Maternity Leave and Child Health:

Evidence from the UK's Millennium Cohort Study

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ABSTRACT

Objective:

This paper examines the determinants of mother's leave-taking, the effects of pre-birth leave-taking on prenatal care and low birth weight, and the effects of post-birth leave-taking on breast-feeding.

Methods:

Using data on 11,686, 8-12 month old babies from the Millennium Cohort Study in the UK, this paper utilizes three analytical methods: multinomial logit models, to predict the determinants of mothers' pre- and post-birth leave-taking; logit models, to examine the effects of mothers' pre-birth leave-taking on prenatal care and low birth weight, as well as the effects of their post-birth leave-taking on the decision to breast-feed; and Cox's proportional hazard model, to estimate the duration of mothers' breast-feeding.

Results:

The study found that mothers' pre-birth leave has significant effects on increasing prenatal care receipt and reducing the occurrence of low birth weight. Mothers who took leave or ceased working at least three weeks prior to childbirth were more likely to receive prenatal care and less likely to have children born with low birth weight. Moreover, the results suggest that longer length of mothers' post-birth leave increases their chances for and duration of breast-feeding.

Conclusion:

This study provides additional evidence on the positive effects of longer duration of mothers' post-birth leave on their child's health. It also reveals that a mother's pre-birth leave has a positive effect on her child's baseline health by increasing the mother's

chance of receiving prenatal care, and reducing the occurrence of low birth weight. The results predict longer periods of both pre- and post-birth leave will improve children's health.

Key words: maternity leave; breast-feeding; prenatal care; low birth weight

INTRODUCTION

The rate of women's return to work after childbirth, especially those with young children, has been increasing internationally. In the United Kingdom in 1991 and 1992, of those mothers entitled to take leave, 63% returned to work in less than a year (Burgess, Gregg, Proper, & Washbrook, 2002). Similarly, in the U.S. in 1998, 58% of mothers with a child under the age of one returned to work (Berger, Hill, & Waldfogel, 2002). As the number of mothers returning to work early increases, the impact on their children's well-being becomes of growing concern, both to individual families and to society as a whole. One of the main concerns is that of the health of the young child. In order to examine more closely the factors influencing child health outcomes, this paper will focus on the determinants and the effects of mothers' pre-birth and post-birth leave-taking behavior on child health outcomes, using data from the Millennium Cohort Study First Survey (MCS) in the United Kingdom.

There is a significant gap in the current literature investigating the effects of maternal leave on child health outcomes. Using data from the U.S. Food and Drug Administration's Infant Feeding Practices Study (1993-1994), a positive correlation is indicated between maternal leave from work after childbirth and the duration of breast-feeding (Roe, Whittington, Fein, & Teisl, 1999). With data from the U.S. National Longitudinal Survey of Youth 79 (NLSY), Berger, Hill, and Waldfogel (2002) found children with mothers who returned to work from zero to six weeks were less likely to be breast-fed and or cease being breast fed significantly earlier than children of mothers who return to work later.

There are few studies on the effect of early maternal employment on child health

outcomes. Using the 1988 National Survey of Family Growth, Lindberg (1996) found strong evidence that mothers who returned to work in the first month postpartum were 4.3 times more likely to cease breast-feeding than their peers who remained on leave during this period. Using data from the Avon Longitudinal Study of Parents and Children (ALSPAC) in the United Kingdom, Noble and the ALSPAC study team (2001) found mothers who plan to return to work from zero to six weeks after childbirth are significantly less likely to start breast-feeding. Using the same dataset, Gregg and Washbrook (2003) found that mothers' return to work in 18 months had no significant effect on the initiation of breast-feeding, while early maternal employment significantly reduced the duration of breast-feeding, by about two weeks for mothers who returned to work part-time and about five to six weeks for full-time workers.

Thus, this paper aims to fill the gap by analyzing the determinants and effects of mothers' pre-birth leave-taking on prenatal care and on the occurrence of low birth weight, in addition to the determinants of mothers' post-birth leave-taking and the effects of this leave on whether a child has ever been breast-fed and the length of breast-feeding.

