The benefits of paid maternity leave for mothers' post-partum health and wellbeing:

Evidence from an Australian evaluation

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Abstract

This paper investigates the health effects of the introduction of a near universal paid parental leave (PPL) scheme in Australia, representing a natural social policy experiment. Along with gender equity and workforce engagement, a goal of the scheme (18 weeks leave at the minimum wage rate) was to enhance the health and wellbeing of mothers and babies. Although there is evidence that paid leave and longer durations of leave can benefit mothers' health post-partum, the potential health benefits of a nationwide scheme have rarely been investigated. The data come from two cross-sectional surveys of mothers matched on their eligibility for paid parental leave, 2,347 mothers surveyed pre-PPL and 3,268 mothers post-PPL. We investigated the scheme's health benefits for mothers, and the extent this varied by pre-birth employment conditions and job characteristics. Overall, we observed better mental and physical health among mothers after the introduction of PPL, although the effects were small. Post-PPL mothers on casual (insecure) contracts before birth had significantly better mental health than their pre-PPL counterparts, suggesting that the scheme delivered health benefits to mothers who were relatively disadvantaged. However, mothers on permanent contracts and in managerial or professional occupations also had significantly better mental and physical health in the post-PPL group. These mothers were more likely to combine the Government sponsored leave with additional, paid, employer benefits, enabling a longer paid leave package post-partum. Overall, the study provides evidence of the health benefits to mothers of receiving paid parental leave, but further suggests that the modest 18 week PPL provision did little to redress health inequalities.

Introduction

Enhancing the health of mothers and children has been a fundamental goal of most maternity leave policies (International Labour Office, 2010). While maternity leave gives mothers and their families time, employment provides income and in the current economic climate both are important for health (Kawachi, 2000; Strazdins, Welsh, Korda, Broom, & Paolucci, 2016). Paid maternity leave, by delivering both resources, can reduce the time-income trade-off for mothers and families around birth, which underlies its potential to enhance health. However, research on whether paid maternity leave improves health is both scarce and mixed, and when health effects are detected, they often tend to be small (see Aitken. et al., 2015 for a recent review). Within and between countries paid and unpaid maternity leave entitlements vary widely, and in most countries provisions have been in place for decades (International Network on Leave Policies and Research, 2012). Thus, it has not been possible to fully assess the health benefits of the implementation of these maternity leave policies. Using data from a unique policy evaluation with a pre-intervention and post-intervention study design, the first contribution of the paper is to investigate whether the introduction of a near universal federal government funded paid parental leave (PPL) scheme in Australia in January 2011 was associated with improved health and wellbeing of new mothers 12 months post-partum.

Our second contribution was to assess whether the government paid parental leave scheme improved health inequalities for Australian mothers post-partum. Prior to the introduction of the paid parental leave scheme working mothers only had statutory entitlements to unpaid leave, with paid entitlements provided on a voluntary basis by employers. Mothers with more advantageous labour market positions (i.e. highly skilled, permanent employment) were more likely to receive paid maternity leave, embedding significant inequality in the system. We investigated whether health improvements from the

introduction of the Australian PPL scheme accrued differently depending on mother's employment and job characteristics prior to birth.

Background

One of the major social and economic changes to occur in the last century in most western developed nations has been the increased participation of women in the paid workforce, especially mothers (OECD, 2012b). Concomitantly, women's earnings have become an essential contribution to the financial stability of households, particularly those in economies facing ongoing economic uncertainty and labour market instability (Oppenheimer, 1994). Thus, after having children, women face stronger financial imperatives to maintain their attachment to the work force than previously. In addition, employed or not, women have the main responsibility for children's care (Craig & Mullan, 2011). Thus, while the increased participation of women in the workforce delivers more income for families, it constrains mothers' time for care and domestic work and this can generate stress and tensions in family life. These tensions raise important social questions about their consequences for health and wellbeing, especially in the critical period surrounding the birth of a baby and the ensuing, intensive, childrearing period (Ruhm, 2011).

