive of completed fertility even after controlling for other observable characteristics.

These results are also relevant to current discussions about parental leave schemes in the United States, which remains the only OECD country to provide no guaranteed paid leave to new parents (OECD 2015b).[3] A recent OECD report that advocates for the introduction of paid parental leave in the US suggests that the costs of such a scheme are likely to be in line with those in Australia or New Zealand (Adema and Frey 2015, p.79). A large proportion of the current evidence of the effects of paid parental leave focuses on the longstanding and generous schemes in place in many European countries.[4] Hence, a broader evidence base on the effects of the Australian scheme, with its recent introduction and modest payment level, will be valuable for understanding the likely impacts of any proposed policy in the US, such as the twelve weeks of payment currently proposed by both Hillary Clinton and Bernie Sanders in the 2016 Democratic Presidential Primary election campaign (Peck 2016).

2 The Australian Paid Parental Leave scheme

Australia's statutory PPL scheme was announced in May 2009, and came into force on the 1st of January 2011 (Department of Social Services 2014). Whilst a national paid parental scheme was discussed by the Australian Labor Party during the 2007 election campaign, no details on funding, eligibility or the level of support were discussed and substantial uncertainty remained until the government responded to the Productivity Commission's final report in 2009 (Maiden 2008). The scheme provides eighteen weeks of pay at the full-time minimum wage (40.6% of average earnings (OECD 2015b)) to the primary carer of a new child (born or adopted), which can be taken at any time within the first year of a child's birth or adoption (Baird and Whitehouse 2012). Prior to its implementation, Australia was one of only two OECD countries to remain without a national PPL program (OECD 2015b). The Australian scheme is therefore the most recently introduced national paid leave scheme in the OECD, and is modest in comparison to the generosity of other OECD countries' schemes.

The stated objectives of the scheme were to normalize taking time out of paid employment for new parents and to promote gender equality and work-family life balance (Martin et al. 2014a). The scheme replaced the 'baby bonus' program that provided one-off payments to new parents following the birth of a child.[5] Payments under the scheme

[3]For example, the US Department of Labor recently launched their '#LeadOnLeave' initiative which provides grants to interested states and cities to assist in the design and evaluation of paid family leave proposals (United States Department of Labor 2015).

[4]See, for example, recent studies on Norway (Dahl et al. 2013; Carneiro et al. 2015), Germany (Raute 2014; Stichnoth 2014; Bergemann and Riphahn 2015) and Austria (Lalive and Zweimüller 2009; Lalive et al. 2013).

[5]For a short period the two schemes co-existed and parents eligible for both could elect between the two (Department of Social Services 2014). For most working women the PPL scheme was more financially advantageous and the majority of women eligible for both in the crossover period elected to receive the

are funded from general taxation and paid via the employer. Although the scheme provides gender neutral 'parental' pay, it is only available to the primary carer of a newborn and, due to wage differentials, is usually taken by women: in the first full year of the scheme, 99.4% of recipients were mothers (Martin et al. 2013).[6]

To be eligible for the PPL scheme recipients must work at least three hundred and thirty hours in ten of the thirteen months prior to birth or adoption with no gap larger than eight weeks, and earn $150,000 or less in the year prior to the birth.[7] Given the generosity of these tests, the scheme is near universal among working women. In the HILDA sample described below, we estimate that 94% of working women satisfy these tests, with the vast majority of those ineligible due to low usual work hours. This is therefore likely to be a lower bound to eligibility since women can adjust their work hours in anticipation of pregnancy to meet the eligibility criteria.

Prior to the introduction of the PPL scheme there was no legislated entitlement to paid parental leave. Around one half of Australia's female workforce received some form of paid maternity leave from their employer with an average duration of six to eleven weeks (Baird et al. 2009). Public sector workers accounted for a large proportion of these women: each State and Territory introduced legislation covering paid maternity leave policy for employees, varying by state and territory and ranging from four to twelve weeks of paid leave availability (Risse 2006). However, all employees (both casual and permanent) with twelve months of continuous service had a legislated entitlement to 52 weeks of job-protected *unpaid* parental leave. These provisions remain in place, providing job protection and unfair dismissal rights, and are complemented by the PPL scheme.

3 Related literature

There is a substantial and growing interdisciplinary literature examining how family policies including financial incentives, childcare and parental leave affect fertility intentions and outcomes in developed countries (Gauthier 2007). These studies cover a wide variety of policies implemented in many different countries at multiple points in time: this is reflected in the range of conclusions reached. The novelty of this paper is that it provides further international evidence on the impact of a recently implemented policy that is modest in scale compared to other studies of parental leave policies.

Studies of the impact of paid parental leave on fertility exploiting changes in policy have found a modest positive impact. Longer leave entitlements (in the order of one to two years) have been linked to increases in higher order fertility in Austria (Lalive

PPL payments (Martin et al. 2014a).

[6]Recognising that up-take of the scheme was primarily by mothers, the government later added an additional two weeks of non-transferable 'Dad and Partner Pay' (DAPP) component with payments commencing in 2013.

[7]There are also residence and visa requirements.

and Zweimüller 2009) and in Russia (Malkova 2014). Recent reforms to paid leave in Germany which shortened the length of leave whilst increasing payment generosity have also been linked to modest increases in fertility, especially among more highly educated women (Raute 2014; Stichnoth 2014). This demonstrates the importance of considering the full design of the policy. Comparably, an increase in the payment rate for parental leave in Quebec has been linked to increased fertility (Ang 2014). There is also evidence of women delaying pregnancy to take advantage of the anticipated introduction of paid leave schemes (Lichtman-Sadot 2014). Cross-country studies are more equivocal, suggesting no relationship between the length or payment generosity of a country's parental leave policy and fertility rates (Gauthier and Hatzius 1997). Access to unpaid job-protected parental leave has also been linked to higher fertility in the United States (Averett and Whittington 2001; Cannonier 2014).

Most relevant to this paper is an earlier attempt to evaluate the impact of paid and unpaid parental leave on pregnancy in Australia. Risse (2006) examines employer-provided maternity leave in 2003, before any legislated entitlement to paid leave, finding that unpaid leave access increases pregnancy among women aged under 35. However, paid leave is only associated with increases in pregnancy among women aged under 25. The drawback of this study is that it is unable to distinguish women selecting into jobs or choosing the timing of their pregnancy based on leave availability.

At this stage, there is limited evidence of the effects of the Australian PPL scheme. An evaluation commissioned by the Australian government examines outcomes including the ease of administration of the scheme, employer responses and mothers' experiences using a range of specially collected survey data and in-depth interviews (Martin et al. 2014b). The evaluation focused on the experience of mothers using the PPL scheme, comparing them to mothers who gave birth before the scheme's introduction, finding that the PPL scheme delayed mothers' return to work over the six months post-birth, but increased labour force participation a year later, especially returns to the pre-birth job. Improvements in the health of mothers and an increase in breastfeeding duration were also found (Martin et al. 2014b). This paper extends and complements this evaluation by considering the effects of the scheme on *potentially eligible* women rather than a selected sample of new mothers.

More broadly, there is a large body of work evaluating the impact of paid parental leave on the employment behaviour of women, including the speed of return to work after a birth and wage received. This evidence is mixed: while many studies find that access to more generous paid leave increases female employment, speeds the return to work and increases wages (Ruhm 1998; Rasmussen 2010; Ulker and Guven 2011; Rossin-Slater et al. 2013; Bergemann and Riphahn 2015), other studies find little effect on these outcomes (Dahl et al. 2013). Studies that evaluate the effect on return-to-work behaviour during the period of paid leave find instead that longer paid leave increases the amount of leave taken and so delays the return to work (Hanel 2013; Lalive et al. 2013).

Access to more generous paid parental leave has also been linked to taking more leave (Han et al. 2009), better child and maternal health (Ruhm 2000; Tanaka 2005; Avendano et al. 2015; Broadway et al. 2015; Stearns 2015), better child educational outcomes (Carneiro et al. 2015), and increased rates of breastfeeding (Huang and Yang 2015). On the other hand, California's paid leave policy has also been linked to higher unemployment rates among young women (Das and Polachek 2015). The trend toward making dedicated paid parental leave available to fathers has been linked to men taking more leave (Ekberg et al. 2013; Bartel et al. 2015), and to fathers being more involved in childcare (Nepomnyaschy and Waldfogel 2007; Haas and Hwang 2008; Boll et al. 2014).

This paper also contributes to a literature examining the determinants of fertility desires and intentions. Previous research has shown that fertility intentions are not fixed across the life course, with age, relationship status transitions and fertility events being important determinants (Berrington 2004; Liefbroer 2009; Morgan and Rackin 2010; Iacovou and Tavares 2011; Gray et al. 2013). Evidence for fertility intentions being adjusted due to changes in employment status, occupation and education is much weaker (Heiland et al. 2008). In contrast, there is far less evidence of the impact of public policy on fertility intentions: Yu et al. (2007) finds no impact of the Australian student income-contingent loans scheme (HECS) on fertility intentions, whilst Drago et al. (2011) find that the Australian Baby Bonus (a $3000 non-means tested maternity payment) increased fertility intentions. This paper adds to our understanding of the determinants of fertility intentions by demonstrating that paid parental leave has an impact on fertility intentions beyond any effect on fertility events.