METHODS

Data collection and Sample

This research utilizes the MCS, a large-scale survey for babies and families in the four countries (England, Wales, Scotland, and Northern Ireland) of the United Kingdom. The survey includes information on 18,819 babies[1] born into 18,553 families in the UK between September 2000 and January 2002. To be included, babies had to be a minimum of 8 months and a maximum of 12 months of age and living in the UK at the

[1] Including 246 twins and 10 triplets.

time the survey was conducted[2]. The sample is clustered geographically and designed to have disproportionate representations of families living in areas where child poverty is more prevalent in Northern Ireland, Scotland, and Wales as well as in areas with high concentrations of ethnic minority populations in England. The MCS survey consists of two sections: main and partner respondents, with each section including two components—interviews and self-completion modules[3]. The majority of the respondents for the main interview were natural birth mothers with a few exceptions[4]. The details on the sampling can be found in the Technical Report on Sampling (Plewis, 2003).

In analyzing the effect of maternal leave on child health outcomes, the sample population of children includes those with mothers who worked during pregnancy[5]. As a result, the analyses include sample populations of 11,686 children (Table 1).

Measures

Child health outcomes

Two dependent variables for child health before or at birth were included: 1) prenatal care practices, and 2) low birth weight. Prenatal care practice refers to whether a mother had any prenatal care when she was pregnant with the baby (1=Yes, 0=No), and low birth weight refers to whether a child weighed 2500g or less at birth (1=Yes, 0=No).

[2] The sample population includes children living in non-household situations (women's refugees centers, hostels, hospitals, and prisons) at the age of 9 months and children not born in the UK but established residency in the UK at the age of 9 months, while excluding children who died before the age of 9 months, UK-born children who emigrated from the UK before 9 months, and children not established as resident in the UK at the age of 9 months (Plewis, 2003).
[3] This study obtained the data from the interview sections.
[4] The exceptions are 2 adoptive mothers, 2 foster mothers, 18 single fathers, 2 natural fathers whose partners were natural mothers who actually answered the partner interview, 1 father with a proxy interview for the natural mother, and 5 other guardians.
[5] The term "worked during pregnancy" refers to those mothers who had a paid job at any time while pregnant.

Both of these variables have been established as being important indicators and closely related to child health conditions at birth. With regard to the measures for post-birth child health outcomes, following the models by Berger, Hill and Waldfogel (2002), the outcomes include: 1) whether a child was ever breast-fed (1=Yes, 0=No) and 2) the length of breast-feeding (in months).

Mother's leave-taking variables

Statutory maternity leave legislation was introduced in the UK in 1979. The legislation, as of 2002, under which the children of the MCS were born, provided that women who worked for the same employer full-time for a minimum of 2 years or part-time for a minimum of 5 years and worked up to 11 weeks prior to the expected week of childbirth could take up to 29 weeks leave after childbirth and were entitled to return to their pre-birth employment positions[6] (Department of Trade and Industry [DTI], 2003). Statutory Maternity Pay (SMP), financed by payroll taxes, was provided to those women who were eligible to take 29 weeks of leave as well as to women who did not meet these qualifications but had been continuously employed by the same employer for 6 months by providing the basic flat rate payment for 18 weeks. In addition, those who did not qualify for the SMP, such as the self-employed and those who had changed employers, were covered by Maternity Allowance (MA) for a maximum of 18 weeks, paid through the local social security office (Burgess, Gregg, Propper, & Washbrook, 2002; DTI, 2003). According to the Policy Studies Institute's (2004) data in 2002, 85% of mothers who

[6] As of April 2003, the length of paid maternity leave was extended from 18 weeks to 26 weeks, and the unpaid leave was extended from 11 weeks to 26 weeks, thereby providing a total of 52 weeks of leave. For further details, please see the Department of Trade and Industry website http://www.dti.gov.uk/er/matleafr.htm.

worked as employees during pregnancy were entitled to take Additional Maternity Leave (AML), which is longer than 18 weeks (30 to 40 weeks, depending on when they started taking leave), while 15% of mothers were entitled to take 18 weeks of Ordinary Maternity Leave (OML). Seventy-five percent of those who were entitled to take AML did not take their leave for more than 30 weeks (40% took less than 19 weeks; 35% took 19-29 weeks). Among those who were entitled to take only OML (Those legally entitled to take 18 weeks of leave), 21% took leave less than 18 weeks, 48% took 18 weeks, and 31% took more than 18 weeks.

For the purpose of this study, maternal pre- and post-childbirth leave-taking behaviors are defined by both continuous and categorical variables. The length of pre-childbirth leave is divided into 7 categories: 1) less than 3 weeks, 2) 3-5 weeks, 3) 6-8 weeks, 4) 9-11 weeks, 5) 12-15 weeks, 6) 16-23 weeks, and 7) more than 24 weeks. The first 4 categories capture approximately 80% of mothers who took pre-birth leave of up to 11 weeks, the recommended leave according to national leave legislation.

