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How does job quality influence fertility? Parity and gender differentials in the effects of job strain and control

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Abstract

I explore both theoretically and empirically how work quality affects the hazard of first and second births. Specifically, I focus on two under-researched dimensions of work quality, i.e. the control over the job tasks and timetables, and the level of intensity and strain involved in the job. I hypothesize that these dimensions can have an impact on fertility through different mechanisms, including role conflict, satisfaction with work, partnership quality, and the level of mental and physical exhaustion and stress.

Data from the Household, Income and Labour Dynamics in Australia survey and event history analyses are used. The results indicate substantial negative effects of strain and lack of control for second births and nonsignificant effects of strain for first births. The effects of control over how women perform their job tasks are strong and significant, both for first and second births, whereas the effects of control on their timetables are weaker.

Home-based work and the availability of flexible start and finish work times show weak positive effects on second birth probabilities, whereas working on weekends and variability in workdays (vs. Monday to Friday) show positive effects. This last result suggests that women adapt their work schedules to their fertility plans.

Background

Previous research has shown that job quality and job characteristics are highly relevant for a variety of outcomes, including worker's social and economic disadvantage, work-life balance, physical and mental health, and children's outcomes (Chandola et al., 2019; Griffin et al., 2007; Kalleberg, 2012; Taht & Mills, 2016). Yet, the impact on fertility of some key dimensions of job quality, including the control over the job tasks and timetables, the level of intensity and strain involved in the job, and the level of complexity, has not been examined in detail. An exception is the study of Begall and Mills who focused on the impact of work control and strain on women's fertility intentions in Europe (Begall & Mills, 2011). By contrast, the impact on fertility of income, job security, and women's part-time versus full-time employment have been

examined extensively in previous literature, and therefore these variables are included here as controls in the analyses. This study contributes to the literature by providing an in-depth analysis of how subjective job control and strain for women and men influence first and second births in Australia. Central arguments are that these dimensions of employment are crucial to understanding fertility decisions and that their impact is gendered. In particular, the degree of control and strain experienced in jobs may be relevant in explaining the increasing socio-economic differentials in fertility. Rapid changes in the structure and regulation of labor markets, as a result of different forces such as technical change and globalization, provide additional motivation for this study (Green, 2013).

Within the literature, there is no agreement on the definition of job quality and what constitutes a "good" or a "bad" job (de Bustillo et al., 2011; Kalleberg et al., 2000). Nevertheless, there is an increasing convergence among sociological approaches on what job attributes are considered crucial for the worker's well-being. High-quality jobs generate capabilities that allow workers to achieve well-being and a range of other personal goals (Gallie, 2003; Green, 2013; Sen, 1993). Jobs provide extrinsic rewards, such as wages and job security, as well as intrinsic rewards, including the level of autonomy, social interactions, and opportunities for skill development. Note that jobs can also involve costs and drawbacks, such as increased strain or negative health outcomes.

Furthermore, job quality systematically varies according to occupation (Evans & Mills, 1998; Lonnie, 2001). These differentials in job quality are shaped by the institutional characteristics of the labor market, including state regulations and market relationships (Kohli, 2007). To the extent that job quality is relevant for fertility decisions, socioeconomic differentials in fertility can be expected.

There is almost unanimity in considering that the ability of the workers to exercise some degree of control or autonomy is a crucial dimension of job quality. On the one hand, this dimension includes worker's freedom and discretion over the nature of job tasks and the procedures to be used in carrying them out (Esser & Olsen, 2012). On the other hand, it includes influence and freedom over the work timetables, including concepts such as flexitime, teleworking, non-standard working times, and working-time autonomy (Chung, 2022; de Bustillo et al., 2011). There is a clear link between work timetables and the compatibility between the roles of worker and parent, with direct implications for fertility (Begall et al., 2015; Begall & Mills, 2011). Satisfaction with the work–family balance favors higher fertility, especially for those with tertiary degrees (J. A. Baxter, 2013; Gallie & Russell, 2008). Previous studies indicate that flexibility in work timetables has a positive effect on second births, whereas the impact of home-based work and non-standard working times are mixed (Begall et al., 2015; Osiewalska et al., 2024). The availability of childcare (formal or informal, including partner's involvement) should diminish the effect of the incompatibility between work schedules and childcare. Considering the life-work balance changes induced by having a child, the effects of control over work timetables should be relevant for second births, whereas first births are less likely to be affected.

