

The motherhood penalty: The effect of childbearing on wages and wage growth of women in the UK

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Abstract

This dissertation explores the effect of motherhood on both wages and wage growth in the UK utilising panel data, drawing from Waves 1-10 from the UK Household Longitudinal Study (UKHLS). Few studies have examined the motherhood penalty with regards to wage growth where stunted wage growth may arise due to the employer's perception of effort. The fixed effects and first difference method is employed to estimate the effect on wages and wage growth respectively. The results corroborate a significant wage penalty for mothers compared to non-mothers and a greater penalty for those with multiple children. Additionally, a significant marriage premium is observed which deviates from the existing literature. The results for the effect of motherhood on wage growth are inconclusive due to data complications; however, preliminary results have been provided; an improvement in data collection and accessibility will allow for a more comprehensive analysis regarding wage growth.

AI Statement

I confirm that generative AI was not used in during the research or drafting of this paper.

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1. Introduction

According to Altonji and Blank (1999), from the Oaxaca Decomposition of the Female-Male Wage Differential, 1995 men earned approximately 28.6% more than women when controlling for differences in sex, age, education and regional factors. Men earn 0.8% more due to skill differences and 27.9% more due to discrimination against women. When adding controls for industry and occupation, men earn approximately 7.6% more than women due to skill differences and 21.1% more as women are discriminated against. Although the discrimination coefficient remains large, it is important to note that the decomposition does not control for labour market history differences. Large female-male wage differentials are expected as mothers intermittently enter the household market due to caring responsibilities.

The persistence of the gender pay gap today is predominantly explained by differences in labour market histories and human capital accumulation as a result of motherhood. Much of the literature regarding the motherhood wage penalty focuses on the U.S. Joshi, Paci and Waldfogel (1999) use data drawn from the Medical Research Council's National Survey of Health and Development (MRC) and the National Child Development Study (NCDS) to track the pay, employment and family histories of women near child rearing age in 1978 and 1991. It is found that the wage differentials of mothers and non-mothers have remained stable over time, but British mothers face worsened penalties for non-continuous employment. Gash (2009) compares the motherhood penalty across different European countries and found that the largest wage penalties were observed in West Germany and the UK. The penalty observed was attributed to multiple factors namely the prevalence of part-time and unskilled employment amongst mothers. It is noted that countries which lack provision of employment for mothers have greater wage penalties. Much of the

literature only explores the motherhood penalty with regards to wage levels rather than wage growth; mothers may not experience an immediate penalty following the firstborn, but they may experience a penalty over time as a result of reduced on-the-job effort or employer discrimination. This paper will explore the motherhood penalty with respect to both wage levels and wage growth within the UK.

2. Literature Review

2.1 Theoretical explanations for the motherhood wage penalty

The majority of the motherhood penalty is said to be attributed to differences between mothers and non-mothers in terms of work history and current hours worked. According to Becker (1985) human capital theory espouses that as mothers tend to drop out of the labour force into the household sector, the payoff period of human capital is far shorter of those who are non-mothers. The shorter the payoff period, the less profitable the human capital and the returns on the investment are reduced. Secondly, during the time spent in the household sector a mother's skills can depreciate and as women anticipate this, they self-select into occupations that have a low depreciation rate (Polachek, 1981). Bertrand, Goldin and Katz (2010) follow the careers of female and male MBAs and find that the gender pay gap is not only attributed to courses taken and grades achieved but labour market discontinuity and the weekly hours worked. The gender pay gap decreases from 29 to 17 log points when controlling for weekly hours worked. The average duration of the unemployment spell for an MBA with at least one unemployment spell six years after graduation is 1.03 years; the wage penalty as a result of this would equate to 37 log points. Similar to Bertrand et al. (2010) Wood, Corcoran and Courant (1993) follow the careers of female and male lawyers post-graduation and found that gender differences in childcare responsibilities not controlling for firm type account for 41% of the earnings gap and 64% of the explained gap. Both studies follow graduates from top schools who have relatively high earnings; the mechanisms that determine the earnings of this select group may not be representative of the greater population however, the homogeneity allows for the sources of the pay differentials to be more accurately determined compared to studies that use country wide data.