4 Empirical strategy

To evaluate the relationship between access to paid parental leave and fertility preferences, we first use OLS regressions, comparing fertility preferences of employed women with and without access to paid parental leave. Specifically, we estimate:

$$pref_{it} = \beta_0 + \beta_1 leave_{it} + \beta_2 X_{it} + \varepsilon_{it}$$

where $pref_{it}$ is the relevant fertility intention, $leave_{it}$ indicates whether woman i has access to paid parental leave at time t. X_{it} is a vector of control variables that includes age, education, number of children, marital status and income, all of which have been shown to influence fertility intentions and desires (Berrington 2004; Hagewen and Morgan 2005; Liefbroer 2009; Iacovou and Tavares 2011; Gray et al. 2013), and ε_{it} is an error term, clustered at the individual level.

A crucial concern associated with this approach is that women may self-select into jobs

based on their fertility preferences and circumstances. For example, women with strong fertility preferences may select into jobs that provide paid maternity leave, meaning that any positive estimate of β_1 reflects this selection. On the other hand, women who already have children (and so have lower future fertility preferences) may select into jobs with more family-friendly work policies, including paid maternity leave, biasing the estimate of β_1 downwards.

We therefore exploit the introduction of Australia's PPL scheme to provide exogenous variation in access to paid parental leave. Since the scheme applied to almost all working women, the time series variation alone is insufficient as it may capture other changes affecting fertility preferences at the same time. We therefore exploit the fact that the introduction of the PPL scheme affected public and private sector workers' access to paid leave differently. Whilst the proportion of female private sector employees with access to employer-funded maternity leave never exceeded 41% in the period before the PPL scheme was implemented, 72-85% of public sector employees in Australia had access to this employer-provided benefit over the period in question. So, the introduction of the scheme had a much larger impact on access to paid parental leave for private sector workers than for public sector workers. By comparing the response in intentions between these groups, the impact of an extension in leave availability is identified.

Because the outcomes of interest are fertility *intentions*, they are likely to respond to the announcement of the PPL scheme rather than its implementation: women will take into account the future option-value of the PPL from the point at which they become aware of its existence; there is no reason to expect women to wait until the scheme's implementation date to adjust their intentions. Our measure of leave access therefore includes current access to employer-provided paid leave and *anticipated* access to the public scheme from the time of announcement in 2009 where a woman is eligible.

We implement an instrumental variables strategy using two-stage least squares. The first stage predicts women's access to paid parental leave using an indicator for working in the private sector after the announcement of the scheme ($prisec * post$), effectively implementing a difference-in-difference estimator of the effect of the scheme on access to paid leave:

$$leave_{it} = \gamma_0 + \gamma_1(prisec * post) + \gamma_2 X_{it} + u_{it}$$

Here X_{it} includes a set of wave indicators and an indicator for working in the private sector, so γ_1 estimates the differential effect of the PPL scheme on paid leave access between the two sectors. Predicted probabilities of access to leave from this estimation are then used in the second stage regression in place of observed leave access:

$$pref_{it} = \beta_0 + \beta_1 \widehat{leave}_{it} + \beta_2 X_{it} + \varepsilon_{it}$$

In this specification, β_1 will provide a causal estimate of the effect of access to paid parental leave on fertility intentions if a number of assumptions hold. First, the instrument (being in the private sector after the scheme's announcement or implementation) must strongly predict access to leave. Below, we show that this is the case. Second, the instrument must only affect fertility intentions through its effect on access to paid leave, conditional on the regressors included in X_{it}. One part of satisfying this assumption is that the first stage identifies a shift in leave access caused by the announcement of the PPL scheme. Our approach takes women working in the private sector as our treatment group – those women who were more affected by the scheme's introduction – and women working in the public sector as the control group. So, paid leave access trends between these two groups should be similar apart from at the PPL scheme's announcement. If this were not the case, some of the increase in leave availability we attribute to the scheme's announcement may reflect differences in the growth rate of employer-provided paid parental leave. Moreover, any trends in fertility intentions should be comparable across the two groups before the scheme's announcement. Given a number of years of data from before the scheme's announcement, we are able to test this, and cannot reject the assumption of common trends for either leave access or fertility intentions in the pre-scheme period. These results are shown in section 6.4.

A further threat to this assumption is that the PPL scheme may have encouraged women to change employment sector, in the knowledge that they would now have the opportunity to receive paid parental leave in any job. For example, if women with strong future fertility intentions initially select into a public sector job due to paid parental leave availability, the announcement of the PPL scheme may have encouraged some of these women to seek employment opportunities in the private sector, thus causing fertility intentions to increase in the private sector due to sector switching rather than leave availability. We include a set of industry indicators in X_{it} to control for this, and we investigate this assumption further in section 6.5.

Finally, the instrument must satisfy monotonicity – it must (weakly) increase access to leave for all women. One cause for concern could be that some employers who provided paid maternity leave prior to the scheme's introduction could remove this entitlement in response to the publicly funded scheme, leaving some previously covered women (either working few hours or earning in excess of the threshold) without paid parental leave access. Employer surveys from before and after the scheme's introduction find that some employers modify their parental leave benefits in response to the new scheme, but that this generally takes the form of redesigning their benefits to complement or top-up the

statutory scheme. No employer in the survey reports removing their paid leave provision (Martin et al. 2014a). This suggests that the monotonicity assumption is reasonable.

5 Data

We use data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey. Wave 1 of HILDA was collected in 2001 and surveyed 7,682 randomly selected households containing 19,914 people. These respondents have been interviewed annually since 2001, answering questions covering a broad range of demographic, economic and social topics.[8] Our estimation sample consists of employed women aged 21 to 45 who answer a set of questions about their fertility intentions and their access to employer-provided paid maternity leave.

Fertility intentions are measured by responses to three questions. First, respondents are asked "How do you feel about having a child/more children in the future?" on a scale from 0 to 10, with higher scores indicating higher certainty that more children are wanted. We interpret this as a measure of *fertility desires*. Second, respondents are asked to indicate how likely they are to have a child or more children in the future on a scale from 0 to 10. This is our measure of *fertility intentions*.[9] If the response to this second question is 6 or higher, the respondent is then asked how many (more) children they intend to have – the *intended number* of children. Our focus on the response to these questions means that we exclude data from waves 5, 8 and 11 due to differences in the criteria used to determine who is asked these questions making the responses non-comparable.[10]

A further critical response for our analysis is whether the woman is able to access paid maternity leave from her employer. This question is part of a battery of questions about employer-provided entitlements. From wave 2 onward, these questions ask whether "you, or or other employees working at a similar level to you at your workplace" would be able to use the entitlement if needed. In contrast, in wave 1 the question is limited to whether the respondent would personally have access to the entitlement, and so wave 1 is excluded from our analysis. Moreover, not all respondents report knowing whether they (or other

[8] An extension sample was included from 2011 – we exclude these individuals from our analysis as this is after the announcement and implementation of the PPL scheme.

[9] Whilst some research distinguishes between fertility expectations and intentions, they are generally empirically equivalent in practice (Iacovou and Tavares 2011).

[10] In waves 5, 8 and 11 a rotating module on 'fertility and family' appeared in the HILDA survey, including the fertility intention questions. Before this rotating module, respondents were warned that the questions were personal and they were free to refuse to answer at any time. Consequently there are more refusals in these waves. Additionally, the fertility intention questions were only asked to respondents who reported that they and their partner had not been sterilized. By excluding women who are sterilized, those women who do answer have disproportionately high fertility desires and intentions compared with other waves. The number of children question is asked to all non-sterilized respondents in waves 5, 8 and 11, instead of being restricted to those answering 6 or higher to the fertility intentions question, and so these responses are also not comparable across waves.

similar employees) have access to paid maternity leave: 17% of respondents report that they don't know.[11] For our main analysis, we exclude these 'don't know' responses, and in section 6.3 we provide robustness checks including these 'don't know' responses under various assumptions.

Table 1 provides summary statistics for the analysis sample, in aggregate and split into those working in the public or private sector. After excluding observations with missing data, we have 13366 observations for 4339 individuals. Public sector workers in the sample are on average slightly older, more educated, have higher incomes, and have more children than their private sector counterparts. Controlling for these characteristics in our analysis is crucial as age, education and changes in fertility and relationship status are important determinants of fertility desires and intentions (Hagewen and Morgan 2005; Liefbroer 2009; Iacovou and Tavares 2011; Gray et al. 2013).