Contrasting with the clear expectations concerning control over work timetables, previous literature has not elaborated on the link between the level of control over how the job is performed and fertility. Yet, this (sub-)dimension of job quality is likely to have a positive

impact on job satisfaction and on women's identity as a worker, which in turn may have an impact on overall life satisfaction and well-being (Campione, 2008; Cummins, 1996; Gallie & Russell, 2008). Existing studies indicate that subjective life satisfaction and well-being increase the likelihood of having a first or subsequent child in a variety of contexts (Aassve et al., 2012; Luppi, 2016; Margolis & Myrskylä, 2015; Parr, 2010). In addition, life satisfaction has a positive effect on the relationship with the partner, increasing fertility expectations (Luppi and Mencarini 2018). These effects depend on parity, as the experience of already having a child changes the perception of life satisfaction and well-being (Margolis & Myrskylä, 2015; Newman, 2008).

A second dimension examined in this paper is work intensity or strain, which sometimes is referred to as work effort in the literature. High work intensity has been shown to negatively affect the mental and physical well-being of workers (Kalleberg, 2012). This dimension potentially can have a powerful negative effect on fertility, by increasing the level of tiredness, physical and mental burden, and stress. These mechanisms might reduce fertility desires and the ability to care for a(n additional) child. Moreover, increased levels of job strain and intensity could indirectly affect fertility, through its impact on health and partnership quality. The effects of the work strain dimension are expected to appear primarily for full-time workers, especially for workers doing overtime and unsocial timetables (e.g., working on weekends or during the evening).

The third dimension of job quality examined here is the degree of complexity of job tasks and the possibility of learning new skills. A priori, this dimension is less likely to affect fertility, especially when the models control for education and occupation, as these variables are highly correlated.

Previous studies on the relationship between employment and fertility have shown the importance of distinguishing birth orders. As noted above, one of the key ways that the quality dimensions analyzed influence fertility is by its effect on the compatibility between employment and childrearing. It is therefore likely that second births are especially affected because individuals only become fully aware of the incompatibility of the parent and worker roles once the first child is born. Moreover, first birth rates are strongly determined by the gradual attainment of adult roles, particularly by the need to be established in the labor market. As a result, the relevance of the studied job dimensions should be lower.

Most of the studies mentioned above focus on women, as generally they are the main carers of children, and therefore they are more likely to experience the impact of the job quality dimensions studied. Of course, these links are contingent upon the gender relationships and work-care arrangements prevailing in society. Couples in Australia often follow a traditional gender role specialization after the birth of the first child, and the changes in maternity leave policies and child subsidies seem to have had limited and contradictory effects (Baxter et al., 2015; Craig et al., 2010; Powell & Craig, 2015). As a result, the job quality dimensions of strain and control are expected to have weaker effects on men relative to women.

Empirical strategy

The Household, Income and Labour Dynamics in Australia (HILDA) is a national household panel survey that examines labor force status, family relationships, financial and economic circumstances, health, and a variety of other measures. It provides yearly data from 2001 to 2021. The dependent variables of the analyses are the transition to a first or second birth. Women with no previous birth aged 18–47 and employed are included in the sample for first births, comprising 7,232 women and 38,631 person-years. Second birth analyses include women with a job aged 18–47 who already had a first child with durations up to 10 years since the birth of their first child. This results in 2,346 women and 6,820 person-years.

HILDA is especially suitable for exploring job quality since it includes a wide array of objective and subjective measures. Since the initial wave, the survey has included in the self-completion questionnaire a module of 12 items that assess job conditions, which were expanded to include 21 items since 2005. I use these subjective variables in the analyses, which are measured on a scale from 1 to 7. Using the confirmatory factor analysis as a guiding tool, I find that there are 3 main latent factors, using the eigenvalues >=1 as a rule to identify the number of factors. These empirically derived factors are highly consistent with theoretically based classifications, both in labor market research and psychosocial literature. These 3 factors and the items included in each of them are the following:

1) *Job intensity/strain*: "my job is more stressful than I had ever imagined", "I fear that the amount of stress in my job will make me physically ill", "I don't have enough time to do everything in my job", "I have to work fast in my job", "I have to work intensively in my job".
2) *Job control*: "I have a lot of freedom to decide how I do my own work", "I have a lot of say about what happens on my job". "I have a lot of choice in deciding what I do at work" (*control over how the job is performed*). "I have a lot of freedom to decide when I do my work", "My working times can be flexible". "I can decide when to take a break" (*control over timetables*).
3) *Job complexity vs. routine*: "my job requires me to do the same things over and over again" (reverse coding), "my job often requires me to learn new skills", "I use many of my skills and abilities in my current job", "My job requires me to take initiative", "my job provides me with a variety of interesting things to do", "My job is complex and difficult".