Extending upon human capital theory, Becker (1985) proposed the effort hypothesis. All agents have a fixed endowment of effort to spend on a given set of activities; it is expected that mothers will allocate more effort towards housework and childcare responsibilities leading to lower effort being allocated towards work. This in turn would lead to lower productivity at work resulting in lower wages for mothers compared to non-mothers. The empirical support for the effort hypothesis is mixed; Azmat and Ferrer (2017) utilise data from AJD to examine gender performance gaps for young lawyers. It is found that the presence of young children has a substantial effect on performance using two measures hours billed and new client revenue; females with younger children bill approximately 200 hours fewer per year with their male counterparts not experiencing a significant penalty, however, there was no effect on new client revenue. In contrast Buchmann and McDaniel (2016) find that for females working in STEM, medicine and law motherhood has no significant impact on hourly wages in the year 1980; in 2010, motherhood has a positive, significant effect on hourly wages for females in STEM and medicine of 4% and 1% respectively. Anderson, Binder and Krause (2003) utilising education as a proxy for the effort requirement of work find no motherhood wage penalty for those with less than 12 years of schooling and those with 16 or more years of schooling. Mothers with 12 years of schooling faced wage penalties ranging from 4.1% to 5.8% and mothers with 13-15 years of schooling faced penalties from 5.7% to 11.2%. As there are obstacles in quantitatively measuring effort, the majority of the literature use proxies such as education, greedy jobs however these proxies remain more reliable than self-reported data.

The theory of equalising differences argues that wage differentials are necessary to equalise the sum of the monetary and nonmonetary characteristics of an occupation; occupations that have arduous conditions, greater inflexibility, precarious employment and fewer employee benefits will be compensated with higher wages (Rosen, 1986). It is therefore argued that

mothers accept lower wages in return for flexibility and accommodations. Glass (2004) follows a cohort of mothers seven years after childbirth. It is found that mothers employed in managerial or professional occupations experience significant penalties for working reduced hours and working from home; working from home at least 5 hours per week is associated with a 58% lower wage gain over time a reduction in hours worked in conjunction with this results in a 49.6% loss in wage gains. It is difficult to assess whether occupations that offer work family policies offer lower pay compared to similar occupations which do not or that mothers who utilise accommodating arrangements are perceived by employers as less dedicated employees and thus experience depressed wage growth. Jacobs and Steinberg (1990) utilise data from the New York Civil Service System to estimate the effect of compensating differentials on the gender pay gap. It is argued that previous literature has relied too heavily on undesirable characteristics found in male dominated occupations omitting those found in female dominated occupations. Thus, additional variables are used; contact with difficult clients, communication with public, stress, job autonomy, working with sick patients, task repetition and being told what to do. It is found that even alongside using the traditional measures, undesirable job characteristics are associated with lower wages; in male dominated jobs, strenuous physical activity and loud noise is significantly associated with a 5.20 and 2.13 unit decrease in mean salary grade respectively. Cleaning others' dirt and being told what to do is associated with lower wages for both male and female dominated jobs. The only exception is working with sick patients which results in a wage premium for both groups.

Taste discrimination states that a competitive employer faces a disutility from hiring workers who they are prejudiced against (Becker, 1957) therefore, if employers are prejudiced towards mothers, nonmothers are more likely to be favoured for promotion. Contrary to this, statistical discrimination can arise sans prejudice. To filter for the best candidate, employers

will evaluate employment histories of individuals similar to the candidates previously hired. Information drawn from the hiring process is used as a proxy for a candidate's productivity. Thus, perfectly qualified candidates can be inadvertently grouped in with those associated with lower productivity (Borjas, 2019; Phelps, 1972). There is little empirical evidence for employer discrimination as an explanation for the motherhood penalty as it is difficult to assess an employer's prejudice. According to Correll et al. (2007) explore the motherhood penalty as a result of statistical discrimination by measuring proportions of callbacks given gender and parental status the information of which that has been manipulated into the hiring information provided to the employers. The results show that being a mother reduces the likelihood of a women being a preferred candidate compared to a man although contrary to previous literature, the effects of parenthood for males is not significant; a fatherhood premium is usually observed it generally corroborates previous findings regarding statistical discrimination (Bertrand and Mullainathan, 2004).

2.2 Estimation of the motherhood wage penalty in the context of wage growth

Previous literature has focused on the heterogeneity of the motherhood penalty with respect to wage levels however recent select studies have explored the penalty in the context of wage growth. Wages may not decline immediately following the firstborn as mothers may return to the occupations they held prior to motherhood. As a result of the employer's perception of effort, mothers may be more less likely to be passed up for promotion leading to depressed wage growth. The empirical evidence for the motherhood penalty in the context of wage growth is mixed.