Post-partum (up to 12 months after birth) between 10 and 20 per cent of mothers suffer from depression (Pearlstein, Howard, Salisbury, & Zlotnik, 2009) or face an increased risk of other psychological disorders including post-traumatic stress, anxiety and psychosis (Brockington, 2004; Wisner et al., 2009). Research also suggests that mothers' physical health suffers during this time with increased incidence of backache, fatigue, perineal pain, and gastrointestinal problems (Cheng & Li, 2008). Research from Canada (des Rivieres-Pigeon, Seguin, Goulet, & Descarries, 2001) and the US (Chatterji & Markowitz, 2012; Chatterji, Markowitz, & Brooks-Gunn, 2013) suggests that women who return to work within

the first 6 months post-partum have poorer mental health than mothers who remain on maternity leave. Many argue that social policies which alleviate family role stressors and pressures for women to return to work while breastfeeding could significantly improve maternal health and wellbeing during the post-partum and infancy periods (Dagher, McGovern, & Dowd, 2014).

In acknowledgement of this trade-off for women and families, particularly in the first year after birth, most developed countries have introduced some form of paid parental leave scheme (OECD, 2012a). While optimising maternal health in the postpartum period is a widely supported aim of these leave policies (International Labour Office, 2010), good maternal health affects infant and child wellbeing, and supports mothers' workforce engagement. Children's lives are intertwined with their parents' lives, and this interlinkage is evident in the mutual impact of mother's and child's health on each other. The health and wellbeing of infants and young children is closely dependent on family routines, resources, and the quality of relationships, and all of these are shaped by mothers' mental and physical health (International Labour Office, 2010). Thus, to the extent that policies like PPL can support mothers' physical and mental health, they additionally benefit children's.

Evidence on parental leave and health

A number of review studies have examined the associations between post-partum leave, employment and mothers' health and wellbeing. There is evidence that the length of time off work after birth provides significant health benefits (Chatterji et al., 2013; des Rivieres-Pigeon et al., 2001). For example, McGovern et al (2007) found that, for women employed before birth, longer leave durations were positively associated with vitality, mental health and role function. Dagher et al (2014), in a small (n=716) US study based in Minnesota showed that leave duration of 6 months or more were significantly associated with improved mental

health as well as improved physical health (marginally significant). An Australian study by Whitehouse et al (2012) found that taking more than 13 weeks leave was associated with less psychological distress among mothers. There is also some evidence that the positive effects of generous maternity leaves on mothers' mental health extends into older age (Avendano, Berkman, Brugiavini, & Pasini, 2015).

Few of these reviews or studies distinguished between the health benefits of unpaid leave, which provides time but not money, and paid leave, which provides both time and money. As argued above, both time and money are important for the health and wellbeing of mothers and their families. In a recent review article of the health benefits of paid leave, Aitken et al (2015) conclude that overall, paid maternity leave tended to provide health benefits to mothers. For example, Chatterji & Markowitz (2012) find that having fewer than 8 weeks of paid leave was associated with lower overall health, compared to mothers who had more than 8 weeks of paid leave. However, when studies used ecological level data on policy allowances, the population level results indicated no association or in some cases a negative association between paid leave and mothers' health and wellbeing. For example, Baker and Milligan (2008) found no change in mothers' health and wellbeing when the mandated paid maternity leave period was extended in Canada, however this study did not test the introduction of paid maternity leave per se, but a change in the length of leave. Together, the evidence suggests that more time off from work after the birth improves mothers' health and wellbeing, and paid leave may enhance these time–health benefits, but it is not certain whether paid leave (time and income) provides benefits above and beyond unpaid leave (time).

Income and time: the health benefits of paid parental leave

Income and time are both important for health. Income is generally linked to better health, as is having a job compared with being unemployed, and these health benefits reflect the material and social resources employment delivers. Income helps families 'buy' the material conditions important for wellbeing and this pathway is especially important among the very poor (Strazdins et al., 2016). Income also signifies social status, forming a second pathway between earnings and health (Aitken et al., 2016; Kawachi, 2000). Additionally, having a baby increases the financial demands on families, a problem that is compounded if mothers take leave from work that is not paid (Joshi et al 2013).

