Motherhood and Female Wages:

An Empirical Analysis of the Wage-Effects of Childbearing

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This research aims to look at the impact of motherhood on female wages and disentangle the key factors which might drive those results. It is an empirical regularity that mothers earn systematically less than women who have no children. According to Waldfogel (1994) and Fuchs (1988), there is a persistent "family gap" and a negative wage premium for mothers. But what really drives the negative effect of children on women's wages? Is it human capital factors like education and labor market experience, unobservable heterogeneity between mothers and non-mothers, lower effort at work due to absenteeism, exhaustion or discriminatory attitude of employers towards mothers?

Using a rich panel data set obtained from the National Longitudinal Survey of Young Women (NLYSW) records that covers workers' employment history from 1968 to 1988, this paper examines the implications of having a child on mother's subsequent wages, controlling for both, individual and job level heterogeneity. The richness of the data I intend to use will enable me to document the channels through which mothers fall onto a lower earning track and analyze the reasons behind it.

Such an analysis is a first step to design policies that aim to improve the condition of working mothers, especially for any kind of social safety net. It is also important to understand women's labor-market outcomes and assess child-rearing costs. Further, this paper complements the literature as it aims to study the effect of family status, racial status, education, experience and other important factors in one regression, making the empirical specification a comprehensive one.

Literature Review

Human capital theory predicts, "to the extent that mothers spend more time outside the labor market (for childbearing), labor market experience should explain much of the wage gap between mothers and non-mothers" (Becker, 1985). This prediction has been confirmed by several studies, which establish that when employment experience is taken into account, the unexplained difference in wages between mothers and other women narrows substantially. Hill (1979) finds that controlling for employment experience eliminates the unexplained effects of children on women's wages. Jacobsen and Levin (1995) show that controlling for labor market experience eliminated much of the wage effects of children, but the unexplained effects of children remained. Waldfogel (1997) argues that these unexplained effects could be due to motivation and commitment to paid work, characteristics which are not often observed in data.

In other studies, part of the wage gap is explained by differences in human capital characteristics between mothers and non-mothers, such as education, work experience, mothers' work interruptions and subsequent entry into part time jobs. This is because job changes may imply industry-specific human capital which could result in wage losses" (Kranz, 2013). Most empirical studies find a significant child penalty, ranging from about 0 to 8 percent.

It could also be that mothers are different from non-mothers in ways that are not observed in data. Waldfogel (1997) addresses this concern by estimating several fixed effects models. She finds that motherhood wage penalty is nearly the same as in the panel data model. However, Korenman and Neumark (1992) reach a different conclusion. They apply cross sectional analysis to NLSYW 1982 data and identify the same motherhood penalty as Waldfogel (1997). But when

experience and job tenure are added as controls, the wage penalty for one child becomes insignificant and the penalty for two or more children is reduced by half.

"The crux of the Becker work effort hypothesis is that mothers dissipate their energy caring for children and bring less energy to work" (Anderson et al., 2003). This translates into lower productivity and thus, lower wages. Moreover, mothers tend to have higher rates of absenteeism and chose less energy demanding jobs. Controlling for occupation, which this paper does, should help account for the part of wage penalty attributed to a choice of low-effort occupation. This will also help to test the claim of Becker's hypothesis.

Data

The data comes from the National Longitudinal Survey of Young Women (NLSYW), 1968-1988 in which a nationally representative sample of 5159 women, aged 14-24 at that time, was interviewed (Anderson et al. 2003). In each subsequent round, data were gathered on each respondents educational attainment, employment and fertility since the preceding round, and current labor force status.

Sample

As of the 1988 survey, 3508 women (currently aged 34-44) were still being interviewed. The sample is restricted to person-year observations for which information is available regarding education, actual labor market experience, and other regression variables, and in which the hourly wage is between $1 and $150 in 1997 dollars. "The final sample includes an unbalanced panel of 4246 women (2993 whites and 1253 blacks) observed up to 15 times between 1968 and 1988" (Anderson et al. 2003).

Empirical Specification

To measure the motherhood wage penalty, the following OLS regression equation will be estimated:

$$Log(wage)_{it} = \alpha + \beta 1(One\ Child)_i + \beta 2(Two\ or\ More\ Children)_{it} + \beta 3(Education)_{it} + \beta 4(Experience)_{it} + \beta 5(Black)_i + \beta 6(Married)_{it} + \beta 7(Part\text{-}Time)_{it} + \beta 8(Occupation)_{it} + u_{it}$$

Where *i* indexes individual woman, *t* indexes time (1968-1988) and u_{it} is an error term.

Key Variables

Variables	**Definition of Variables**
Log(wage)	Log of hourly wage in real 1997 dollars
One Child	Dummy variable =1 if a woman has one child
Two or More Children	Dummy variable =1 if a woman has two or more children
Education	Years of education completed
Experience	Years of experience
Black	Dummy variable =1 if woman is black
Married	Dummy variable=1 if woman is married
Part time	Indicator variable for working less than 35 hours per week
Occupation	Series of indicator variables for different occupations

The parameters β1 and β2 measure the wage penalty for one and two or more children, respectively.

In conclusion, this research is an empirical exercise to disentangle how much of the motherhood wage penalty is explained by mothers temporarily interrupting their career due to childcare (by controlling for actual experience), reducing their work schedule (to part-time work) and by other racial or human capital factors like education, experience and race.

(Word count: 992 words excluding references)

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