Loughran and Zissimopoulos (2009) utilise data from the 1979 cohort of the NLSY (National Longitudinal Survey of Youth) and the 1966 male cohort (NLSYM) and the 1968 female cohort (NLSYW) to explore how the wages of men and women change with respect to

marriage and childbirth. It is found that in the year of marriage, both wage levels and wage growth are lowered by approximately 2-4%; following the first birth, wage levels of women are lowered by 2-3% with no effect on wage growth. The effects of childbirth on wage levels and wage growth for men are found to be insignificant however, wage growth is affected by marriage; from the 1979 cohort, for each year of marriage wages decline by 2.3% and in the 1966 cohort, wages decline by 2.1% each year. Marriage being associated with a negative wage growth for men contrasts previous literature; could it be that married men are discriminated by employers via the mechanism of the 'effort-perception' or that married men indeed allocate less effort towards work relative to bachelors? It is important to note that these estimates likely suffer bias as a result of unobserved heterogeneity; an alternative explanation is that men that decide to postpone marriage or not marry characteristically differ from those who marry or marry early.

Livermore, Rodgers and Siminski (2011) utilise data from the HILDA survey from 2001-08 to examine the effects of childbirth on the wages and wage growth of women. The fixed effects results show having a child results 4.4% penalty and having two or more children results in earnings of 8.1% less on average relative to childless women. A firstborn results in a depressed annual wage growth of 1.2 % points. Having a second child offsets the negative effect of wage growth from the firstborn although this estimate is not found to be statistically significant. These results contrast those of Loughran and Zissimopoulos (2009), but this may be due to sample selection bias; Loughran and Zissimopoulos (2009) exclude mothers that drop out of the workforce entirely following childbirth which may drive estimates towards zero.

3. Data and Variables

3.1 Data

The data utilised is an unbalanced panel dataset drawn from the UK Household Longitudinal Study (UKHLS) using Waves 1-10 spanning from years 2009-19. As a result of the COVID-19 pandemic and the low response rates that followed, Waves 11-15 are disregarded in order to avoid distortion. Those individuals who have dropped out of the survey may be systemically different from those who have remained in the survey which may result in non-random attrition bias. Bias may also be present due to self-selectivity; those who partake in the survey may characteristically differ from those who do not. The UKHLS provides appropriate inverse probability weights to reduce these biases, however, the software used does not allow for the use of inverse probability weights when carrying out certain operations therefore the results presented will be unweighted. Following the recommendation of the UKHLS (no date) these assumptions will be made explicit.

3.2 Sample Restrictions

Table 1: Remaining Women-Year Observations

Sample A	
Women	240,786
Aged between 21 and 46	100,327
Employed	70,739
Employees	65,432
Not missing wage data	62,617
Not missing child data	62,427
Not missing marital status	62,250
Not missing human capital data	54,837
Not missing job characteristics data	53,849

Source: *UKHLS, Waves 1-10*

Women who were aged less than 21 were dropped from the sample as wages for those aged 16-20 years old in the UK are governed by the National Minimum Wage rather than the National Living Wage. According to the ONS (2026) the average age in which mothers complete childbearing responsibilities is 46 therefore women aged over 46 have been dropped from the sample. Those who were not employed were dropped from the sample. This includes women who are retired, full-time students, unemployed, long-term sick and disabled, caring for the family or household, working unpaid for a family business, partaking in a government training scheme, apprentices, furloughed and temporarily laid off. Those who were not employees i.e. those who

were self-employed were dropped from the sample as this study focuses on the effects of motherhood on wage growth which may be affected by the employer's perception of effort therefore the wage growth of the self-employed will be affected by different mechanism relative to those employed. In order to take first differences, it was necessary to drop those with a missing wage rate from the sample. Those with missing child and marital status data were dropped from the sample. Those with missing human capital data, in this case the highest qualification achieved which is used as a proxy for education is dropped. Those who were missing full-time or part-time employment status were dropped from the sample. A problem with this sample restriction is that those who are unemployed or in the household market are dropped which omits the large sample of mothers who will drop out of the labour market following the firstborn. Loughran and Zissimopoulos (2009) note similar issues following sample restrictions. Contrary to this, Livermore, Rodgers and Siminski (2011) allow for a 'gap' for women who were not in employment following the birth of the first child and the second child which not only reduces sample selection bias but controls for human capital depreciation.