Time is also a resource people need for their health, independent of income. Time with children is fundamental to their care and healthy development, and everyone needs time for relationships, to rest, eat healthily and be active if chronic disease burdens are to be averted. Time scarcity refers to the experience of not enough time, particularly free time and is closely related to the experience of stress (OECD, 2012b) with lack of time correlating with poorer self-rated health, sleep problems, headaches and digestive disturbances (Höge, 2009). Time scarcity is also a predictor of poor mental health (Roxburgh, 2004) and could increase the risk for chronic diseases because it constrains physical activity, rest and healthy eating (Strazdins et al., 2016). Within families adequate time is essential for building supportive and close relationships and, for parents, is intrinsic to availability and attachment (Gillian Whitehouse et al., 2012). Demands on time and access to free time is socially patterned, with the experience of time scarcity most acute among working mothers with young children.

Paid parental leave in Australia: inequality of access

Paid maternity leave gives working mothers' time as well as income because it enables them to care for infants without having to combine care with working earlier than they wish, or having to trade-off sufficient time for care with loss of income. In Australia, prior to the introduction of the paid parental leave scheme in January 2011, all mothers who had continuously worked for the same employer for at least 12 months were entitled to 12 months unpaid leave with the right to return to the same position (B. Martin et al., 2012). However, only around 46% of these mothers also had access to paid leave provided by their employer (B. Martin et al., 2012). Prior to PPL access to paid leave entitlements for Australian mothers were socially patterned where those with paid maternity leave tended to work in the public sector, larger organisations (such as the public sector), and hold skilled (professional or semi-professional) jobs within those organisations (B. Martin et al., 2012). With this social and economic disadvantage embedded in the system, mothers who did not have access to employer paid leave were disproportionately likely to be low-skilled on more precarious part-time or casual contracts, or self-employed (Gillian Whitehouse et al., 2012). Thus, those mothers who were the most disadvantaged in terms of skilled and secure employment were also the most likely to face time-income trade-offs after the birth of a child, potentially contributing to health inequalities in the post-partum.

The Australian Government paid parental leave (PPL) scheme commenced in January 2011 and provided most mothers employed before birth with 18 weeks of pay at the minimum wage. In effect the PPL scheme added money (at minimum wage) to the unpaid time entitlement that most working mothers already had. The work-test for the Government's paid parental leave scheme was relatively generous and in part designed to redress inequality in the existing system. Any mother who had worked for at least 10 months of the previous 13 months without a break of more than 8 weeks and who had worked approximately 7 hours a

week on average was eligible to apply (Martin, Baird, et al., 2014). For those mothers who also had employer paid leave, the government entitlement could be taken in addition to any provisions from their employer. Thus the scheme provided near universal coverage (it was estimated that around 3% of working mothers may not have been eligible for the scheme (B. Martin et al., 2012), and many of those who were not eligible were able to negotiate an arrangement with their employer (Martin et al., 2013). Given that the scheme covered most employed women, even those working minimal hours, it was expected that certain groups of mothers with uncertain employment conditions (i.e. casual or self-employed, part-time), who overall had not previously had access to paid leave, would benefit more than those who had access employer paid leave.

Summary and research questions

Most research considers the relationship between time (paid or unpaid) out of the workforce and maternal health, but this does not necessarily reflect the impact of a policy change. Rather this research considers individual mother's patterns of leave taking after the birth, which could be due to their health as well as a determinant of their health. The introduction of a new paid scheme in a country delivers a unique opportunity to test the consequences for mothers' health at a population level, by comparing health outcomes for mothers who gave birth before or after the scheme. We examine what happens to mother's health in the first year post-partum when a whole nation transitions from a policy of unpaid to paid leave that is universally accessible. We further investigate whether disadvantaged mothers, who had jobs or employment conditions that were unlikely to provide them with employer paid maternity leave before the birth of their baby, benefitted more than mothers who had other sources of paid leave. Our unique data was collected as part of an evaluation of the Australian Paid

Parental Leave scheme, and compares similar groups of working mothers before and after the scheme was introduced. We address the following research questions:

1) Did the introduction of near universal paid parental leave in Australia improve the health and wellbeing of mothers when their children were 12 months old?

2) Did the health benefit depend on mothers' employment contract, sector, organisation size, or occupational group prior to birth?

