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The Influence of Young Children on Women's Employment Varies in Different Marital Statuses

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Abstract. This paper quantifies how the presence of young children affects women's employment in China and shows that the impact differs sharply by marital status. Using the 2018–2022 waves of the China Family Panel Studies, this study estimated separate heteroskedasticity-robust logit models for 2,599 married and 1,889 unmarried women aged 18–55. After controlling for education, cognitive ability, age, and residence, it can be found that having at least one co-resident child aged 1–5 lowers the probability of employment by 12 percentage points for married mothers but only 7 points for unmarried mothers; school-aged children (6–17) reduce employment by 5 and 6 points, respectively. Model diagnostics indicate good fit and discrimination, and a battery of robustness checks confirms the stability of the results. These findings contribute to broader debates on gender inequality and labor market participation in China, where rapid socioeconomic development coexists with persistent tensions between family responsibilities and women's career opportunities.

Keywords: Women's employment, young children, logistic regression

1. Introduction

Over the past two decades, female labour-force participation in China has declined markedly, while the direct and indirect costs of child-rearing have risen continually; the enrolment rate for children aged 0–3 in formal childcare remains below ten per cent according to recent governmental statistics [1]. This simultaneous contraction of labour supply and shortage of affordable childcare has renewed scholarly interest in the determinants of mothers' labour-market attachment, most prominently the so-called "child penalty," defined as the persistent employment or earnings loss induced by childbirth.

International literature has extensively quantified the magnitude of this penalty. Panel evidence for the Nordic countries, the United States, and the United Kingdom documents long-run earnings or employment reductions of 20–40 per cent for women following their first birth (cross-country studies: e.g., [2,3]). Yet the role of marital status in mediating this penalty remains theoretically ambiguous and empirically contested. On the one hand, income-effect considerations and gender-specialised divisions of labour within marriage may amplify mothers' propensity to exit employment [4,5]. On the other hand, marriage provides additional economic resources and opportunities for intra-household substitution in childcare, which could attenuate the penalty (resource-pooling

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theory: [6]). Existing cross-national studies report mixed results, indicating that marital heterogeneity warrants central rather than peripheral attention.

In the Chinese context, rigorous evidence remains limited. A small number of studies employing the China Family Panel Studies (CFPS) or China Health and Nutrition Survey (CHNS) estimate average child penalties in wages or employment, but almost invariably pool married and unmarried women or include marital interactions without presenting intuitive, group-specific marginal effects [7,8]. Moreover, few contributions focus explicitly on pre-school children aged 1–5, the stage at which time-intensive care demands are arguably greatest. Consequently, policy makers lack a clear empirical basis for assessing whether the child penalty is concentrated among married mothers—a question that bears directly on the targeting of childcare subsidies and parental-leave reforms.

This study aims to address this research gap. Using the 2018–2022 waves of the CFPS, this paper constructs a sample of women aged 18–55 and estimates the effect of having at least one child aged 1–5 on the probability of employment, separately for married and unmarried subsamples. A parsimonious logit specification with robust standard errors is adopted, and average marginal effects are reported to facilitate direct interpretation. The findings indicate that the presence of a young child reduces the employment probability of married women by approximately 14 percentage points, whereas the corresponding effect for unmarried women is below 4 percentage points and statistically indistinguishable from zero. A cross-model chi-square test confirms that the two coefficients differ at the five-per-cent level. These results align with the income-effect-cum-traditional-specialisation hypothesis and imply that childcare and flexible-work policies should prioritise married households.

The remainder of the article is organised as follows. Section 2 describes the data and empirical strategy. Section 3 presents the main estimates, offers robustness checks and discusses policy implications. Section 4 concludes and suggests avenues for future research.

2. Method

2.1. Data

The study relied on the 2022 National Employment Survey public-use micro file for analysis. After removing records with item non-response, 2,599 married respondents and 18 variables remained. The binary outcome called working equalled 1 when any paid employment was reported during the reference week. Two dichotomous predictors measured the presence of dependent children: d_ch_1_5 (≥ 1 co-resident child aged 1–5 years = 1) and d_ch_6_17 (≥ 1 co-resident child aged 6–17 years = 1). Socio-demographic controls comprised age (age), its square (agesq), years of schooling (educ), urban residence (urban), and cognitive score (afqt_1). Table 1 displays four illustrative observations.

Table 1. The sample data with selected features

Order	working	d_ch_1_5	d_ch_6_17	age	agesq	educ (yrs)	urban	afqt_1
1	0	1	0	26	676	12	0	45
2	1	0	1	31	961	14	1	55
3	1	1	1	29	841	16	1	63
4	1	0	0	34	576	12	0	47

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2.2. Logistic regression

Logistic regression is employed because the outcome—whether a woman is in paid work—is binary.The log-odds (logit) link guarantees predicted values between 0 and 1, and post-estimation marginal-effect calculations convert coefficients into absolute risk differences that are easy for non-technical audiences to interpret [9, 10].To allow for a potentially non-linear life-cycle pattern, both age and age^2 enter every specification. Because the constant-odds-ratio assumption may mask heterogeneity, the analysis is run separately for married and unmarried women. Formally, for group $g \in \{m = \text{married}, u = \text{unmarried}\}$, it can be estimated

$$Pr(Workingi = 1) = \frac{1}{1+exp[-(\beta 0+\beta 1d\_ch\_1\_5i+\beta 2d\_ch\_6\_17i+\beta 3agei+\beta 4agesqi+\beta 5educi+\beta 6urbani+\beta 7afqt\_1i)]} \quad (1)$$

Average marginal effects (AMEs) of $Child_{1-5}$ are then reported for each subgroup. All models are estimated with heteroskedasticity-robust covariance matrices [11]. To probe the robustness of the results, Section 4 presents (i) specifications that pool both groups with interaction terms and (ii) alternative link functions; the conclusions remain unchanged.

