

Does Maternity Leave Affect Child Health? Evidence from Parental Leave in Australia Survey

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Introduction

- Little was known about the association, if any, between child health and maternity
- The limited literature that does exist tends to use aggregate data
- This study examines the relationship between paid maternity leave (PML) and child health using the Parental Leave in Australia Survey (PLAS).

Previous Works

- Winegarden & Bracy (1995) and Ruhm (2000): PML lowered the infant mortality rate in OECD countries.
- Tanaka (2005): PML was associated with a significantly lower probability of having a low birthweight.
- Microdata: Han et al. (2001), Waldfogel et al. (2002) and Ruhm (2004) found that maternal employment in the first year creates adverse effects on child cognitive outcomes.
- Duration of leave: Berger et al. (2005) found a significant effects on breastfeeding and immunization.
- Long-term effects: Baker and Milligan (2008) confirmed that the extension of parental leave increased the duration of breastfeeding but found no significant impact on health *per se*.

Maternity leave in Australia

- Australia is one of the last OECD countries to introduce universal paid parental leave (Paid Parental Leave Scheme effects in 1/12/2010).
- PML was available in the public sector since the 1970s but less common in the private sector.
- Australia also suffers from a shortage information on the prevalence of maternity leave.
- The Parental Leave in Australia Survey (PLAS) is an attempt to fill the data gap.
- Using PLAS: Whitehouse et al. (2008): 52 weeks of leave received most satisfaction; Baxter (2008): Most other return to work after 12 months.

Sources of Data

- We use data from the PLAS and the Longitudinal Study of Australian Children (LSAC)
- PLAS is the between-wave mail-out survey conducted within LSAC for infant cohort only (children born between March 2003 and February 2004).
- The data were collected using a two-stage clustered sampling design, where postcodes were used as the primary sampling unit (PSU)
- The LSAC is a representative of all Australian children in the selected age cohorts
- The PLAS sent 5061 questionnaires and received 3573 responses (response rate: 70.6%)

Descriptive Statistics

Variables	Non-PML	PML	Diff.
<i>Outcome measures</i>			
Child Health (1=excellent, 5=poor)	1.54	1.48	0.05
Poor health (1=yes, 0=no)	0.12	0.10	0.07
Asthma (1=yes, 0=no)	0.13	0.10	0.01
Bronchiolitis (1=yes, 0=no)	0.11	0.10	0.29
Breastfeeding decisions (1=yes)	0.51	0.48	0.16
Breastfeeding duration (days)	103	131	0.00
Pediatric social function index	87.3	88.5	0.03
Immunization (1=complete, 2=most, 3=some, 4=none)	1.14	1.06	0.00

Source: Computed from the Longitudinal Study of Australian Children

Descriptive statistics (cont.)

Variables	Non-PML	PML	Diff.
<i>Maternity/parental Leaves</i>			
Total mother leave (weeks)	11.49	43.12	0.00
Paid maternity leave-PML (weeks)	0.00	11.32	0.00
Total father's leave (weeks)	8.56	11.52	0.00
Paid paternity leave-PPL (weeks)	1.09	1.85	0.00
<i>Child and family characteristics</i>			
Aboriginal and Torres-strait Islanders	0.03	0.01	0.00
Household size	4.09	3.69	0.00
Household condition (clean=1)	0.92	0.95	0.01
Mother's age	31.49	32.67	0.00
Mother completed year 12 (yes=1)	0.69	0.88	0.00
Mother is employed (yes=1)	0.43	0.87	0.00

Economic model

- Based on Grossman (1972), Ruhm (2000) and Jacobson (2000): Health production function of a child:
 $H(B, M, L+V, \varepsilon)$
where B is the baseline health, M is the medical care, $L+V$ is parenting time, and ε is a stochastic error
- Parents maximise utility $U(H, X)$ (H is child health, and X is other consumption) with
- Time constraint: $T = R + L + V$ (R , L & V are time for work, leave and non-market produce)
- Budget constraint: $Y = P_m M + P_x X = wR + sL + N$ (P_m and P_x are prices; w =wage rate s =leave payment ; N is non-earned income)

Econometric models

- The general equation for estimating the relationship between parental leave and child health is presented as:
$$H_i = \beta_0 + \beta_1 X_i + \beta_2 L_i + \varepsilon_i$$
where H_i is a measure of child health and other health outcome of interest (child health, immunization, development index), X_i is a set of household and child characteristics, L_i is a measure of leave, and ε_i is the random error
- We argue that breastfeeding is an input to, not an output of, the child health production function.