Methods

Data and analytic sample

The data come from two cross-sectional surveys of mothers who met the eligibility criteria for the Australian Government's paid parental leave (PPL) scheme, the first survey was conducted before the introduction of the scheme in January 2011 and the second after the introduction of the scheme. The first survey, *pre-PPL*, was conducted in late 2010 and early 2011. It was a telephone survey delivered to a random sample of 2,587 mothers drawn from an administrative database covering 97% of Australian mothers who had a baby in October or November 2009, approximately 12 months prior to the introduction of PPL. The babies were around 12-13 months of age at the time of the survey. The survey had a response rate of 80% (B. Martin et al., 2012). The second survey, *post-PPL*, is a longitudinal study. Wave 1 *post-PPL* was a telephone survey of a sample of mothers randomly drawn from administrative database covering 97% of births that occurred in Australia during October and November 2011 (Martin, Hewitt, et al., 2014). The survey was conducted in mid-2012 on 4,201 mothers when their babies were 6-8 months old, with a response rate of 73.5%. Wave 2 *post-PPL* comprised 3,487 of these mothers (retention rate of 84.1%) surveyed again when their babies were 12-13 months old. So that we have an appropriate comparison with the pre-PPL survey conducted when the babies were 12-13 months old, we use wave 2 of the post-PPL survey.

Across both data sets, we dropped cases with missing values on the dependent variables (n = 108), or missing on key variables such as contract type (n=3), sector (n=97), organisation size (n=49), and other controls, such income (n=203). The samples were combined for analysis and the final analytic sample was 5,615 mothers, comprising 2,347 pre-PPL mothers and 3,268 post-PPL mothers.

Dependent variables

Mothers' health was measured using the Short Form 12 (SF-12). The SF-12 is a widely used and well-validated self-completion measure of health status that provides summary assessments of *physical health* (*PCS*) and *mental health* (*MCS*) (Ware Jr, Kosinski, & Keller, 1996). Scale scores range from 0 – 100 with a higher score indicating better physical or mental health.

Key independent variables

The job characteristics of mothers prior to birth may reflect labour market advantage and disadvantage, especially in relation to employer sponsored paid leave (contract type, sector, organisation size and occupation). We were interested in whether they were important in explaining or modifying health effects of the PPL scheme. Mothers' *employment contract* had 4 categories 1) Permanent or Ongoing, 2) Fixed term, 3) Casual and 4) self- employed. The reference group was 1) Permanent or Ongoing. *Organisation size* was grouped into 3 categories 1) Fewer than 20 employees (reference group), 2) >20 and <100 employees, 3) 100 or more employees. *Sector* was coded 1) private (including NGO's and not for profit), and 2) public (i.e. government). For *occupation* we used the Australian and New Zealand Standard Classification of Occupations (ANZCO), which is a skills-based classification that classifies all jobs in the Australian and New Zealand job markets (ABS 2006). While we

used the eight major groupings including Managers, Professionals, Technical and Trades, Community and Service, Clerical and Administration, Sales, Machinery Operators and Drivers and Labourers, for our purposes we collapsed the Machinery Operators and Drivers and Labourers into the same category due to small numbers in those groups. The categories used in our analysis include: 1) Managers, 2) Professionals, 3) Technical/Trade, 4) Community/Service, 5) Clerical/Admin, 6) Sales, 7) Machinery Op/Drivers/Labourers, 8) Missing/Not in labour Force. We used 2) Professionals as our reference group.

Covariates

We include controls for a range of other job characteristics of mothers before birth including work hours and income. *Work hours* was a continuous measure of the number of hours mothers worked in all jobs prior to the birth of their baby. *Income* was a continuous measure of annual income earned in all jobs prior to the birth of their baby. There were a large number of missing cases on income (n = 724, 13%). Mothers unwilling to answer the income question were asked whether they would nominate an income category on a 9-category income scale. Most mothers provided a response to the income category question and we used the midpoint of the income range for these mothers, this reduced the number of income non-response to n=285. Income was weighted to reflect real wages at each data collection and was centred for inclusion in the models. Measures of whether or not mothers had *problems with their employer* during pregnancy (1 = yes) or whether they received *support from their employer* before they had their baby (1 = yes) were also included as these may affect stress and health.