Our sample gives estimates of coverage that are broadly in line with estimates from Australian Bureau of Statistics (ABS) survey data: estimates reported in the Productivity Commission's Inquiry Report suggest that paid maternity leave was available to 41% of working women in 2002, 44% in 2004 and 54% in 2007; our comparable estimates are 42%, 48% and 54% (Productivity Commission 2009). Figures 1 illustrates these trends in access to employer-provided paid maternity leave by employment sector. Public sector workers are around twice as likely to have access to paid maternity leave than private sector workers. This difference is persistent over time, though there is an upward trend in provision, particularly in the lead up to the PPL scheme's announcement. Figure 2 illustrates the trends in access to any paid leave, incorporating paid leave provided by the statutory scheme from the time of its announcement. The figure therefore shows *anticipated* access to leave, which we expect to drive changes in fertility desires and intentions. The divergence in trends in this anticipated access at the scheme's announcement, with the large increase in paid parental leave access for women working in the private sector, illustrates the variation we use to identify the impact of paid parental leave on fertility intentions.

6 Results

Results from the OLS and instrumental variables specifications for our main sample are shown in tables 2 to 4. In all three tables, all columns show results from specifications including a full set of year and state of residence indicators, alongside demographic characteristics including age and its square, education, aboriginal status, country of birth and

[11] Survey data from the Australian Bureau of Statistics (ABS) have a similar proportion of 'don't know' responses (16% in 2007), and ABS analysis suggests that these responses are not disproportionately found across a range of demographic and labour market characteristics (Australian Bureau of Statistics 2008). It is therefore suggested that the 'don't know' responses can be inferred to have a similar distribution to those who responded yes or no to the question (Productivity Commission 2009).

marital status indicators. Columns 2 and 5 add the number of children a woman already has and its square, and an indicator for having no children. Individual and household incomes, and a full set of industry indicators are included in columns 3 and 6.

Table 2 presents results for fertility desires. Column 1 suggests that women with access to paid parental leave report a higher desire for children on average – an increase of 0.35 on the 0-10 scale (from an average of 4.8), controlling for time trends, age, education and marital status. However, this correlation is mainly explained by the number of children a woman already has, as demonstrated by the much smaller and statistically insignificant coefficients in columns 2 and 3. This may reflect the sorting of women who are yet to have children (and so have higher fertility intentions) into jobs that provide paid maternity leave. The IV results in columns 4 to 6 find no evidence of a significant impact of paid leave access on fertility desires. Results for fertility intentions, shown in table 3 show a similar pattern: the observed correlation between paid leave access and fertility intentions is entirely explained by the number of existing children a woman has, again suggesting that women select into jobs offering paid maternity leave on the basis of their fertility intentions. IV results in columns 4 to 6 are again statistically insignificant, suggesting that access to paid parental leave has no effect on women's fertility intentions at the extensive margin.

Table 4 gives results for our third outcome: the intended number of children (conditional on a high fertility intention). Once the existing number of children is controlled for, women with access to paid leave do not intend to have more children on average than women without leave. However, the instrumental variables results in columns 4 to 6 reveal a different result: exploiting the fact that the statutory PPL scheme had a much larger impact on paid leave access for women working in the private sector than those working in the public sector we see that having access to paid parental leave increases the intended number of children by 0.28, even after controlling for the number of existing children, income and industry. This is a 13% increase relative to the sample average intended number of children. This implies that access to paid leave increases fertility intentions at the intensive margin.

The validity of the IV results depends on the assumptions discussed above. The first stage of the IV regressions allows us to test whether our instrument is strong. Tables 2 to 4 report first stage F-statistics for these regressions ranging from 351 to 846, indicating a strong instrument. The full first-stage regressions are reported in table 5. Columns 1 to 3 give the first stage regressions corresponding to columns 4 to 6 of tables 2 and 3, whilst columns 4 to 6 correspond to table 4. These estimates show that being in the private sector after the announcement of the PPL scheme is linked to a highly statistically significant 42 percentage point increase in the likelihood of access to any paid leave, consistent across all specifications. This extremely strong first stage response is illustrated in figure 2, showing the strong convergence of paid leave access across the private and public sectors. Table 5

further shows that employment sector is one of the only strong predictors of access to paid leave in the sample. There is little variation by education or marital status, with some evidence of women without children being more likely to have access to paid parental leave.

6.1 Estimates around the scheme's implementation

Results presented so far have focused on the impact of the PPL scheme's announcement on anticipated leave access and on to fertility desires and intentions. We may also see a response in intentions after the scheme's implementation in 2011. Table 6 reports IV results analogous to those in tables 2 to 4 considering contemporaneous access to any paid leave instead of anticipated access caused by the scheme's announcement. There is a reduction in instrument strength in these results, and generally a reduction in the point estimates. Panel A shows that there are no statistically significant effects on fertility desires or intentions, consistent with the main results presented above. The coefficients for estimates of the effect of paid leave access on the intended number of children reported in Panel B are in line with those in table 4, but do not reach statistical significance. This reinforces the magnitude of the effect found above, and supports the announcement of the statutory scheme as the relevant time for the scheme's impact on fertility intentions.

6.2 Heterogeneity across groups

The results described above pool the complete sample of working women aged 21 to 45. Tables 7 and 8 split the sample by the presence of children and education level to gain further insight into which groups are driving the effects of paid parental leave access on the intensive margin of fertility intentions.

Table 7 divides the sample into observations where women have had at least one child and those who are yet to have a child and presents IV results with the full set of control variables for our three outcomes. For each outcome, the magnitude of the estimated effect of access to paid parental leave is substantially higher for women with no children. In particular, for the intended number of children the estimated effect of paid leave access is only significant for women without children, where access causes an increase in the intended number of children of 0.34, a 15% increase for the group.

Table 8 splits the women into groups based on education. The first line presents IV results for our three outcomes with the full set of controls for women with Year 12 education or less.[12] None of the IV estimates are statistically significant in this subsample. In contrast, the second part of table 8 shows estimates for women with education beyond Year 12, and shows that the effect of paid leave access on the intensive margin of

[12]This is roughly equivalent to the sample of high school graduates and drop outs.

fertility intentions occurs among these more highly educated women. Women without children are more likely to be in this more highly educated, career-oriented group even after conditioning on age and marital status.

6.3 Including women uncertain about leave availability

Our main results presented above exclude observations where women respond 'don't know' when asked whether they, or others in their position at their employer, have access to paid maternity leave. This allows us to infer the impact of the PPL scheme on leave access. However, if women who do not know whether they have access to paid leave have systematically different fertility desires and intentions compared to women who know their leave status then our results will be biased. For example, women who do not want or intend to have children may not be aware of their eligibility for paid maternity leave and other family-friendly workplace benefits, and their fertility intentions are unlikely to respond to the availability of paid leave. If these unaware and uninterested women are concentrated in the private sector and do not have access to paid maternity leave, we may underestimate the impact of the PPL scheme's announcement on leave access in the private sector and at the same time overestimate the responsiveness of fertility intentions. This will lead our IV estimates of the impact of paid leave access to be biased upwards.

To test whether our results are robust to including women who answer 'don't know' when asked about paid maternity leave, we include them under two scenarios. First, we assume that all women answering 'don't know' do in fact have access to paid maternity leave, minimising the impact of the statutory PPL scheme. We then assume that these women don't have access to leave. Estimates of our main results under these two assumptions then provide estimates reflecting two extremes of measurement error.

Table 9 reports these results. For all three outcomes the two extreme assumptions generate estimates that bound the point estimates of our main results. The significant impact of access to leave on the intensive margin of fertility intentions is retained under both assumptions: access to paid parental leave increases the intended number of children by between 0.26 and 0.39, compared to our main estimate of 0.28.

6.4 Placebo tests

The validity of the results presented in this section relies upon there being no differences in pre-existing trends in either access to paid maternity leave or fertility intentions and desires. Since our sample spans 2002-2013, we can use the pre-announcement data to perform placebo tests – in effect, to test whether there is any difference in these outcomes between public and private sector workers in the years prior to the 2009 announcement. Tables 10 and 11, and figures 3 and 4 show results from these tests.

Table 10 presents selected coefficients from the baseline first-stage regression (column 1) and from the placebo test regression (column 2). In the placebo test, a series of additional regressors are added beyond the selected instrument (the interaction of being in the private sector after the PPL scheme announcement). These additional regressors interact the private sector indicator with wave indicators for each wave prior to the announcement.[13] If there are pre-existing differences in the trends of paid maternity leave access prior to the scheme's announcement, estimated coefficients on these additional regressors will be significantly different from zero. Table 10 shows that this is not the case: we cannot reject the hypothesis that trends in anticipated paid maternity leave access were common for public and private sector workers prior to the PPL scheme's announcement. These coefficients are illustrated in figure 3, demonstrating the clear differential impact of the announcement of the PPL scheme on leave access and no difference in trends in the prior period.

To perform similar placebo tests for fertility desires and intentions, we perform reduced form regressions.[14] These directly estimate the effect of being in the private sector after the announcement of the PPL scheme on fertility desires and intentions. This approach allows us to add the same 'placebo' regressors as in the first stage placebo test above. Again, if any of these placebo regressor coefficients is statistically significant, this indicates differences in the trends of the fertility outcome in the period before the scheme's announcement, and so would cast doubt on the estimates presented above.