These factors and included variables are consistent over time. Specifically, the new variables added in 2005 simply enter accordingly the already existing 3 latent factors.

It should be noted that the *job security* factor seems to not be a relevant underlying latent factor. Furthermore, the Cronbach's alpha of the variables included in the 3 identified factors are all around 0.80, confirming the consistency of the categorization. For simplicity, to identify the 3 factors, I therefore compute the mean of all variables included in that specific factor. To enhance comparability, I standardize the variable distribution by setting the mean at 0 and dividing values by the standard distribution.

Additional objective measures of job control over timetables are included in some models: the use of home-based work, whether the respondent is entitled to use flexible

start and finish times, and weekly work days (Monday to Friday, days vary, works on weekends). The analyses include several control variables, including age, weekly work hours, level of education, occupational class/ISEI, number of siblings (logged), household income (logged), permanent versus temporary job contract, use of formal childcare, and years of accumulated job experience (logged).

Discrete-time event–history analyses are used to model factors associated with the annual probability of experiencing a birth, given that the event has not already occurred and a set of covariates. To avoid reverse causality, I use information on covariates that refer to the year preceding each wave.

Table 1. ***Results of the event–history analysis for 2nd births. Odds ratios***

	Model 1		Model 2		Model 3		Model 4		Model 5	
Job quality dimensions										
Control s.d[1]	1.11	***								
Control how s.d[1]			1.14	***						
Control time s.d. [1]					1.07	*				
Strain s.d[1]	0.92	**	0.92	**	0.91	**	0.91	**	0.91	***
Flexible start-end times							1.14	*		
Weekly workdays										
Ref.: Monday to Friday							1		1	
Days vary							1.43	***	1.42	***
Weekends							1.21	*	1.20	
Home-based work									1.17	*
Age of 1st child	1.98	***	1.99	***	1.97	***	1.95	***	1.94	***
Age of 1st child squared	0.92	***	0.92	***	0.92	***	0.92	***	0.92	***
Woman's age	1.68	***	1.68	***	1.68	***	1.69	***	1.69	***
Woman's age squared	0.99	***	0.99	***	0.99	***	0.99	***	0.99	***
Weekly hours of work										
<25	1.90	***	1.94	***	1.89	***	1.56	***	1.60	***
25-34	1.62	***	1.63	***	1.61	***	1.36	***	1.37	***
35-44 (ref.)	1		1		1		1		1	
>45	0.98		0.97	***	0.99		1.97		1.95	
Education. Ref.: Less than high school	1		1		1		1		1	
High school	1.32	*	1.32	**	1.32	*	1.34	**	1.34	**
Post-secondary	1.38	**	1.39	**	1.38	**	1.38	***	1.36	**
Bachelor	1.68	***	1.66	***	1.69	***	1.73	***	1.63	***
Postgraduate	1.84	***	1.82	***	1.86	***	1.86	***	1.77	***
Number of siblings (ln)	1.09		1.09		1.09		1.09		1.10	
Household income (ln)	1.28	***	1.29	***	1.28	***	1.29	***	1.30	***
Temporary job	0.86	*	0.86	*	0.85	*	0.84	**	0.85	*
Work experience (ln)	1.41	***	1.40	***	1.42	***	1.41	***	1.43	***
Person -years	6,821		6,821		6,821		6,821		6,821	
Women	2,346		2,346		2,346		2,346		2,346	

Significance:'*'=10%;'**'=5%; '***'=1%. Robust standard errors applied.

1: standardized variable, measured in standard deviations from the mean.

Results

The results of the analyses for second births are presented in Table 1. The "strain" dimension results show a substantial negative effect of increasing levels of strain on women's second-birth probabilities (Figure 1). One standard deviation change in strain leads to 8% decrease in the odds of a second birth (Model 1). This effect is consistent across several specifications; remarkably, no significant interaction effects are found with the number of weekly hours worked. To evaluate the size of the effect of the "strain" dimension, I computed the inverse of the survival function of a second birth for different strain levels, based on the life table method. As can be seen in Figure 3 the overall probability of a second birth after 10 years since the first birth is comprised between 0.78 and 0.88 for standard deviations between -2 and 2. This is a substantial difference, considering that the model includes a range of controls. Moreover, the effect of strain is fairly constant over ten years after first birth, as no significant interaction effects were found.