We included several indicators for social and demographic characteristics of mothers and their households. *Age* of mothers was a continuous measure and was centred for inclusion in the models. Mother's *education* comprised 4 categories: 1) Less than highschool,

2) Completed high school, 3) Trade, certificate or Diploma, 4) Tertiary education (Degree or higher), the reference was 1) Less than high school. *Number of children* in the household other than the reference child was a categorical measure indicating 0) no other children, 1) 1 Child, 2) 2 Children, 3) 3 Children, and 4) 4 or more children, no other children was the reference category (this is also an indicator that the reference child was their only child). The *age of the youngest child* (other than the reference child) was included as a continuous measure, coded 0 if there were no other children.

Given the importance of partners' contributions to household income and time in child care, we also account for whether mothers are *partnered* or not, with 1) yes and 0) no, and included a range of indicators for partners characteristics when the babies were 12 months old, including age, income, education, occupation and work hours. *Partners' age* was a continuous measure that was centred for inclusion in the models. The measure for *partner's education* was identical to mothers'. *Partners' hours of work* was included as a continuous measure that was coded 0 if the mother did not have a partner or their partner did not work. *Partners' income* was included as a categorical measure of annual income ranging from 1) more than $150,000, 2) $104K - $149,999, 3) $78K -$103,999, 4) $52K-$77,999, 5) $36,400-$51,999, 6) $26,000-$36,399, 7) $15,600-$25,999, 8) $5,200-$15,599, 9) $1-$5,199 and 10) Missing/Not in labour Force/no partner. Wages were weighted to reflect real wages at each data collection. We used the same ANZCO for *partners' occupation*, but the categories used in our analysis include: 1) Managers, 2) Professionals, 3) Technical/Trade, 4) Community/Service, 5) Clerical/Admin, 6) Sales, 7) Machinery Op/Drivers, 8) Labourers and 9) Missing/Not in labour Force. The descriptive statistics for all key independent variables and model covariates differentiated by Pre-PPL and Post-PPL samples are in Table 1.

Table 1 About Here

Analytic Strategy

Given the outcomes were continuous, models were estimated using Ordinary Least Squares regression models with a robust standard error. The *Pre-PPL* and *Post-PPL* samples were first pooled and a dummy indicator used to differentiate the two samples. Analysis then proceeded in two stages. The first stage estimated models for each dependent variable with a dummy indicator for *Pre-PPL* and *Post-PPL* to establish whether there were significant health differences between the two samples. These models included all key independent variables and covariates. For the second stage we estimated a series of models with interactions between the dummy indicator for *Pre-PPL* and *Post-PPL* and mothers' contract type, sector, organisation size and occupation. These models enabled us to determine whether there were significant health differences after the introduction of PPL for mothers with different pre-birth job characteristics. Post-estimation, marginal adjusted cell means were derived for all main effects and interactions. Tests of difference in the adjusted cell means for Pre-PPL versus Post-PPL data were conducted for each category in the measures of interest.

Results

The adjusted marginal mean scores for mental and physical health are presented in Table 2. The results for mental health show that mothers in the *Post-PPL* sample had higher average scores on the MCS (50.78), net of other factors, compared to mothers in the *Pre-PPL* sample (49.43). While the difference was small the test of difference indicates that it was statistically significant. It was a similar story for the PCS, women in the Post-PPL sample had small, but statistically significant higher average scores (53.57) than Pre-PPL mothers (52.41).

Table 2 About Here

In Table 3 we present the marginal adjusted mean scores for the MCS and PCS derived from the models interacting selected pre-birth job characteristics with the indicator for *Pre-PPL* versus *Post-PPL*. This investigates whether the health benefits of the introduction of PPL were evenly distributed depending on mothers' work contract before birth. The results for MCS are presented in the first column. For contract type the results indicate that Post-PPL women who were on permanent or ongoing contracts had significantly higher levels of MCS than Pre-PPL women. The results were similar for those on casual contracts, where Post-PPL women had significantly higher levels of mental health than Pre-PPL. The multi-degree of freedom F-test for this interaction suggests that the interaction between contract and Pre- or Post-PPL samples was significant. With regard to sector, women across both sectors had significantly higher levels of MCS Post-PPL compared to Pre-PPL. The results for organisation size were similar, where Post-PPL women working in organisations of all sizes had higher MCS. Women employed as managers and professionals had significantly higher Post-PPL MCS than women Pre-PPL, but none of the other occupation groups had significant health differences post-PPL.