3.3 Dependent Variable

The dependent variable used is hourly wage. In the UKHLS, there is no direct measure of hourly pay excluding those who are paid at an hourly rate rather than salaried. Thus, hourly pay has been constructed using the usual gross pay per month divided by the average number of weeks within a month which is approximately 4.33 multiplied by the average number of hours worked in a week. The values are then logarithmised as wages are typically right skewed.

3.4 Independent Variables

The first independent variable is a dummy variable which represents whether the individual has one or more children which takes the value of '1' if the individual has one or more children and '0' if otherwise. The second dummy variable represents whether the individual has two or more children which takes the value of '1' if true and '0' if false. Within the UKHLS, there is no accurate measure of the number of natural children birthed excluding miscarriages which have sizeable response rates therefore a proxy is used to construct the dummy variables which is the number of natural children within the household. It is expected that having one or more children is associated with lower wage levels and for the magnitude of this penalty to be greater with mothers who have two or more children.

3.5 Control Variables

The first control variable used is marriage; a dummy variable that takes the value of '1' if the individual is married and '0' if otherwise. This dummy variable is derived from the current marital status found within the dataset. Previous estimates generally show a penalty; Loughran and Zissimopoulos (2009) find that the first year of marriage is associated with a 2-4% decline in wages, however there could be a small premium observed if women are choosing to delay marriage; this could be due to improved access to contraception as women who have unwanted pregnancies may be pressured into marrying early (Goldin and Katz, 2002). It is expected that marriage will be associated with lower wages.

The second control variable, HE denotes higher education. The UKHLS has no data available on the years of education therefore the proxy used is the current

highest qualification achieved. The dummy signifies whether someone has had at least 15 years of education. If an individual has a higher education qualification or equivalent, the dummy takes the value of '1' and '0' if else. It is expected having at least 15 years of education will be associated with a greater hourly wage rate relative to those who do not as highly educated women tend to postpone childbirth (Brand and Davis, 2011).

The last control is part-time employment status taking the value of '1' if the individual works part-time and '0' if otherwise. The UKHLS does record other measures of job characteristics such as firm type and union status however, these both have poor response rates. It is expected that part-time employment status is associated with lower wages.

Livermore, Rodgers and Siminski (2011) control for experience and its square term in both the fixed-effects and first difference estimation. The potential experience and its square term are calculated using the proxy formula which is age minus the average school leaver age (Mincer, 1974), in this case it is at least 16, minus the compulsory schooling age, which in the UK is age 5 (UK Government, no date). However, for the majority of the sample, the experience increases by 1 across each wave therefore it is not included within the final specifications to avoid perfect multicollinearity.

4. Methodology

4.1 Fixed Effects Model

$$\ln W_{it} = \eta + \beta_1 Child1_{it} + \beta_2 Child2_{it} + \gamma_1 Wave_t + \varphi_i + u_{it} \quad (1)$$

$$\ln W_{it} = \eta + \beta_1 Child1_{it} + \beta_2 Child2_{it} + MS_{it}\beta_3 + \gamma_1 Wave_t + \varphi_i + u_{it} \quad (2)$$

$$\begin{aligned} \ln W_{it} = & \eta + \beta_1 Child1_{it} + \beta_2 Child2_{it} + \beta_3 HE_{it} + MS_{it}\beta_4 + PT_{it}\beta_5 + \gamma_1 Wave_t \\ & + \varphi_i + u_{it} \end{aligned} \quad (3)$$

4.2 First Difference Model

$$\begin{aligned} \ln W_{it} = & \eta + \beta_1 Child1_{it} + \beta_2 Child2_{it} + Y\beta_3 Child1_{it} + Y\beta_4 Child2_{it} \\ & + \beta_5 HE_{it} + MS_{it}\beta_6 + PT_{it}\beta_7 + \gamma_1 Wave_t + \varphi_i + \alpha_i + u_{it} \end{aligned} \quad (4)$$

$$\begin{aligned} \Delta \ln W_{it} = & \beta_1 \Delta Child1_{it} + \beta_2 \Delta Child2_{it} + \beta_3 Child1_{it} + \beta_4 Child2_{it} + \beta_5 \Delta HE_{it} + \\ & \beta_6 \Delta MS_{it} + \beta_7 \Delta PT_{it} + \gamma_1 \Delta Wave_t + \alpha_i + \Delta u_{it} \end{aligned} \quad (5)$$