Mothers' post-birth leave-taking is categorized into three groups: 1) 0-4 months, 2) 5-7 months, and 3) 8 or more months, or remaining on leave. The rationale for the categories is as follows: the first group captures those under most financial pressure to return to work quickly, including those who return to work when the paid leave periods end at 18 weeks (about 4 months); the second group picks up those under less financial pressure who are able to use unpaid leave which extends to 29 weeks (as of 2002); and finally, the third group takes up those who do not return even by the end of the unpaid leave period. This latter group appears to be a diverse group, including some very low-income mothers who will not return for some time presumably because the benefits of

returning to work were not sufficient, as well as some very high income mothers who do not need to return because they have high income earning husbands or those mothers who have a longer period of job-protected leave through their employers. These categories are also supported by the distribution of the overall pattern of mothers' return to work status (Figure 1).

Although mothers' pre- and post-birth leave variables are the main independent variables, these variables are also considered as outcomes in order to analyze the determinants of mothers' leave-taking at various points in time. These models enable us to understand the composition of each categorical group and if the effects of the determinants on leave-taking are linear.

Other controls

All models include a set of child characteristics. In addition, models referring to the mothers' return to work status include a set of maternal/family characteristics. Child characteristics include: race (white, black, mixed, Asian, or other), gender, whether the child is a first-born, and whether the child was born with low-birth weight. In addition, there is information on the delivery: whether the delivery was normal or needed assistance (normal delivery=1, needed assistance=0[7]); and whether the mother had any illness or problems during pregnancy requiring medical attention or treatment (Yes=1, No=0). These two variables were not included in the models analyzing receipt of prenatal care and the occurrence of low birth weight because these outcomes are assumed to be related to pre-birth factors, not those occurring at birth. Maternal/family characteristics

[7] These include deliveries assisted with forceps, vacuum extraction, breach, planned Caesarian, emergency Caesarian, or other types of delivery.

include: marital status (married or cohabiting, never married, or previously married)[8], education (8 categories defined by qualifications)[9], age, and household income (5 categories)[10]. Paternal characteristics include: marital status (married or cohabiting, never married, or previously married), education defined by qualifications, age, race (white, black, mixed, Asian, or other), and household income (5 categories). Finally, dummy variables are also included in all models to account for missing data[11] for any of the independent variables.

Statistical Analyses

Logit models and Cox's proportional hazard models are used to examine the effects of mothers' return to work on child health outcomes. The logit models are used to predict the effects for dichotomous dependent variables (breast-feeding, prenatal care, and low birth weight) and the hazard model is used to estimate the rate at which mothers cease breast-feeding after childbirth[12]. In the hazard model, since it analyzes the risk of ceasing activities, the model does not include mothers who never started breast-feeding[13]. Multinomial logit models are used to predict mothers' taking pre- and post-birth leave at various points in time.

[8] Never married and previously married do not include cohabiting couples, who are combined with married.
[9] These categories include: 1) higher degree, 2) first degree, 3) diplomas in higher education, 4) A/AS/S levels, 5) O level/ GSCS grades A-C, 6) GCSE grades D-G, 7) other academic qualifications (including overseas qualifications), and 8) none of these qualifications.
[10] In British pounds, 1) £0-£10,399, 2) £10,400-£20,799, 3) £20,800-£31,199, 4) £31,200-£51,999, 5) £52,000 and over.
[11] Less than 1% of cases were missing for all variables except 2.5% of father's leave-taking (any type of leave) and 7.2% of income variables are missing.
[12] Therefore, the period of analysis is between childbirth and the time of the survey, and mothers who were still breast-feeding at the time of the survey were coded as right censored in the hazard models.
[13] Of the 11,686 mothers for whom there is complete data on employment at the time of pregnancy and breast-feeding, 3,928 never started to breast-feed. As a result, the number of observations remaining for analysis is 7,758.

RESULTS

The descriptive statistics of variables used in the analysis are displayed in Table 1. As indicated, 20.9% of mothers stopped working less than 3 weeks prior to birth, 49.5% of mothers stopped working within 6 weeks of birth, and 75.6% of mothers stopped within 9 weeks of birth. Looking at mothers' return to work, 33.5% of mothers returned to work in 0-4 months, 61% returned by 7 months, and 39% of mothers who worked during pregnancy remained on leave after 7 months.