Table 3 About Here

The results for PCS are presented in the second column. For contract, the results suggest that women who were on permanent contracts and fixed term contracts had significantly higher PCS post-PPL compared to women on those contracts pre-PPL. Women across both sectors had significantly higher levels of PCS post-PPL than pre-PPL. Similarly, for organisation size, post-PPL women had higher PCS regardless of the number of employees in the organisation they worked for before birth. With regard to occupation, women working as managers and professionals post-PPL had significantly higher PCS scores than women in those occupations pre-PPL. None of the other occupation groups had significant mean PCS differences.

Discussion and Conclusion

We investigated whether the introduction of a near universal and national paid parental leave scheme in Australia improved mothers' health, a fundamental goal of maternal leave policies that is rarely systematically tested. Our aims were two-fold, the first was to examine whether the scheme showed health improvements for mothers and the second was to see if changes in health were socially patterned depending on mother's employment and job characteristics before birth. Previous research has shown that compared to mothers who do not have access to maternity leave, mothers with maternity leave do better in terms of their health, and both paid and unpaid leave is beneficial (Aitken. et al., 2015; Dagher et al., 2014). Other research has examined statutory increases in the amount of leave mothers were entitled to take after birth, and found little or no evidence of health impacts from changes to already existing policies (Baker & Milligan, 2008). To our knowledge there have not been any recent studies that test the health impact at a population level of introducing a national maternity leave policy.

We directly compared the health of two cohorts of mothers giving birth under two different policy contexts: before and after the introduction of a near-universal 18 week entitlement to paid maternity leave in the Australian PPL scheme. Our results indicated that *post-PPL* mothers' mental and physical health was significantly better compared to those mothers who gave birth *pre-PPL*. We conclude that the introduction of a near universal PPL scheme delivered significant health benefits for Australian mothers. Evaluation of mothers' return to work revealed that the scheme reduced the numbers of mothers who returned to work early, within three months after birth, as well as reducing the number of mothers who left the labour force entirely (Martin, Baird, et al., 2014). This suggests that the scheme altered mothers' income sufficiently to enable them on average to delay their return to work

postpartum. The improvements in mothers' physical health were most likely due to mothers delaying placing their babies in formal childcare, since this increases the immediate likelihood of contracting infectious diseases (Brady, 2005). Improvements in mothers' mental health probably arise from the reduced stress resulting from the secure, predictable income provided to mothers during their PPL period and reduction in time pressures from an early return to work (Chatterji et al., 2013). Thus, even while Australian mothers already had time in the form of statutory entitlements to unpaid leave, the additional entitlement to income, in the form of 18 weeks at minimum wage, appears to have reduced time-income trade-offs, giving some mothers more of both resources.

We note, however that the health benefits were small. As one of the several well-known generic health related quality of life instruments in wide use, the changes in SF-36 (and also SF-12V2) scores need to be interpreted with caution (Crosby, Kolotkin, & Williams, 2003). A 5 point score difference in the physical and mental component summaries is generally regarded as clinically significant, the differences in the current study were 1.35 points for the MCS and 1.16 points for the PCS (Bjorner et al., 2007). Nevertheless, we argue that in terms of population health impact, these changes are significant since they affect a large population group of around 139,000 Australian mothers and families each year at current employment and birth rates (ref). For example, Rose (1992) demonstrates that exposing a large number of people at the population level to a low level of risk may generate more clinically significant cases than exposing a small number of people to high risk. This is particularly salient for mental health outcomes such as depression or anxiety, as symptoms occur on a continuum. Thus we argue that small improvements in average mental health among a large population subgroup, such as mothers in the first 12 months post-partum, represents a considerable preventative health gain.