Table 11 presents regression results, both for baseline reduced-form regressions and the full placebo tests. None of the placebo regressor coefficients are statistically significant, and the reduced form estimates of the effect of paid parental leave access on fertility desires and intentions are insignificantly different from zero, consistent with the IV estimates above. For the intended number of children (the intensive margin of fertility intentions), the statistically significant effect persists when the placebo regressors are introduced and none of the placebo coefficients are statistically significant. This provides some confidence that the significant impact of paid parental leave access on the intended number of children is identified by exogenous variation in paid leave access driven by the PPL scheme's differential impact on workers in the public and private sectors. Figure 4 illustrates the reduced form coefficients from the placebo test.

6.5 Sector switching and participation decisions

A further threat to these estimates is that they could be driven by women changing their sector of work, or entering or leaving the labour market, in response to the PPL scheme's announcement. For example, if public sector workers with high fertility preferences move

[13] Excluding the interaction with wave 2 to avoid collinearity.

[14] That is, we estimate the following: $pref_{it} = \beta_0 + \beta_1 prisec * post + \beta_3 X_{it} + \varepsilon_{it}$. β_1 is the reduced form coefficient.

to private sector jobs in response to the PPL scheme's introduction, this would increase fertility intentions in the private sector and reduce fertility intentions in the public sector resulting in a positive estimated effect of paid parental leave access under our empirical strategy that does not reflect a true increase in fertility intentions. Similarly, if the PPL scheme causes higher fertility preference non-working women to enter the labour force and disproportionately choose private sector jobs, the same problem may arise. As our data are drawn from a panel, we can evaluate whether such mechanisms contribute to our results.

We perform a series of tests of whether women's stated fertility desires and intentions in 2007 (the last wave of data before the PPL scheme's announcement) are correlated with the propensity to change sectors or to enter or exit the labour force. We distinguish between 'sector leavers' and 'sector joiners' for each sector, including women who either join or leave the labour force. For a given sector, we test whether future sector leavers and joiners have significantly different fertility desires and intentions in 2007 relative to those remaining in the same sector. Any significant differences would indicate the possibility of bias in the results presented above as the average fertility preferences in the two sectors would have changed due to the leavers and joiners.

Table 12 presents results for these tests. We consider a woman a sector leaver if she is *ever* observed not working in that sector in the post-announcement waves (either not working, or working in the other sector). Comparably, a woman is a sector joiner if she does not work in the sector in 2007 (pre-announcement), but is *ever* observed working in that sector after the scheme's announcement.[15] For each of our outcome variables, we estimate whether there is a difference between average fertility preferences in the original group and the group of leavers or joiners. Any significant difference would indicate that the leavers and joiners changed average fertility intentions in the sector, contaminating the above results.[16]

These results indicate that private sector workers who either leave the labour force, or switch to a public sector job have higher fertility desires and (extensive margin) intentions than private sector workers who remain. So, the workers leaving the sector will, other things being equal, reduce average fertility desires and intentions in the private sector. With no other significant differences in sector leavers and joiners for these outcomes, this suggests that the estimate of no impact of paid parental leave access on these outcomes reported above is a lower bound for this impact: if all workers stayed in the sector, these reported preferences would be higher.

[15]We reach the same conclusions if we instead consider the proportion of observations the woman is observed to be a sector leaver or joiner.

[16]We consider fertility intentions in wave 7 as any changes after the announcement of the PPL scheme could be driven by the scheme's announcement. For example, women entering the labour market and taking a private sector job in 2010 could have higher fertility intentions than existing private sector workers and these higher intentions could have been caused by the scheme's introduction.

For the intended number of children, we see no significant difference in the average conditional-on-positive number for workers leaving or joining either the public or private sector. This supports the interpretation of the above estimate as the causal impact of access to paid parental leave on the number of children a woman intends to have.

7 Conclusion

The existing body of research on the fertility impact of paid parental leave largely examines national policy changes in countries with existing, generous paid leave schemes (Lalive and Zweimüller 2009; Malkova 2014; Raute 2014; Stichnoth 2014). In this paper, we consider the introduction of a relatively modest paid leave scheme and examine its impact on fertility desires and intentions. We exploit the fact that the scheme's introduction had a large impact on paid parental leave access for women working in the private sector, but comparatively little effect on having *any* leave access for public sector workers to identify plausibly exogenous variation in paid leave access. We find that access to any paid parental leave has no significant effect on fertility desires or expectations at the extensive margin. Conditional on expecting to have at least one more child, access to paid leave increases the number intended by 0.28, a 13% increase. These results are not driven by changes in employment status or sector in response to the scheme's announcement.

This result is driven by the fertility intentions of more highly educated women and those who do not yet have children. These women are more likely to be concerned with combining work and childbearing. Moreover, this is a local average treatment effect: it is the effect of access to any paid leave for working women who gained access as a result of being in the private sector after the scheme's announcement. That is, it is the average effect among women working in the private sector who did not have employer-provided paid parental leave. This is an estimate of particular interest if we wish to consider the introduction of such a scheme in an alternative setting.

Whilst stated fertility intentions and desires are not perfect predictors of fertility rates (Morgan 2001), a large body of research shows that fertility intentions are an informative signal of eventual fertility beyond observable characteristics (Schoen et al. 1999; Berrington 2004). Accordingly, we expect that increased intentions will be followed by an increase in realized fertility in the future. Thus, despite not being intended as a pronatalist policy, the PPL scheme may lead to increased fertility. Since Australia's birth rate is currently below replacement at 1.9 (OECD 2015a), this can be interpreted as an added bonus rather than an unwanted side effect of the program.[17]

In an international context, these results demonstrate the potential for even modest paid parental leave schemes to have fertility impacts. With discussions about a possible

[17]Indeed, when a more generous variation of the PPL scheme was proposed by the Australian government in 2013, then-leader Tony Abbott expressed hope it would lead to a baby boom (Griffiths 2013).

federal scheme in the United States, both through local initiatives encouraged by the Department of Labor (United States Department of Labor 2015) and policy positions in the 2016 US Presidential campaign (Peck 2016), understanding the potential impacts of this modest PPL scheme provides important evidence for the design and potential benefits of a similar scheme elsewhere.

References

Adema, C. C., W., & Frey, V. (2015). *Paid parental leave: lessons from oecd countries and selected u.s. states*.

Ang, X. L. (2014). The effects of cash transfer fertility incentives and parental leave benefits on fertility and labor supply: evidence from two natural experiments. *Journal of Family and Economic Issues*, 1–26.

Australian Bureau of Statistics. (2008). *Australian labour market statistics* (tech. rep. No. 6105.0).

Avendano, M., Berkman, L. F., Brugiavini, A., & Pasini, G. (2015). The long-run effect of maternity leave benefits on mental health: evidence from european countries. *Social Science & Medicine*, *132*, 45–53.

Averett, S. L., & Whittington, L. A. (2001). Does maternity leave induce births? *Southern Economic Journal*, 403–417.

Baird, M., & Whitehouse, G. (2012). Paid parental leave: first birthday policy review. *Australian Bulletin of Labour*, *38*(3), 184.

Baird, M., Whelan, J., & Page, A. (2009). Paid maternity, paternity and parental leave for australia: an evaluation of the context, evidence and policy options. *Women and Work Research Group, The University of Sydney*.

Bartel, A., Rossin-Slater, M., Ruhm, C., Stearns, J., & Waldfogel, J. (2015). *Paid family leave, fathers leave-taking, and leave-sharing in dual-earner households*.

Bergemann, A., & Riphahn, R. T. (2015). Maternal employment effects of paid parental leave. *IZA Discussion Papers*, (9073).

Berrington, A. (2004). Perpetual postponers? women's, mens and couples fertility intentions and subsequent fertility behaviour. *Population trends*, *117*, 9–19.

Boll, C., Leppin, J., & Reich, N. (2014). Paternal childcare and parental leave policies: evidence from industrialized countries. *Review of Economics of the Household*, *12*(1), 129–158.

Broadway, B., Kalb, G. R., Kuehnle, D., & Maeder, M. (2015). The effect of paid parental leave on child health in australia.

Cannonier, C. (2014). Does the family and medical leave act (fmla) increase fertility behavior? *Journal of Labor Research*, *35*(2), 105–132.

Carneiro, P., Løken, K. V., & Salvanes, K. G. (2015). A flying start? maternity leave benefits and long-run outcomes of children. *Journal of Political Economy*, *123*(2), 365–412.

Dahl, G. B., Løken, K. V., Mogstad, M., & Salvanes, K. V. (2013). *What is the case for paid maternity leave?*

Das, T., & Polachek, S. W. (2015). Unanticipated effects of california's paid family leave program. *Contemporary Economic Policy*.