The Kaplan-Meier survival function estimates in Figure 2 indicate that of those mothers who worked prior to childbirth and started breast-feeding, 26% ceased breast-feeding by 1 month, 50% ceased by 3 months, and 75% ceased by 7 months. Survival function estimates by return to work categories are shown in Figure 3. By using the categorical variables, it is expected that mothers in the third category (those taking post-birth leave for 8 or more, or remaining on leave) are more likely to continue breast-feeding the longest. However, the Figure indicates that those mothers who fall in the second category and took leave for 5-7 months are actually the least likely to cease breast-feeding in the early stages after childbirth. Because of these unexpected results, in Figure 4, those who had not returned to work at the time of survey were coded in an additional fourth category and a survival analysis for this group was conducted. As shown in the Figure 4, the fourth group of mothers who remained on leave was more likely than the second and third groups to cease breast-feeding in the early months after childbirth. This could be related to the characteristics of the mothers who returned to

work after 8 months or remained on leave, because this category seems to be a diverse group in terms of education and income levels (discussed more in later sections).

Effects of Mothers' Characteristics on Pre- and Post-birth Leave-taking Behavior, Using Categorical Variables

Before examining the effects of mothers' pre- and post-birth leave on children, Table 2 presents an analysis of the effects of the mothers' characteristics on her leave-taking behavior by using multinomial logit models. The comparison group for the analysis of pre-birth leave-taking is the first category of mothers, those who ceased work less than 3 weeks prior to childbirth, while the comparison group for the post-birth leave analysis is the first category of mothers, those who took leave for 0-4 months. The table shows odds ratios and standard errors. Odds ratios greater than 1 indicate that the variable is associated with greater likelihood of returning in that category relative to the reference category. Odds ratios of less than 1 indicate a lower likelihood.

Controlling for maternal/family background variables, mothers with the highest educational qualifications were significantly less likely to take pre-birth leave longer than 12 weeks while mothers with no educational qualification were more likely to take pre-birth leave of 6 weeks or more. Interestingly, mothers in the highest income families are less likely to take pre-birth leave of more than 12 weeks while those in the lowest income families are more likely to stop working 12 weeks or more before childbirth. In addition, results show that older mothers and women having their first child tend to take shorter leave prior to birth. Also, as I expected, mothers who had any illness or problem during pregnancy are more likely to cease working earlier than those who did not have problems.

Turning to post-birth leave-taking, the relationships between patterns of mothers' characteristics and leave-taking behavior are not always linear. As compared to mothers who took post-birth leave in 0-4 months, mothers who return to work later were more likely to have higher income levels as well as higher educational attainment. But for the lowest income group of mothers, there was a significant relationship between returning to work in 8 months or later, while no significant relationship was determined for all mothers who took post-birth leave for 5-7 months. On the other hand, the effect of being in the highest income category is greater for both the second and third categories of post-birth leave-taking mothers, but the magnitude of effect was greater for those who took post-birth leave for 5-7 months. Moreover, the effects for the middle-income group, group 3,[14] were not linear. This group was more likely to take leave for 5-7 months, but significantly less likely to return to work after 8 months or remain on leave.

Higher educational attainment also predicts that mothers will take longer leave. Yet, the effects were not linear for the highest educational group because the data reveal that higher educational attainment does not significantly increase the chances a mother will return to work after 8 months, or remain on leave. In addition, low birth weight and being the first-born were significant predictors that increased the likelihood that mothers will take longer leave.

Effect of Mothers' Pre-birth Leave-taking in Weeks on their Receipt of Prenatal Care and the Occurrence of Low Birth Weight

The models presented in Table 3 examine how the length of maternal pre-birth leave-taking affects the receipt of prenatal care and the occurrence of low birth weight.

[14] Income between £20,800 and £31,199

The first model uses a continuous variable of weeks of mothers' leave prior to childbirth and the second model uses a categorical variable divided into 7 categories[15]. The results indicate that mothers who took leave before childbirth were significantly more likely to receive prenatal care (Complete results shown in Appendix 2). The magnitude of the effect was small when comparing the effect estimated by the continuous variable, however, the effects using categorical variables were substantial. All mothers who took leave or ceased working at least three weeks prior to childbirth were more likely to receive prenatal care (although the effects are not significant for those who took pre-birth leave for 12-15 weeks). Strikingly, the results also indicated that taking between 9 to 11 weeks off prior to childbirth increased the mothers' propensity to receive prenatal care by 5.2 times more than those who took less than three weeks off. This demonstrates that maternity leave prior to birth encourages mothers to receive prenatal care, in particular, pre-birth leave of between 9-11 weeks was associated with the strongest increase in the probability of the mothers' receiving prenatal care.