Secondly, we asked whether the health impact of the paid parental leave scheme depended on mother's job characteristics before birth which, prior to the introduction of the scheme, strongly determined their access to employer funded paid maternity leave (Cooklin, Canterford, Strazdins, & Nicholson, 2011; Bill Martin et al., 2012). Prior to the introduction of the scheme mothers who were unlikely to have access to employer paid maternity leave also tended to be the most disadvantaged in terms of employment security and income. Evidence about whether these effects vary by key sub-groups was mixed. The health benefits were evident in those groups of mothers who were in relatively privileged employment conditions pre-birth, including permanent or ongoing positions, and managerial or professional occupations. These mothers most likely added their existing employer paid leave to the government leave, resulting in longer periods of time off work without a major reduction in (relatively high levels of) income (Martin, Baird, et al., 2014).

However health gains were also observed among the most disadvantaged mothers in the labour market; those employed on causal contracts which give no guarantee of job security. Casually employed mothers had significantly better mental health scores post-PPL compared to their counter parts pre-PPL. Prior to the introduction of government funded PPL casually employed mothers were the least likely to have access to employer paid leave (G. Whitehouse, Hewitt, Martin, & Baird, 2013). Casual employment is linked to irregular and unpredictable work hours, and therefore unpredictable income, compared to other forms of employment contracts (McDonald, Bradley, & Brown, 2009; McGovern, Smeaton, & Hill, 2004). For casual mothers, particularly those only working only a few hours a week, access to 18 weeks of full time pay at minimum wage would have likely provided many with more and more predictable income than usual. They were more likely to delay returning to work early (in the first three months) and the higher levels of certainty, time off work and better income are likely to have contributed to the mental health benefits of PPL for these mothers.

Conclusion

In July 2015 the European commission withdrew its draft Maternity Leave Directive, which sought to extend paid leave across Europe to 20 weeks after birth, with 16 weeks at 100% wage replacement. Although many EU countries have generous paid leave schemes, it is not uniform, and as suggested by the commission's difficulties, this is a social policy whose value is still contested. At 18 weeks and minimum wage, the Australian policy is not as generous as some countries who offer replacement wages and longer time off (OECD, 2016). In fact the public expenditure represented by the Australian scheme is modest. Even so, we find that this relatively low level of public investment had clear (albeit relatively small) benefits for the health and wellbeing of mothers. Along with supporting and valuing women's caregiving and reproductive contributions, ensuring that having children does not exclude women from holding jobs or earing income, our study demonstrates that paid maternity leave benefits women's health.

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Table 1: Descriptive statistics of key independent variables and covariates of mothers in each sample pre- and post-paid parental leave

	Pre-PPL	Post-PPL
	% Mean/SD	% Mean/SD
Key independent variables (Pre-birth)		
Contract type:		
Permanent/ongoing	75.4	76.8
Fixed-term	5.3	6.3
Casual	11.1	10.2
Self employed	8.2	6.7
Sector:		
Private	69.9	71.7
Public	30.1	28.3
Organisation size:		
<20	20.9	21.0
>20 & <100	12.9	15.5
100>	66.2	63.5
Occupation:		
Manager	10.0	9.0
Professional	36.4	37.7
Technical/Trade	4.0	3.7
Community/Service	14.2	13.7
Clerical/Admin	23.4	22.4
Sales	8.1	8.8
Machinery Op/Drivers/labourers	3.2	2.6
Missing	0.7	2.1
Mothers pre-birth job characteristics		
Hours of work	33.5 (13)	34.2 (12.3)
Annual pay (in real $)	56741.30 (56562.64)	53246.29 (29162.88)
Missing on income		
Problems at work (1 = yes)	14.6	13.7
Support at work (1=yes)	60.1	56.8
Demographic characteristics		
Highest Level of Education:		
Less than highschool	8.4	8.3
Completed highschool	16.3	16.9
Trade, certificate or Diploma	24.2	22.7
Tertiary education (degree or higher)	51.1	52.1
Age	32.3 (5.0)	31.9 (4.8)
Number of other children:		
No other children (ref)	50.4	53.9
One	33.6	33.0
Two	12.2	9.9
Three or more	3.8	3.2
Age of youngest child	2.1 (2.9)	1.9 (2.7)
Partner's characteristics		
Partnered (1 = yes)	94.3	95.6
Partner Age	34.7 (5.4)	34.2 (5.5)
Partners Income:		
more than $150,000	3.7	4.9