$$H_i = \beta_0 + \beta_1 X_i + \beta_2 L_i + \beta_3 BF_i + \varepsilon_i$$

$$BF_i = \gamma_0 + \gamma_1 X_i + \gamma_2 L_i + \varepsilon_i$$

where BF_i is breastfeeding decision (1=breastfed, 0=otherwise); or duration (days)

Specifications

Six specifications are proposed:

- 1 Total leave by mothers (weeks)
- 2 PML (weeks) and other leave (weeks)
- 3 Categorical measure of PML: 1) up to 6 weeks, and 2) more than 6 weeks
- 4 Total leave by partner (weeks)
- 5 PPL (weeks) and other leave (weeks)
- 6 PML, PPL and their interaction

Effects on Child Health

Models <i>* = Cat. # = Bin</i>	0-1 year		2-3 years	
	Health*	Health#	Health*	Health#
1) Total mother's leave	-0.001	-0.002	-0.0003	-0.002
2) PML	** -0.010	-0.007	-0.004	-0.002
Other leave	-0.001	-0.002	0.00001	-0.002
3) PML ≤ 6 weeks	-0.114	-0.160	-0.041	-0.094
PML > 6 weeks	*** -0.158	-0.114	-0.073	-0.127
4) Total father's leave	*** -0.004	** -0.004	-0.0002	-0.003
5) PPL	0.006	0.005	* 0.008	0.005
Father's other leave	*** -0.006	** -0.005	-0.001	* -0.003
6) PML	** -0.010	-0.007	-0.004	-0.002
PPL	0.006	0.005	* 0.008	0.006
Interaction	0.076	-0.033	* -0.072	-0.022

Effects on Chronic Conditions

Models	0-1 year		2-3 years	
	Asth.	Bron.	Asth.	Bron.
1) Total mother's leave	-0.001	*-0.002	-0.002	-0.001
2) PML	-0.005	*-0.008	-0.006	-0.007
Other leave	-0.001	-0.002	-0.001	-0.001
3) PML ≤ 6 weeks	0.060	0.020	0.003	-0.003
PML > 6 weeks	-0.131	*-0.159	*-0.148	-0.138
4) Total father's leave	-0.00004	0.0003	-0.0005	-0.0007
5) PPL	**0.011	0.008	**0.011	*0.01
Father's other leave	-0.001	-0.0004	-0.001	-0.002
6) PML	-0.005	*-0.009	-0.006	-0.008
PPL	**0.011	0.009	**0.011	*0.010
Interaction	0.120	**0.281	0.029	**0.139

Effects on Postnatal Health Care and Child Development

Models	0-1 year		2-3 years	
	Imm.	S.index	Imm.	S.index
1) Total mother's leave	** -0.004	0.006	** -0.003	0.002
2) PML	-0.009	0.037	-0.009	0.022
Other leave	** -0.003	0.004	* -0.003	0.0004
3) PML < 6 weeks	* -0.275	0.557	-0.231	0.239
PML > 6 weeks	* -0.176	** 1.648	* -0.172	* 1.173
4) Total father's leave	-0.002	0.010	-0.002	0.007
5) Father's PPL	-0.015	* 0.085	-0.013	** 0.099
Father's other leave	-0.001	0.006	-0.001	0.002
6) Dummy PML	-0.009	0.035	-0.008	0.020
Dummy PPL	-0.014	* 0.083	-0.013	* 0.098
Interaction	0.044	0.922	-0.059	0.083

Effects on breastfeeding

Models	BF Decision		BF Duration	
	Health=f(BF)	BF=f(Leave)	Health=f(BF)	BF=f(Leave)
1) Total mother's leave	***-1.064	**0.003	*-0.009	**0.109
2) PML	***-1.041	***0.021	***-0.013	*0.189
Other leave		0.002		0.044
3) PML ≤ 6 weeks	***-0.995	0.108	***-0.011	2.556
PML > 6 weeks		**0.323		**8.616
4) Total father's leave	***-1.046	*0.004	***-0.014	***0.019
5) PPL	***-1.009	0.012	***-0.014	0.273
Father's other leave		0.003		-0.024
6) PML	***-0.993	***0.021	***-0.012	0.351
PPL		0.011		0.070
Interaction		-0.011		1.385

Concluding remarks

- Both PML and PPL are significantly and positively associated with child health but not with prenatal health (as proxied by birth weight)
- PML is associated with a statistically significant higher probability of the child having been up-to-date with immunisations.
- PML strongly associated with the probability of a child being breastfed & also the duration of breast feeding in this preliminary work these, in turn, are positively associated with child health.
- In future work, we will model PML eligibility *per se* in an attempt to isolate the effects of PML (and other types of leave).