Department of Social Services. (2014). *Paid parental leave scheme: review report*. Canberra. Retrieved from https://www.dss.gov.au/our-responsibilities/families-and-children/benefits-payments/review-of-the-paid-parental-leave-scheme/paid-parental-leave-review

Drago, R., Sawyer, K., Shreffler, K. M., Warren, D., & Wooden, M. (2011). Did australias baby bonus increase fertility intentions and births? *Population Research and Policy Review*, *30*(3), 381–397.

Ekberg, J., Eriksson, R., & Friebel, G. (2013). Parental leave – a policy evaluation of the swedish "daddy-month" reform. *Journal of Public Economics*, *97*, 131–143.

Gauthier, A. H. (2007). The impact of family policies on fertility in industrialized countries: a review of the literature. *Population Research and Policy Review*, *26*(3), 323–346.

Gauthier, A. H., & Hatzius, J. (1997). Family benefits and fertility: an econometric analysis. *Population studies*, *51*(3), 295–306.

Gray, E., Evans, A., & Reimondos, A. (2013). Childbearing desires of childless men and women: when are goals adjusted? *Advances in life course research*, *18*(2), 141–149.

Griffiths, E. (2013). Coalition paid parental leave policy to start mid-2015, 'fully funded', abbott says. Retrieved from http://www.abc.net.au/news/2013-08-18/coalition-announce-start-date-of-paid-parental-leave-scheme/4894636

Haas, L., & Hwang, C. P. (2008). The impact of taking parental leave on fathers participation in childcare and relationships with children: lessons from sweden. *Community, Work and Family*, *11*(1), 85–104.

Hagewen, K. J., & Morgan, S. P. (2005). Intended and ideal family size in the united states, 1970–2002. *Population and Development Review*, *31*(3), 507–527.

Han, W.-J., Ruhm, C., & Waldfogel, J. (2009). Parental leave policies and parents' employment and leave-taking. *Journal of Policy Analysis and Management*, *28*(1), 29–54.

Hanel, B. (2013). The impact of paid maternity leave on labour market outcomes. *The Economic Record*, *89*(286), 339–366.

Heiland, F., Prskawetz, A., & Sanderson, W. C. (2008). Are individuals desired family sizes stable? evidence from west german panel data. *European Journal of Population/Revue européenne de Démographie*, *24*(2), 129–156.

Huang, R., & Yang, M. (2015). Paid maternity leave and breastfeeding practice before and after california's implementation of the nation's first paid family leave program. *Economics & Human Biology*, *16*, 45–59.

Iacovou, M., & Tavares, L. P. (2011). Yearning, learning, and conceding: reasons men and women change their childbearing intentions. *Population and Development Review*, *37*(1), 89–123.

Lalive, R., & Zweimüller, J. (2009). How does parental leave affect fertility and return to work? evidence from two natural experiments. *The Quarterly Journal of Economics*, *124*(3), 1363–1402.

Lalive, R., Schlosser, A., Steinhauer, A., & Zweimüller, J. (2013). Parental leave and mothers' careers: the relative importance of job protection and cash benefits. *The Review of Economic Studies*, rdt028.

Lichtman-Sadot, S. (2014). The value of postponing pregnancy: californias paid family leave and the timing of pregnancies. *The BE Journal of Economic Analysis & Policy*, *14*(4).

Liefbroer, A. C. (2009). Changes in family size intentions across young adulthood: a life-course perspective. *European Journal of Population/Revue européenne de Démographie*, *25*(4), 363–386.

Maiden, S. (2008). Rudd backs paid maternity leave but won't commit to 18 weeks. Retrieved from http://www.theaustralian.com.au/news/nation/rudd-backs-paid-maternity-leave/story-e6frg6nf-1111117617043

Malkova, O. (2014). *Can maternity benefits have long-term effects on childbearing? evidence from soviet russia*.

Martin, B., Yerkes, M. A., Hewitt, B., Baird, M., Jones, A., Rose, E., ... Xiang, N. (2013). *Paid parental leave evaluation: phase 2 report*.

Martin, B., Hewitt, B., Yerkes, M. A., Xiang, N., Rose, J., & Coles, L. (2014a). *Paid parental leave evaluation: phase 3 report*.

Martin, B., Baird, M., Brady, M., Broadway, B., Hewitt, B., Kalb, G., ... Xiang, N. (2014b). *Ppl evaluation: final report*.

Morgan, S. P., & Rackin, H. (2010). The correspondence between fertility intentions and behavior in the united states. *Population and development review*, *36*(1), 91.

Morgan, S. (2001). Should fertility intentions inform fertility forecasts? the direction of fertility in the united states. *Washington, DC: US Census Bureau*.

Nepomnyaschy, L., & Waldfogel, J. (2007). Paternity leave and fathersinvolvement with their young children: evidence from the american ecls–b. *Community, Work and Family*, *10*(4), 427–453.

OECD. (2015a). Sf2.1: fertility rates. Retrieved from http://www.oecd.org/social/family/SF_2_1_Fertility_rates.pdf

OECD. (2015b). Trends in parental leave policies since 1970. Retrieved from http://www.oecd.org/els/family/PF2_5_Trends_in_leave_entitlements_around_childbirth.pdf

Peck, E. (2016). 2016 candidates are finally taking paid family leave seriously. Retrieved from http://www.huffingtonpost.com/entry/2016-candidates-paid-family-leave_568fd2a5e4b0c8beacf6a529

Productivity Commission. (2009). *Paid parental leave: support for parents with newborn children* (tech. rep. No. 47).

Rasmussen, A. W. (2010). Increasing the length of parents' birth-related leave: the effect on children's long-term educational outcomes. *Labour Economics*, *17*(1), 91–100.

Raute, A. (2014). *Do financial incentives affect fertility – evidence from a reform in maternity leave benefits*.

Risse, L. (2006). Does maternity leave encourage higher birth rates?: an analysis of the australian labour force. *Australian Journal of Labour Economics*, *9*(4), 343.

Rossin-Slater, M., Ruhm, C. J., & Waldfogel, J. (2013). The effects of california's paid family leave program on mothers leave-taking and subsequent labor market outcomes. *Journal of Policy Analysis and Management*, *32*(2), 224–245.

Ruhm, C. J. (2000). Parental leave and child health. *Journal of health economics*, *19*(6), 931–960.

Ruhm, C. (1998). The economic consequences of parental leave mandates: lessons from europe. *Quarterly Journal of Economics*, *113*(1).

Schoen, R., Astone, N. M., Kim, Y. J., Nathanson, C. A., & Fields, J. M. (1999). Do fertility intentions affect fertility behavior? *Journal of Marriage and the Family*, 790–799.

Stearns, J. (2015). The effects of paid maternity leave: evidence from temporary disability insurance. *Journal of Health Economics*.

Stichnoth, H. (2014). Short-run fertility effects of parental leave benefits: evidence from a structural model. *ZEW-Centre for European Economic Research Discussion Paper*, (14-069).

Tanaka, S. (2005). Parental leave and child health across oecd countries. *The Economic Journal*, *115*(501), F7–F28.

Ulker, A., & Guven, C. (2011). Determinants of maternity leave duration in australia: evidence from the hilda survey*. *Economic record*, *87*(278), 399–413.

United States Department of Labor. (2015). Paid leave analysis grants. Retrieved from http://www.dol.gov/wb/media/paidleavegrants.htm

Yu, P., Kippen, R., & Chapman, B. (2007). Births, debts and mirages: the impact of the higher education contribution scheme (hecs) and other factors on australian fertility expectations. *Journal of Population Research*, *24*(1), 73–90.

Figure 1: Access to employer-provided paid parental leave, by sector of employment