The fixed effects method will be used to estimate the effect of motherhood on hourly wages. Hill (1979), the first author to examine the effects of marriage and motherhood on hourly wages uses the pooled OLS estimation, however, it does not control for differences between those who bear children and those who do not (Budig and England, 2001). Following this, the fixed effects method has often been deployed to examine the motherhood penalty (Neumark and Korenman, 1992; Waldfogel, 1997). If unobserved heterogeneity is present, the fixed-effects estimates will be consistent compared to pooled OLS estimates. Miller (2011)

uses an IV approach via biological fertility shocks for the mother's age following the firstborn. The shocks are as followed; whether the mother miscarried following first pregnancy, whether the mother fell pregnant with firstborn while on contraception and time passed from conception attempt to childbirth. Wilde, Batchelder and Ellwood (2010) critique the use of miscarriages as this data is not always reported. When using the fixed-effects estimation, the exogeneity assumption may be violated as lower-paid women may be more likely to have children (Livermore, Rodgers and Siminski, 2011)

A similar methodology to Livermore, Rodgers and Siminski (2011) is used to allow childbirth to affect the hourly wage growth. The variables $Y\beta_3Child1_{it}$ and $Y\beta_4Child2_{it}$ measure the number of waves spent in employment following the birth of the first and second child respectively. The number of years is not used as the waves overlap. The exogeneity assumption may be violated if a woman decides to have children following the anticipation of lower pay (Livermore, Rodgers and Siminski, 2011).

5. Results

5.1 Sample Means

Table 2: Unweighted Sample Means for Non-mothers.

Variable	Obs	Mean	Std. Dev.
Hourly Wage	21,245	13.495	60.298
Log (Hourly Wage)	21,245	2.419	0.490
Age	21,245	30.455	7.276
Potential Experience	21,245	9.455	7.276
Higher Education ($x \geq 15$ years of education)	21,245	0.622	0.485
Married	21,245	0.231	0.422
Part-time Employment	21,245	0.129	0.335

Source: *UKHLS Waves 1-10*

Table 3: Unweighted Sample Means for Mothers.

Variable	Obs	Mean	Std. Dev.
Hourly Wage	32,019	13.730	70.312
Log (Hourly Wage)	32,019	2.395	0.526
Age	32,019	37.461	6.002
Potential Experience	32,019	16.461	6.002
Higher Education ($x \geq 15$ years of education)	32,019	0.482	0.500
Married	32,019	0.641	0.480
Part-time Employment	32,019	0.466	0.499

Source: *UKHLS Waves 1-10*

5.2 Fixed Effects Estimation

Table 4: Unweighted FE estimates of (1)

R²: Within = 0.0895 Between = 0.0017 Overall = 0.0154 corr(u_i, Xb) = -0.1074 No. of obs = 53,264 No. of groups = 14,422 Obs per group: min = 1 avg = 3.7 max = 10 F(11, 14421) = 188.18 Prob > F = 0.0000			
Log (Hourly Wage)	Coefficient	Robust std. err.	P> t
Child1 (β_1)	-0.012	0.009	0.184
Child2 (β_2)	-0.028	0.009	0.001

Source: UKHLS Waves 1-10

Table 5: Unweighted FE estimates of (2)

No. of obs = 53,264 No. of groups =14,422			
R²: Obs per group: min = 1 avg = 3.7 max = 10			
Within = 0.0900 Between = 0.0041 Overall = 0.0210 corr(u_i, Xb) = -0.0816			
F(12, 14421) = 174.60 Prob > F = 0.0000			
Log (Hourly Wage)	Coefficient	Robust std. err.	P> t
Child1 (β_1)	-0.017	0.009	0.058
Child2 (β_2)	-0.029	0.009	0.001
Married (β_3)	0.030	0.008	0.000
Source: UKHLS Waves 1-10			