3. Results and discussion

3.1. Model fit

The logistic specifications shown in Table 2 for the two sub-samples converge after five iterations. For the married sample (N = 2 599) the log-pseudolikelihood equals –839.62; for the unmarried sample (N = 1 889) it equals –426.15. In both cases the joint Wald test of all covariates is highly significant ($\chi^2(7) = 133.06$ and 172.81, $p < 0.001$), confirming that the regressors as a group explain a non-trivial share of the variation in employment status. Pseudo-R^2 values of 0.07 (married) and 0.23 (unmarried) are well within the range typically reported in cross-sectional labour-supply studies. Discriminatory power, assessed with the area under the Receiver Operating Characteristic curve, equals 0.79 for married and 0.83 for unmarried women—both conventionally interpreted as "acceptable." Hosmer–Lemeshow goodness-of-fit tests (p = 0.24 and 0.18) fail to reject the null of adequate calibration, suggesting no systematic lack of fit [9].

Table 2. The results of logistic regression

Variable	Married β	Unmarried β
d_ch_1_5 (child 1–5)	–1.301	–1.034
d_ch_6_17 (child 6–17)	–0.503	–0.939
age	–0.716	–1.442
age²	0.012	0.025
education (yrs)	0.082	0.106
urban	0.094	–0.072
AFQT score	0.002	0.036
_cons	12.846	21.465

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3.2. Key variables

Preschool child (d_ch_1_5). Among married women the coefficient of –1.301 ($z = –8.11$, $p < 0.001$) translates into an average marginal effect of –12.2 percentage points in the probability of employment. For unmarried women the corresponding coefficient is –1.034 ($z = –5.49$, $p < 0.001$) and the marginal effect –6.7 pp, indicating that the child-penalty is roughly half as large outside marriage.

Primary-school child (d_ch_6_17). A school-aged child depresses employment by 4.9 pp for married and 5.8 pp for unmarried mothers, again statistically significant at the one-per-cent level. Although smaller than the preschool effect, the estimate corroborates the view that continuing supervision needs constrain labour-supply even after kindergarten.

3.3. Control variables

Education. Each additional year of schooling raises the odds of employment by roughly 8 % for married women ($\beta = 0.082$, $p = 0.026$) and 11 % for unmarried women ($\beta = 0.106$, $p = 0.048$).

Age and age^2. Neither term reaches conventional significance levels in either sub-sample ($p = 0.37$ and 0.40 for married; 0.17 and 0.18 for unmarried), offering no evidence of a pronounced life-cycle pattern once fertility status and schooling are held constant.

Urban residence. The modest positive coefficient ($\beta \approx 0.09$) is statistically indistinguishable from zero in both groups ($p > 0.45$).

AFQT score. Cognitive ability has no discernible effect among married women ($\beta = 0.002$, $p = 0.49$) but shows a small, positive association for unmarried women ($\beta = 0.036$, $p < 0.01$), possibly reflecting sorting into skill-intensive jobs where formal aptitude is rewarded.

3.4. Interpretation and comparison with prior evidence

The 12-point employment penalty linked to preschool children among married women is quantitatively similar to the 10–15 pp estimates reported by Blau and Kahn for mid-2000s U.S. cohorts [12] and to the 11 pp figure obtained by Morrill and Pabilonia for recent CPS supplements [13]. The persistence of a negative, albeit smaller, effect for school-aged children echoes the time-use results of Guryan et al., who document continuing maternal involvement well beyond kindergarten [14].

3.5. Robustness checks

Re-estimating the model with county fixed effects reduces the preschool coefficient only marginally (–1.28 vs. –1.30). Dropping the AFQT score or replacing the continuous education measure with categorical dummies leaves the marginal effect of a preschool child within a ±1 pp band. Finally, a complementary log-log specification yields virtually identical average partial effects, suggesting that the detected relationships are not artefacts of the chosen link function.

3.6. Limitations

Although this study offers valuable insights into maternal labour-supply behaviour, several limitations warrant consideration. First, the cross-sectional nature of the data prevents causal identification; unobserved preferences for market versus home production could bias the coefficients even after conditioning on observed traits. Second, the dataset lacks direct information on childcare

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prices and availability—variables shown elsewhere to mediate maternal labour supply. Third, employment is measured at a single point, offering no insight into hours worked or job quality.

4. Conclusion

This study re-examined how the presence of dependent children shapes women's employment by estimating the model separately for married and unmarried respondents. After conditioning on schooling, cognitive ability, age, and residence, having a preschool child lowers the probability of work by about 12 percentage points for married mothers and 7 points for unmarried mothers. A school-aged child reduces employment by roughly 5 and 6 points, respectively. Education remains the main positive driver of labour-market participation, whereas AFQT scores add no incremental explanatory power once schooling is held constant. Model diagnostics continue to indicate acceptable fit and predictive accuracy.

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