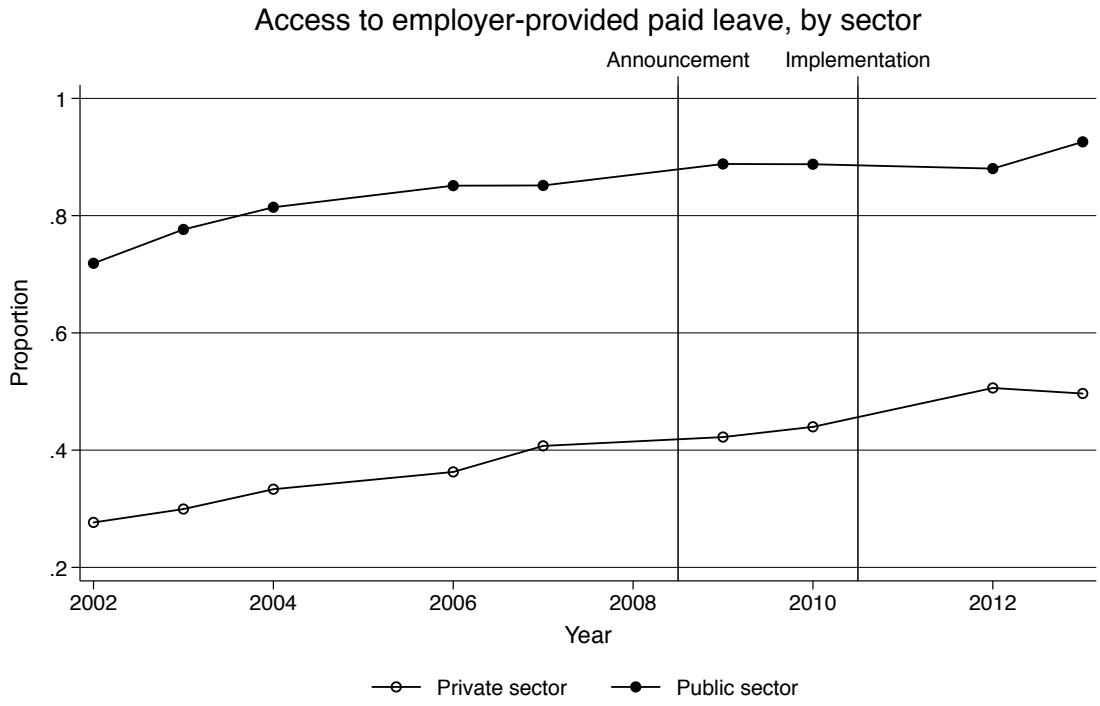

Figure 2: Anticipated access to any paid parental leave, by sector of employment

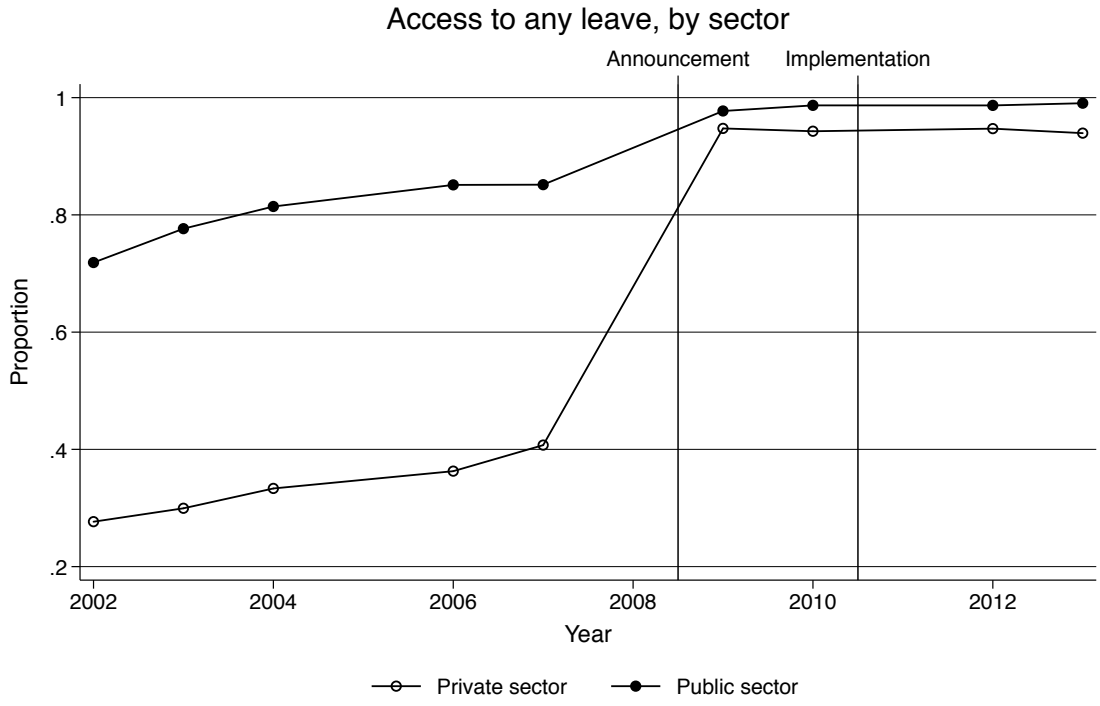

Figure 3: Placebo test illustration: first stage

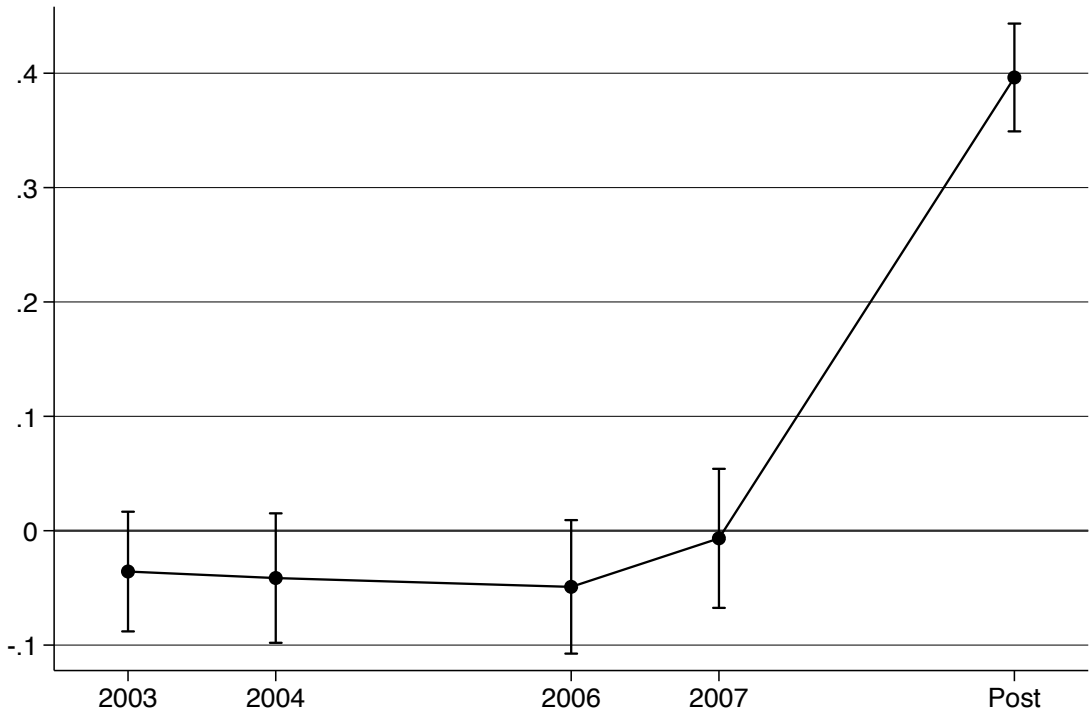

Figure 4: Placebo test illustration: intended number

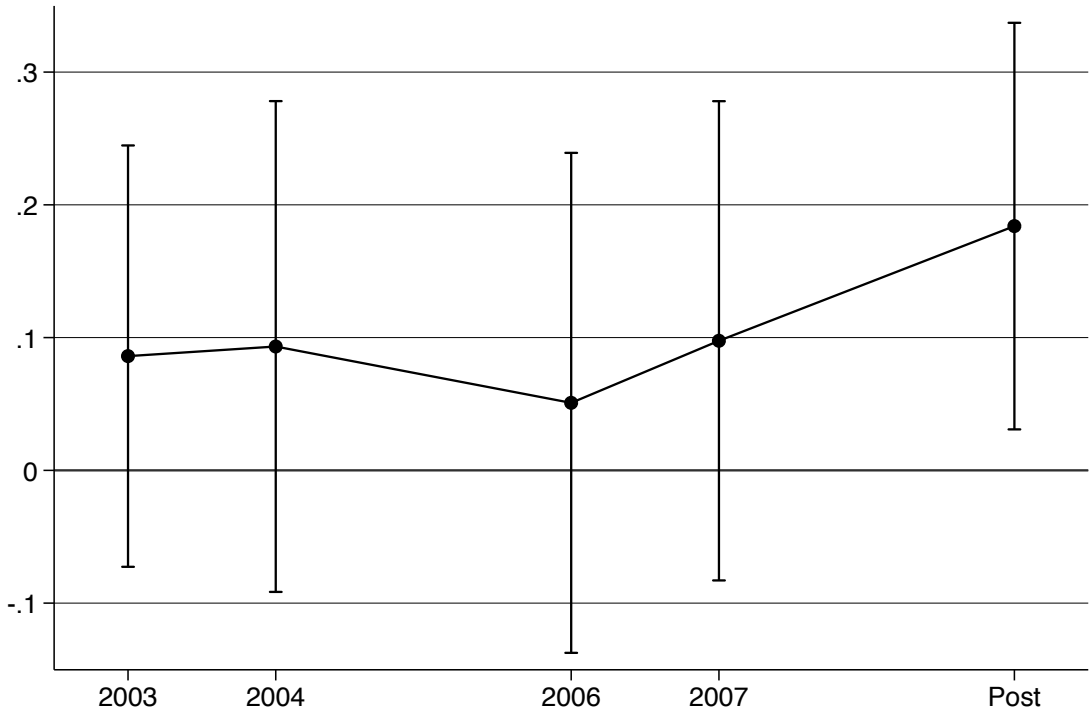

Table 1: Summary statisitics

	All women	Private sector	Public sector
Age	33.31	32.87	34.29
	(7.08)	(7.11)	(6.91)
Number of children	1.16	1.15	1.18
	(1.28)	(1.28)	(1.27)
Education			
Bachelor degree or higher	0.40	0.31	0.59
	(0.49)	(0.46)	(0.49)
Further education	0.27	0.29	0.21
	(0.44)	(0.46)	(0.40)
Year 12	0.18	0.21	0.12
	(0.38)	(0.41)	(0.33)
Year 11 or lower	0.16	0.19	0.09
	(0.36)	(0.39)	(0.28)
Marital status			
Married	0.50	0.50	0.52
	(0.50)	(0.50)	(0.50)
De facto	0.22	0.22	0.22
	(0.41)	(0.41)	(0.41)
Separated/Divorced/Widowed	0.07	0.07	0.07
	(0.25)	(0.25)	(0.26)
Never married	0.21	0.22	0.19
	(0.41)	(0.41)	(0.39)
Country of birth			
Australia	0.84	0.83	0.86
	(0.37)	(0.38)	(0.35)
Other English speaking	0.07	0.07	0.07
	(0.25)	(0.26)	(0.25)
Other non-English speaking	0.09	0.10	0.07
	(0.29)	(0.30)	(0.26)
Individual income ($000)	51.50	48.82	57.49
	(43.53)	(45.15)	(39.01)
Household income ($000)	122.03	119.61	127.45
	(89.06)	(93.20)	(78.76)
Employer paid maternity leave	0.53	0.39	0.84
	(0.50)	(0.49)	(0.37)
Fertility intentions			
Fertility desires (1-10 scale)	4.79	4.86	4.62
	(4.28)	(4.29)	(4.26)
Fertility intentions (1-10 scale)	4.14	4.23	3.92
	(4.14)	(4.16)	(4.08)
Additional number intended	2.11	2.12	2.07
	(0.84)	(0.85)	(0.81)
Observations	13366	9241	4125
Individuals	4339	3473	1460

Standard deviations in parentheses.

Table 2: Effect of paid parental leave access on fertility desires

	OLS			IV		
	(1)	(2)	(3)	(4)	(5)	(6)
Access to leave	0.346***	0.125	0.088	0.603	0.386	0.420
	(0.094)	(0.087)	(0.088)	(0.352)	(0.320)	(0.319)
Age	0.094	0.180**	0.176**	0.091	0.176**	0.174**
	(0.059)	(0.055)	(0.056)	(0.059)	(0.055)	(0.055)
Age^2	-0.007***	-0.007***	-0.007***	-0.007***	-0.007***	-0.007***
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*	*(0.001)*	*(0.001)*
Education *(reference group: less than Year 12)*						
Bachelors or higher	1.403***	0.813***	0.660***	1.404***	0.807***	0.658***
	(0.142)	(0.134)	(0.145)	(0.149)	(0.140)	(0.146)
Further education	0.600***	0.360**	0.294*	0.597***	0.356**	0.287*
	(0.144)	(0.129)	(0.131)	(0.144)	(0.130)	(0.131)
Completed Year 12	0.809***	0.556***	0.501***	0.805***	0.551***	0.499***
	(0.159)	(0.144)	(0.144)	(0.160)	(0.144)	(0.144)
Marital status *(reference group: married)*						
De Facto	0.841***	-0.116	-0.098	0.839***	-0.112	-0.093
	(0.120)	(0.121)	(0.120)	(0.120)	(0.120)	(0.120)
Separated/Widowed	-0.473**	-0.678***	-0.653***	-0.476**	-0.681***	-0.655***
	(0.159)	(0.148)	(0.155)	(0.158)	(0.148)	(0.154)
Never married	0.385**	-0.913***	-0.870***	0.377**	-0.912***	-0.871***
	(0.135)	(0.133)	(0.134)	(0.135)	(0.133)	(0.133)
No. of children		-2.826***	-2.828***		-2.825***	-2.828***
		(0.341)	(0.342)		(0.342)	(0.342)
No. of $children^2$		0.331***	0.330***		0.332***	0.331***
		(0.066)	(0.066)		(0.066)	(0.066)
Childless		-1.346***	-1.377***		-1.362***	-1.393***
		(0.381)	(0.381)		(0.381)	(0.382)
Year fixed effects	✔	✔	✔	✔	✔	✔
State fixed effects	✔	✔	✔	✔	✔	✔
Income measures			✔			✔
Industry indicators			✔			✔
Observations	13366	13366	13366	13366	13366	13366
Individuals	4339	4339	4339	4339	4339	4339
First stage F-statistic				846.371	830.801	838.845

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Indicators for country of birth and Aboriginal/Torres Strait Islander status included

Income measures: personal income, household income and their squares.

Industry indicators: set of 19 indicators for ANZSIC 2006 Division codes.

Table 3: Effect of paid parental leave access on fertility intentions

	OLS			IV		
	(1)	(2)	(3)	(4)	(5)	(6)