The overall effect of the "control" over the job process dimension shows a positive and statistically significant effect on women's second-birth probabilities, which is even larger than the strain effect (Model 1). When this dimension is split into the subdimension of control over *how women perform their job tasks*, the effects are strong and significant, while the effects of control on their *timetables* are weaker (Models 2 and 3; Figures 3 and 4). Several objective variables allow me to dig deeper into the role of time compatibility. The availability of flexible start and finish work times shows a weak positive effect, whereas working on weekends and variability in workdays (relative to working Monday to Friday) show clear positive effects. This last result suggests that women adapt their work schedules to their fertility plans. Consistent with expectations, home-based work shows a positive effect on second-birth probabilities, once controls for strain and hours worked are included in the model (Model 5).

The effects of the "complexity" dimension are not reported, since they are very weak and not significant. Similarly, the effects on first birth are statistically significant for the "control" dimension only, but not for the other dimensions, consistent with theoretical expectations. The effect of control over *how women perform their job tasks* is substantial (both in terms of average marginal effects and odds ratios) and significant at $p < .001$ level. As expected, the effects of control on *timetables* are weaker, as the work-childcare conflict is not present.

Future steps in the analyses will include the analysis of the effects of men's levels of strain and control on fertility (for couples) and their possible interactions with women's levels, as well as the inclusion of additional controls, including the use of childcare (and its interaction with job dimensions), occupational class, partner's income and job stability.

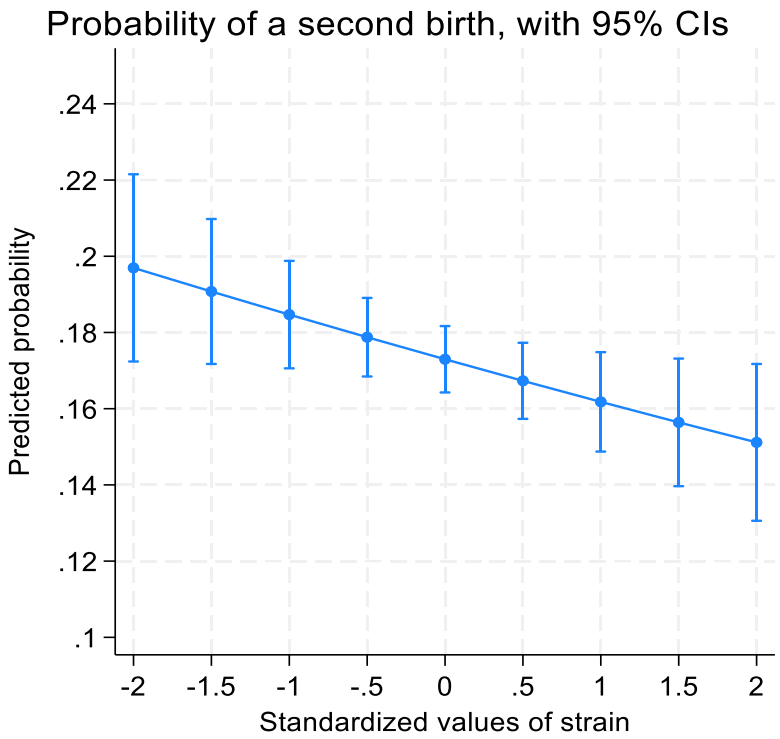

Probability of a second birth, with 95% CIs
Predicted probability
.24
.22
.2
.18
.16
.14
.12
.1
-2
-1.5
-1
-.5
0
.5
1
1.5
2
Standardized values of strain