Turning to the effects of the mothers' leave-taking from work before childbirth on the occurrence of low birth weight, the results indicated that an increase in the length of pre-birth leave significantly decreased the babies' risk of low birth weight (Table 3). The magnitude of effect is seen more clearly when estimating with categorical variables. All mothers taking at least 3 weeks of leave were significantly less likely to have children born with low birth weight than those who took less than 3 weeks of leave. For example, the children of mothers who took between 6-8 weeks of leave were 76% less likely to be born with low birth weight than those of mothers who took pre-birth leave less than 3

[15] The 7 categories are defined by the length of pre-childbirth leave (in weeks) taken by the mother: 1) less than 3 weeks, 2) 3-5 weeks, 3) 6-8 weeks, 4) 9-11 weeks, 5) 12-15 weeks, 6) 16-23 weeks, and 7) 24 or more weeks.

weeks. Yet, the magnitude of effect follows a linear pattern with respect to the length of pre-birth leave. Therefore, the results suggest that taking between 6-8 weeks of pre-birth leave maximizes the effects on reducing the risk of a child being born with low birth weight.

Effect of Mothers' Post-birth Leave-taking on Whether Children are Ever Breast-fed

Following Berger, Hill and Waldfogel's (2002) models, the next models estimate the effects of the mothers' return to work status, in months, on whether the baby was ever breast-fed (Table 4). The first model uses a continuous variable of a mother's return to work, in months, and the second model uses categorical variables. In the first model, the month of return to work for those who remained on leave or had not returned to work at the time of survey was coded by using the child's age[16]. For the second model, those who had not returned were included in the last category, "return to work after 8 months or remained on leave", because the youngest child was 8 months of age.

As the results indicate in Table 4 (Complete results shown in Appendix 3), the length of mothers' leave had significant effects on whether the mother breast-fed. Children with mothers who took leave for the latter two categories, for 5-7 months, or for 8 months or more were significantly more likely to be breast-fed than those whose mothers took leave for 0-4 months, by 12% and 37%, respectively.

Effect of Mothers' Length of Leave in Months on the Length of Breast-feeding, Using the Hazard Model

[16] There is no difference in the results between the analyses that included these cases and those that did not; therefore, they are included.

The results of Cox's proportional hazard models for the duration of breast-feeding are presented in Table 4 (Complete results shown in Appendix 3). The sample for analysis includes mothers who worked before childbirth and those who started breast-feeding; therefore, mothers who never breast-fed were excluded from the analysis. As a result, the sample size was smaller than for other models[17]. For coding children less than 12 months of age (the oldest babies included in the survey) who were still breast-feeding at the time of the survey (the group that is right-cencored), their age at the time of the interview was used as the duration time of breast-feeding. The dichotomous dependent variable in these two models was whether the mother stopped breast-feeding, and the main independent variables were the continuous variables of the mothers' return to work for model 1 and the categorical variables for model 2.

The results in Table 4 indicate that a longer length of leave from work results in a decreased risk of ceasing to breast-feed. Mothers who returned to work after 8 months or remained on leave were 45% less likely to cease breast-feeding, and those who took leave for 5-7 months were 20% less likely to cease breast-feeding compared to those who took leave for 0-4 months.

CONCLUSION

This study found a significant strong relationship between mothers' pre-birth leave and both the opportunities to receive prenatal care and the occurrence of the child being born with low birth weight. All mothers who took leave or ceased working at least 3 weeks prior to childbirth were more likely to receive prenatal care compared to those

[17] The sample size for the analysis was 7,758 because 3,928 of the total mothers who worked before childbirth did not breast-feed. Of the 7,758 mothers who started breast-feeding, 6,288 had stopped by the time of survey.

who stopped working less than 3 weeks before childbirth. Pre-birth leave also decreased the babies' risk of being born with low birth weight. These results indicate that maternal pre-birth leave encourage mothers' receipt of prenatal care and decreases the risk of a child being born with low birth weight, which are important factors in improving a child's baseline health.