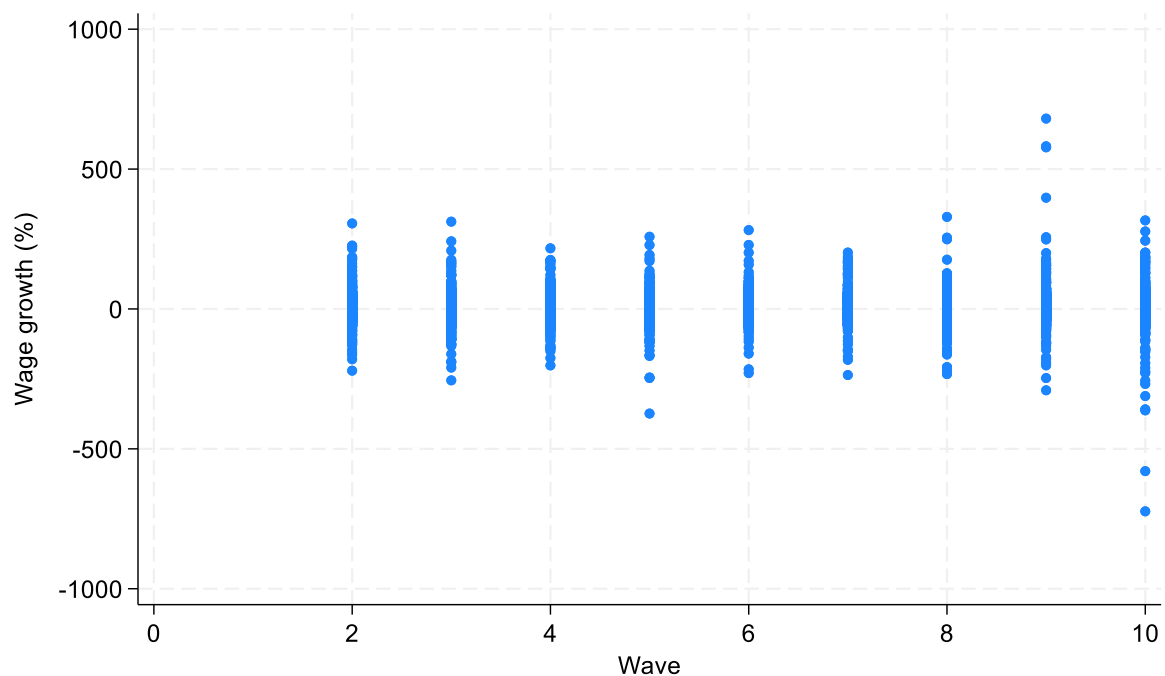
Table 6: Unweighted FE estimates of (3)

R²: Within = 0.1015 Between = 0.0008 Overall = 0.0136 corr(u_i, Xb) = -0.1432				No. of obs = 53,264 No. of groups = 14,422 Obs per group: min = 1 avg = 3.7 max = 10 F(14, 14421) = 152.97 Prob > F = 0.0000
Log (Hourly Wage)	Coefficient	Robust std. err.	P> t	
Child1 (β_1)	-0.049	0.0093982	0.000	
Child2 (β_2)	-0.040	0.0085715	0.000	
Marriage (β_3)	0.028	0.0078468	0.000	
Higher Education (β_4) (x ≥ 15 years of education)	0.041	0.0187242	0.030	
Part-time (β_5)	0.109	0.0086642	0.000	