$104K - $149,999	7.6	10.3
$78K -$103,999	17.0	17.3
$52K-$77,999 (ref)	27.6	28.2
$36,400-$51,999	15.2	15.0
$26,000-$36,399	5.1	4.3
$15,600-$25,999	1.6	1.2
$1-$15,599	3.0	1.3
Missing/Not in Labour Force/no partner	19.1	17.5
Partners Occupation:		
Manager/Professional	13.6	12.9
Technical/Trade	48.2	46.2
Community/Service	5.3	6.4
Clerical/Admin	4.6	5.0
Sales	4.2	4.9
Machinery Op/Drivers	7.1	7.1
Labourers	6.5	7.1
Missing/Not in Labour Force/no partner	10.4	10.6
Partners Highest Level of Education:		
Less than highschool	12.6	12.5
Completed highschool	16.7	17.6
Trade, certificate or Diploma	32.0	29.2
Tertiary education (degree or higher)	32.4	36.0
Missing/no partner	6.2	4.8
n	2,347	3,268

Table 2: Marginal adjusted mean estimates of SF-12 Mental and Physical component scores, Pre-PPL and Post-PPL

	Pre-PPL	Post-PPL	
	Marginal adjusted mean	Marginal adjusted mean	F-test (Pre vs Post)
Mental Component Score	49.43	50.78	38.67***
Physical Component Score	52.41	53.57	42.13***
n	2,347	3,268	

[a] Models control for: contract-type pre-birth, sector pre-birth, organisational size pre-birth, occupation pre-birth, hours of work pre-birth, annual pay pre-birth, support and discrimination pre-birth, mothers current age, highest level of education, number of other children, age of youngest other child, presence of a partner, partners education, income, occupation and age.

Table 3: Marginal adjusted mean estimates of mental and physical component scores for contract type, sector, organisation size and occupation from OLS regression models[a], by Pre-PPL and Post-PPL

	Mental Component Score (MCS)				Physical Component Score (PCS)			
	Pre-PPL Marginal adjusted mean	Post-PPL Marginal adjusted mean	F-test (Pre vs Post)	Multi-DF F-test[b]	Pre-PPL Marginal adjusted mean	Post-PPL Marginal adjusted mean	F-test (Pre vs Post)	Multi-DF F-test[b]
Contract:								
Permanent	49.77	51.15	31.59***		52.18	53.36	35.45***	
Fixed Term	50.78	50.41	0.18		51.51	53.55	6.09*	
Casual	48.29	51.01	14.81***		53.11	53.63	0.91	
Self-Employed	49.68	50.09	0.25		52.63	53.75	2.44	
				2.98*				0.86
Sector:								
Private	49.26	50.72	32.09***		52.43	53.47	23.58***	
Public	49.72	50.77	7.32**		52.29	53.72	20.74***	
				0.77				1.10
Organisation Size:								
<20 employees	49.74	50.72	4.33*		52.31	53.58	9.51**	
20 – 99 employees	49.03	50.89	9.81**		52.44	53.60	5.97*	
>100 employees	49.39	50.74	26.19***		52.46	53.58	27.32***	
				0.68				0.06
Occupation:								
Manager	49.28	51.49	10.46**		49.28	51.49	15.88***	
Professional	49.25	50.76	19.86***		49.25	50.76	17.79***	
Technical/Trade	50.16	50.36	0.03		50.16	50.36	0.31	
Community/Service	50.04	50.87	0.12		50.04	50.87	0.00	
Clerical/Admin	49.01	50.50	2.45		49.01	50.50	0.74	
Sales	49.53	50.56	0.68		49.54	50.56	0.67	
Machinery Op/ Drivers/Labourers	49.28	50.93	0.60		49.28	49.69	1.70	
				1.23				0.69

[a] Models control for: contract-type pre-birth, sector pre-birth, organisational size pre-birth, occupation pre-birth, hours of work pre-birth, annual pay pre-birth, support and discrimination pre-birth, mothers current age, highest level of education, number of other children, age of youngest other child, presence of a partner, partners education, income, occupation and age.
[b] test of the overall significance of the interaction taking into account multiple degrees of freedom