Access to leave	0.202*	-0.006	-0.056	0.484	0.272	0.296
	(0.082)	(0.075)	(0.076)	(0.321)	(0.290)	(0.289)
Age	-0.209***	-0.116*	-0.132**	-0.211***	-0.120*	-0.134**
	(0.054)	(0.050)	(0.051)	(0.054)	(0.050)	(0.051)
Age^2	-0.003***	-0.003***	-0.002***	-0.003**	-0.003***	-0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Education *(reference group: less than Year 12)*						
Bachelors or higher	1.351***	0.798***	0.631***	1.346***	0.787***	0.628***
	(0.118)	(0.111)	(0.121)	(0.124)	(0.116)	(0.121)
Further education	0.579***	0.356**	0.282*	0.573***	0.350**	0.275*
	(0.121)	(0.110)	(0.112)	(0.121)	(0.111)	(0.112)
Completed Year 12	0.768***	0.537***	0.475***	0.762***	0.530***	0.473***
	(0.136)	(0.124)	(0.124)	(0.137)	(0.124)	(0.124)
Marital status *(reference group: married)*						
De Facto	0.785***	-0.125	-0.115	0.783***	-0.122	-0.110
	(0.108)	(0.110)	(0.109)	(0.108)	(0.109)	(0.109)
Separated/Widowed	-0.549***	-0.738***	-0.738***	-0.553***	-0.742***	-0.739***
	(0.115)	(0.112)	(0.120)	(0.115)	(0.112)	(0.120)
Never married	-0.107	-1.343***	-1.312***	-0.115	-1.342***	-1.313***
	(0.117)	(0.118)	(0.118)	(0.117)	(0.117)	(0.118)
No. of children		-2.548***	-2.543***		-2.548***	-2.543***
		(0.319)	(0.318)		(0.319)	(0.318)
No. of children^2		0.309***	0.307***		0.310***	0.308***
		(0.062)	(0.062)		(0.062)	(0.062)
Childless		-0.990**	-1.030**		-1.007**	-1.046**
		(0.351)	(0.351)		(0.352)	(0.351)
Year fixed effects	✔	✔	✔	✔	✔	✔
State fixed effects	✔	✔	✔	✔	✔	✔
Income measures			✔			✔
Industry indicators			✔			✔
Observations	13366	13366	13366	13366	13366	13366
Individuals	4339	4339	4339	4339	4339	4339
First stage F-statistic				846.371	830.801	838.845

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Indicators for country of birth and Aboriginal/Torres Strait Islander status included

Income measures: personal income, household income and their squares.

Industry indicators: set of 19 indicators for ANZSIC 2006 Division codes.

Table 4: Effect of paid parental leave access on intended number of children

	OLS			IV		
	(1)	(2)	(3)	(4)	(5)	(6)
Access to leave	0.111***	0.048	0.046	0.377**	0.292*	0.283*
	(0.033)	(0.032)	(0.033)	(0.129)	(0.121)	(0.120)
Age	0.011	0.020	0.032	0.001	0.011	0.027
	(0.027)	(0.025)	(0.025)	(0.028)	(0.025)	(0.026)
Age^2	-0.001**	-0.001*	-0.001**	-0.001*	-0.001*	-0.001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education *(reference group: less than Year 12)*						
Bachelors or higher	0.294***	0.168***	0.160**	0.294***	0.169***	0.166***
	(0.049)	(0.046)	(0.049)	(0.051)	(0.049)	(0.050)
Further education	0.183***	0.110*	0.108*	0.184***	0.112*	0.111*
	(0.054)	(0.050)	(0.049)	(0.055)	(0.051)	(0.050)
Completed Year 12	0.274***	0.210***	0.201***	0.276***	0.213***	0.207***
	(0.055)	(0.051)	(0.050)	(0.056)	(0.052)	(0.051)
Marital status *(reference group: married)*						
De Facto	0.098**	-0.065*	-0.063	0.095**	-0.063*	-0.061
	(0.034)	(0.032)	(0.033)	(0.034)	(0.032)	(0.032)
Separated/widowed	0.072	-0.006	0.011	0.057	-0.019	0.000
	(0.078)	(0.075)	(0.078)	(0.081)	(0.078)	(0.080)
Never married	0.265***	0.059	0.055	0.258***	0.059	0.053
	(0.043)	(0.041)	(0.042)	(0.043)	(0.041)	(0.042)
No. of children		-0.154**	-0.162**		-0.158**	-0.169**
		(0.055)	(0.055)		(0.056)	(0.056)
No. of $children^2$		0.024**	0.024**		0.025**	0.026**
		(0.009)	(0.009)		(0.010)	(0.009)
Childless		0.581***	0.589***		0.558***	0.569***
		(0.060)	(0.061)		(0.062)	(0.062)
Year fixed effects	✔	✔	✔	✔	✔	✔
State fixed effects	✔	✔	✔	✔	✔	✔
Income measures			✔			✔
Industry indicators			✔			✔
Observations	5312	5312	5312	5312	5312	5312
Individuals	2293	2293	2293	2293	2293	2293
First stage F-statistic				359.319	350.967	361.989

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Indicators for country of birth and Aboriginal/Torres Strait Islander status included

Income measures: personal income, household income and their squares.