Figure 1

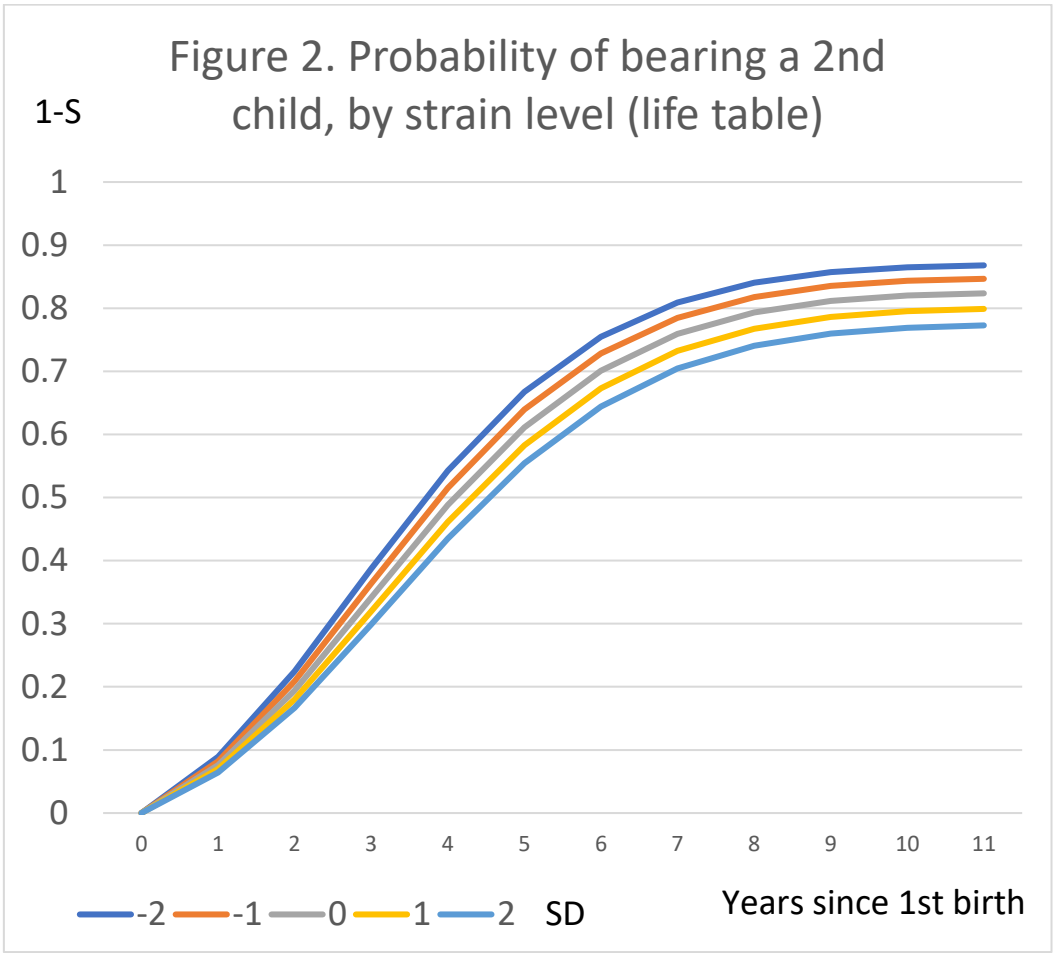
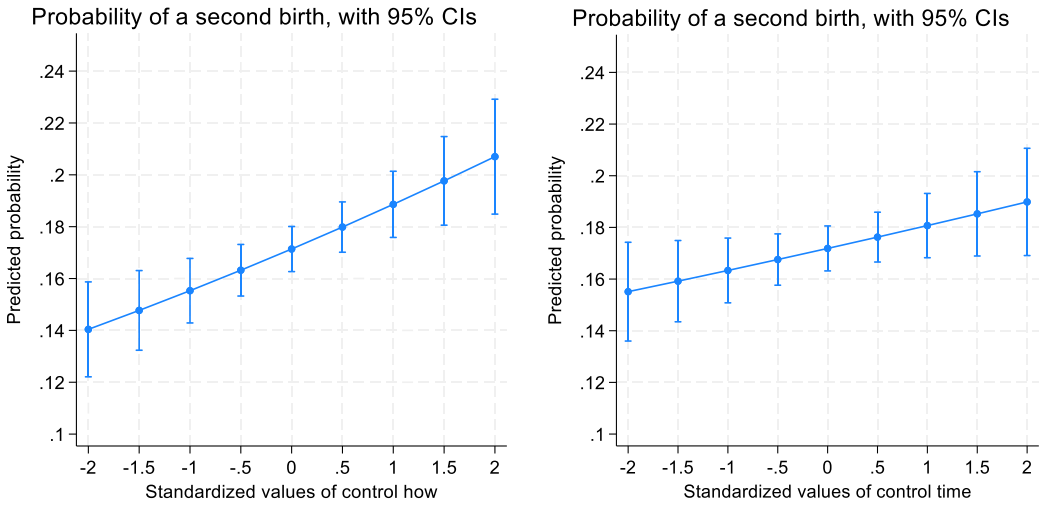


Figure 2. Probability of bearing a 2nd child, by strain level (life table)
1-S
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
1
2
3
4
5
6
7
8
9
10
11
-2
-1
0
1
2
SD
Years since 1st birth



Figures 3 and 4

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