Source: UKHLS Waves 1-10

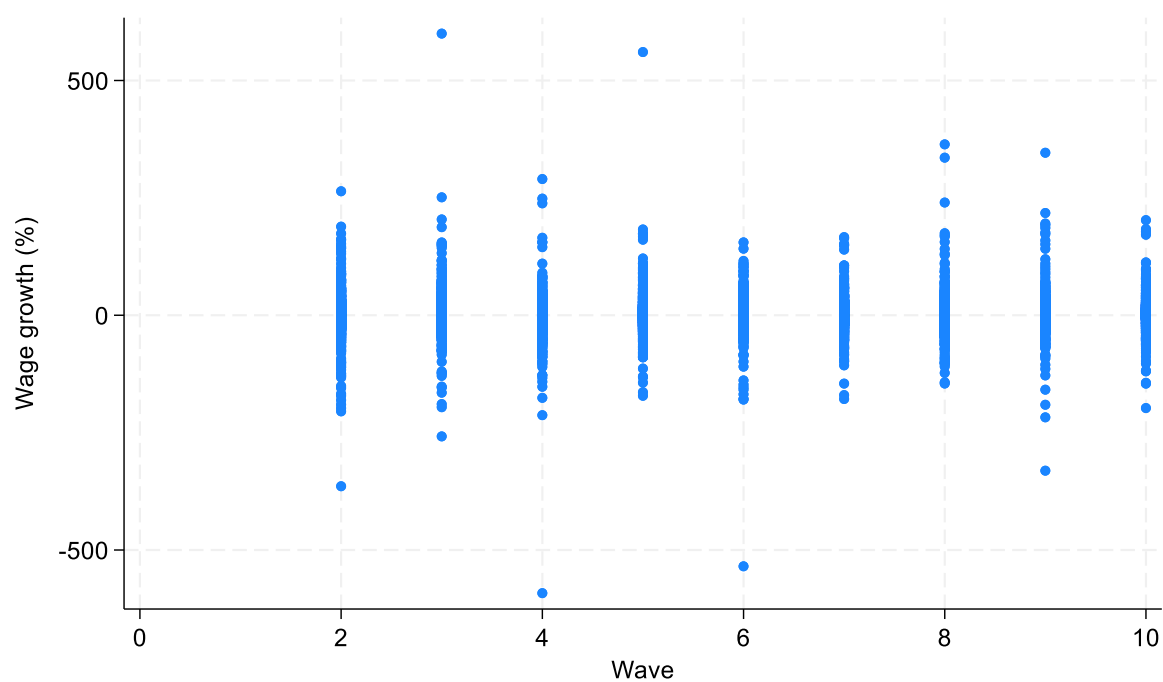
5.3 First Difference Estimation: Preliminary Results