Industry indicators: set of 19 indicators for ANZSIC 2006 Division codes.

Table 5: First stage. Dependent variable: (anticipated) access to any paid parental leave

	Full sample			Intended number sample		
	(1)	(2)	(3)	(4)	(5)	(6)
Private sector*post	0.427***	0.424***	0.424***	0.420***	0.416***	0.418***
	(0.015)	(0.015)	(0.015)	(0.022)	(0.022)	(0.022)
Private sector	-0.456***	-0.454***	-0.408***	-0.434***	-0.432***	-0.398***
	(0.015)	(0.015)	(0.017)	(0.022)	(0.022)	(0.024)
Age	0.011	0.015*	0.008	0.044***	0.044***	0.024
	(0.006)	(0.006)	(0.006)	(0.013)	(0.013)	(0.013)
Age^2	-0.000	-0.000*	-0.000	-0.001**	-0.001**	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Education *(reference group: less than Year 12)*						
Bachelors or higher	0.072***	0.055***	0.023	0.041	0.024	-0.015
	(0.015)	(0.015)	(0.015)	(0.026)	(0.026)	(0.026)
Further education	0.026	0.019	0.004	0.002	-0.008	-0.025
	(0.015)	(0.015)	(0.014)	(0.026)	(0.026)	(0.025)
Completed Year 12	0.026	0.019	0.004	0.003	-0.005	-0.023
	(0.016)	(0.016)	(0.016)	(0.028)	(0.027)	(0.026)
Marital status *(reference group: married)*						
De Facto	0.010	-0.013	-0.008	0.013	-0.006	-0.002
	(0.011)	(0.011)	(0.011)	(0.014)	(0.014)	(0.014)
Separated/widowed	0.014	0.011	-0.000	0.070	0.064	0.052
	(0.017)	(0.017)	(0.017)	(0.049)	(0.048)	(0.050)
Never married	0.030*	-0.002	0.007	0.024	-0.000	0.013
	(0.013)	(0.013)	(0.013)	(0.017)	(0.017)	(0.017)
No. of children		-0.005	0.002		-0.013	-0.002
		(0.014)	(0.014)		(0.031)	(0.030)
No. of $children^2$		-0.003	-0.003		-0.005	-0.005
		(0.002)	(0.002)		(0.004)	(0.004)
Childless		0.051*	0.046*		0.059	0.044
		(0.020)	(0.020)		(0.034)	(0.034)
Year fixed effects	✔	✔	✔	✔	✔	✔
State fixed effects	✔	✔	✔	✔	✔	✔
Income measures			✔			✔
Industry indicators			✔			✔
Observations	13366	13366	13366	5312	5312	5312
Individuals	4339	4339	4339	2293	2293	2293

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Indicators for country of birth and Aboriginal/Torres Strait Islander status included

Income measures: personal income, household income and their squares.

Industry indicators: set of 19 indicators for ANZSIC 2006 Division codes.

Table 6: Implementation effects

	IV estimates		
	(1)	(2)	(3)
A: Fertility desires and intentions			
Fertility desires	0.712	0.276	0.343
	(0.544)	(0.498)	(0.497)
Fertility intentions	0.219	-0.210	-0.159
	(0.505)	(0.465)	(0.464)
Observations	13366	13366	13366
Individuals	4339	4339	4339
First stage F-statistic	576.217	557.137	550.494
B: Intended number of children			
Intended number of children	0.484*	0.313	0.286
	(0.206)	(0.195)	(0.195)
Observations	5312	5312	5312
Individuals	2293	2293	2293
First stage F-statistic	234.976	221.149	220.133
Year fixed effects	✔	✔	✔
State fixed effects	✔	✔	✔
Age, education	✔	✔	✔
Marital status	✔	✔	✔
Existing children		✔	✔
Income measures			✔
Industry indicators			✔

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Other regressors: country of birth, Aboriginal/Torres Strait Islander status.

Table 7: Results by presence of children

	Desires	Intentions	Intended number
One or more children	0.128	0.023	0.045
	(0.430)	(0.363)	(0.194)
Observations	7277	7277	1157
Individuals	2455	2455	747
First stage F-statistic	457.429	457.429	97.318
No children	0.654	0.607	0.340*
	(0.467)	(0.443)	(0.142)
Observations	6089	6089	4155
Individuals	2393	2393	1906
First stage F-statistic	388.935	388.935	269.918

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Regressors as in column 3 of tables 2-5

Table 8: Results by education level

	Desires	Intentions	Intended number
Year 12 or less	0.888	0.843	0.091
	(0.704)	(0.667)	(0.281)
Observations	4503	4503	1536
Individuals	1779	1779	815
First stage F-statistic	169.079	169.079	72.924
Beyond Year 12	0.288	0.254	0.334*
	(0.377)	(0.336)	(0.140)
Observations	8863	8863	3776
Individuals	2826	2826	1613
First stage F-statistic	588.078	588.078	264.394

Standard errors clustered at the individual level in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Regressors as in column 3 of tables 2-5

Table 9: Including women who answer 'don't know'

	Desires	Intentions	Intended number
Don't know = yes	0.561	0.352	0.386*
	(0.406)	(0.365)	(0.162)
First stage F-statistic	580.242	580.242	235.221
Don't know = no	0.393	0.246	0.261*
	(0.284)	(0.255)	(0.109)
First stage F-statistic	1064.910	1064.910	502.640
Observations	16194	16194	6396
Individuals	4804	4804	2567

Standard errors clustered at the individual level in parentheses.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Regressors as in column 3 of tables 2-5

Table 10: Reduced form and placebo test – first stage

	(1) Baseline	(2) Placebo test
Private sector*post	0.424***	0.396***
	(0.015)	(0.024)
Private sector*wave 3		-0.036
		(0.027)
Private sector*wave 4		-0.041
		(0.029)
Private sector*wave 6		-0.049
		(0.030)
Private sector*wave 7		-0.007
		(0.031)
Observations	13366	13366
Individuals	4339	4339

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Regressors as in column 3 of tables 2-5

Table 11: Reduced form and placebo tests

	Desires		Intentions		Intended number	
	Baseline	Placebo	Baseline	Placebo	Baseline	Placebo
	(1)	(2)	(3)	(4)	(5)	(6)
Private sector*post	0.178	0.360	0.126	0.191	0.118*	0.184*
	(0.135)	(0.192)	(0.123)	(0.169)	(0.050)	(0.078)
Private sector*wave 3		0.087		-0.047		0.086
		(0.174)		(0.157)		(0.081)
Private sector*wave 4		0.080		-0.091		0.093
		(0.199)		(0.174)		(0.094)
Private sector*wave 6		0.386		0.288		0.051
		(0.212)		(0.185)		(0.096)
Private sector*wave 7		0.364		0.162		0.098
		(0.219)		(0.195)		(0.092)
Observations	13366	13366	13366	13366	5312	5312
Individuals	4339	4339	4339	4339	2293	2293

Standard errors clustered at the individual level in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Regressors as in column 3 of tables 2-5

Table 12: Tests for difference in fertility preferences of sector leavers and joiners

	(1) Desires	(2) Intentions	(3) Intended no.
Sector leavers			
Private sector	0.590*	0.705**	-0.038
	(0.291)	(0.271)	(0.095)
Observations	1056	1056	474
Public sector	0.361	0.433	0.088
	(0.365)	(0.325)	(0.139)
Observations	384	384	165
Sector joiners			
Private sector	0.135	0.371	-0.016
	(0.206)	(0.193)	(0.080)
Observations	1372	1372	600
Public sector	0.183	0.156	-0.155
	(0.347)	(0.309)	(0.128)
Observations	501	501	211

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

All observations from wave 7 only, with sector joiners and leavers determined by subsequent observations

Controls: state indicators, age, age squared, education indicators, marital status indicators, country of birth indicators, Aboriginal/ Torres Strait Islander status, number of children, number of children squared, no children indicator.