Figure 1: Wage growth for non-mothers



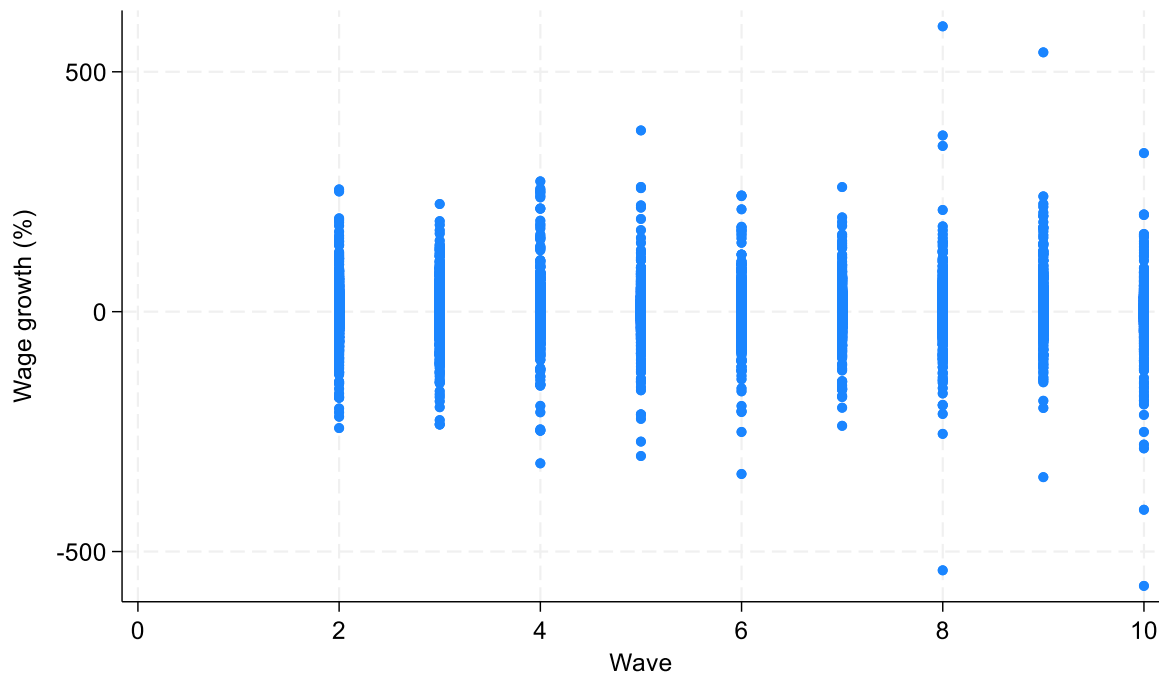
Source: UKHLS Waves 1-10

Figure 2: Wage growth for mothers with one child



Source: UKHLS Waves 1-10

Figure 3: Wage growth for mothers with two or more children



Source: UKHLS Waves 1-10

As the first difference estimation requires data regarding the years of employment following the birth of the first and second child respectively, the results are not reported as it was not possible to provide an accurate proxy. It is further complicated by the use of a proxy for a birth of a child which is the number of natural children in the household in the UKHLS dataset; by observing the dataset there are waves for certain individuals where they have no natural children in the household following having a child which possibly indicates that the child was not present in the household at the time of the observation or that the mother is no longer responsible for the care of the child. A further complication is that there were a small number of ‘potential’ births that took place across the sample following restrictions which would likely result in unreliable estimates.

5.4 Robustness Test: Durbin-Wu-Hausman Test

	----Coefficients ----			sqrt(diag(V_V_B)) Std. err.
	(b) fixed	(B) random	(b-B) Difference	
Child1	-0.049	-0.005	-0.044	0.005
Child2	-0.040	-0.011	-0.029	0.004
Married	0.028	0.099	-0.072	0.004
Higher Education	0.041	0.304	-0.263	0.014
Part-time	0.109	0.023	0.087	0.002
Wave 2	0.030	0.019	0.011	0.001
Wave 3	0.060	0.042	0.019	0.001
Wave 4	0.087	0.059	0.028	0.002
Wave 5	0.126	0.088	0.038	0.002
Wave 6	0.162	0.115	0.049	0.002
Wave 7	0.202	0.143	0.059	0.002
Wave 8	0.254	0.186	0.069	0.003
Wave 9	0.313	0.235	0.078	0.003
Wave 10	0.350	0.260	0.090	0.003
b = Consistent under H0 and Ha; obtained from xtreg. B = Inconsistent under Ha, efficient under H0; obtained from xtreg.				
Test of H0: Difference in coefficients not systematic				
$\chi^2(14) = (b-B)'[(V_b - V_B)^{-1}](b-B)$ $= 2524.20$ Prob > $\chi^2 = 0.0000$ ($V_b - V_B$ is not positive definite)				

6. Discussion

In specification (1), the estimates show that mothers with one child receive a 1.2% penalty although this result is not significant. Mothers with two or more children receive a 2.8% penalty with this result being significant at the 1% level. The average number of observations per the group equating to 3.7 confirms attrition within the dataset. In specification (2) which controls for marriage, mothers with one child receive a 1.7% penalty significant at the 10% level and those with two or more children receive a 2.9% penalty significant at the 1% level. Females who are married experience a small wage premium in which this effect is significant at the 1% level. This contrasts previous literature which has typically found a penalty for women (Loughran and Zissimopoulos, 2009) however, previous literature focuses on the NLSY79, and older datasets may not be representative of the trends of marriage today.

The final specification which in addition to controlling for marriage controls for education and part-time employment status shows that mothers with one child experience a 4.9% penalty; those with two or more children experience a 4% penalty both significant at the 1% level. The small marriage premium is still observed and significant. Those with 15 or more years of education experience a wage premium which is in line with the current literature. Part-time employment status is significantly associated with higher hourly wages. Typically, it is reported that part-time status is associated with lower wages due to a reduction in work experience and a weaker attachment to their professions (Borjas, 2019). This contrasting result could point to higher productivity which in turn leads to higher wages (Pencavel, 2015). Alternatively, the results may indicate that those in flexible employment experience a premium due to compensating differentials as part-time employment comes with less

stability. The part-time status wage premium observed may change if industry type was controlled for within the regression along with further job characteristic controls.

The Durbin-Wu-Hausman test is performed to examine whether the random effects model is preferred over the fixed effects model. The p-value is significant at the 1% level which states that the estimates of the fixed effects and random effects model are systematically different with the random effects estimates being inconsistent, the fixed effects model is preferred.

7. Conclusion

When controlling for marriage, education and part-time employment status, the results for the effects of childbirth on hourly wages were significant and in line with theoretical and empirical evidence. In contrast, married women experienced a premium however, this premium remains small and is reduced when further controls are added to the second specification. It may suggest that the relationship between marriage and childbirth or that attitudes towards marriage are changing over time. The coefficient for part-time employment status is unexpected; this could point to data suppression issues or that further indicators for job characteristics need to be controlled for. With improved data collection and data accessibility, the effect of motherhood on wage growth within the UK can be appropriately examined.

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