Turning to post-birth leave-taking, the longer length of mothers' time away from work increases the chances and length of breast-feeding. Children with mothers who took leave from 0 to 4 months were significantly less likely to be breast-fed compared to those with mothers who took leave for 5-7 months or for 8 months or more, by 12% and 37%, respectively. Moreover, results of the Cox hazard models indicate that the length of breast-feeding is significantly related to the length of mothers' leave. Mothers who took leave for 0-4 months are more likely to cease breast-feeding earlier than those who took leave for 8 or more months, by 20% and 45%, respectively.

Following the findings of Berger, Hill, and Waldfogel (2002), this study found positive effects on child health outcomes due to longer lengths of maternal time away from work post-birth. In addition, it also reveals mothers' pre-birth leave has a significant effect on child baseline health. The examination of the relationship between mothers' characteristics and leave-taking behavior also provide a better illustration of their leave-taking determinants. Nevertheless, questions remain about the causality of these associations. For example, many of the behaviors examined here may be jointly determined, or may be affected by characteristics of the mothers not measured here. For this reason, there is a need for further research with richer data, or with more exogenous sources of variation.

References

Albrecht, J.W., Edin, P.A., Sundstrom, M. and Vroman S.B. "Career Interruptions and Subsequent Earnings: A Reexamination Using Swedish Data." *Journal of Human Resources*, 1999, *34*(294-311).

Angrist, J.D. and Krueger, A. "Empirical Strategies in Labor Economics," in Orley Ashenfelter and David Card (eds), *Handbook of Labor Economics.* Amsterdam: North-Holland, 1999,

Berger, M. L. and Hill, J. "Maternity Leave, Early Maternity Employment, and Child Outcome in the U.S.," *Population Association of America 2004 Annual Meeting.* Boston, MA, 2003.

Berger, M. L. and Waldfogel, J. "Maternity Leave and the Employment of New Mothers in the United States." *Journal of Population Economics*, 2004, *17*(2), pp. 331-49.

Berger, M.L., Hill, J, and Waldfogel, J. "Family Leave Policies and Child Outcomes," *the Population Association of America Annual Meeting.* Atlanta, Georgia, 2002.

Blau, D.M., Guilky and D.K., Popkin, B.M. "Infant Health and the Labor Supply of Mothers." *Journal of Human Resources*, 1996, (31), pp. 90-139.

Burgess, S., Gregg, P., Propper, C., and Washbrook, E. "Maternity Rights and Mothers' Return to Work." *CMPO Working Paper Series*, 2002, *No.02/055*.

Carlsen, S. "Men's Utilization of Paternity Leave and Parental Leave Schemes," In: Carlsen, S. and Larsen, J.E. (eds), *The Equality Dilemma.* Copenhagen: Danish Equal Status Council, 1994, pp. 79- 90.

The Clearinghouse on International Developments in Child, Youth and Family Policies at Columbia University. "Issue Brief, Mother's Day: More Than Candy and Flowers, Working Parents Need Paid Time-Off," New York: The Clearinghouse on International Developments in Child, Youth and Family Policies at Columbia University, 2002.

____. "Issue Brief, Mother's Day: More Than Candy and Flowers, Working Parents Need Paid Time-Off," 2002.

Deven, F. and Moss, P. "Leave Arrangements for Parents: Overview and Future Outlook." *Community, Work & Family*, 2002, *5*(3), pp. 237-50.

Gregg, P., Washbrook, E., and the ALSPAC Study team. "The Effects of Early Maternal Employment on Child Development in the UK." *CMPO Working Paper Series*, 2003, *No.03/070*.

Hass, L. *Equal Parenthood and Social Policy*. Albany, NY: State University of New York Press, 1992.

Hudson, M., Lissenburgh, S., and Sahin-Dikmen, M. "Maternity and Paternity Rights in Britain 2002: Survey of Parents," Policy Studies Institute, 2004.

Kamerman, S.B. "Child Care Policies and Programs: An International Overview." *Journal of Social Issues*, 1991, *47*, pp. 179-96.

____. "Parental Leave Policies: An Essential Ingredient in Early Childhood Education and Care Policies." *Social Policy Report*, 2000, *XIV*(Number 2).

Klerman, J.A. "Characterizing Leave for Maternity: Modeling the NSLY Data," Bureau of Labor Statistics, U.S. department of Labor, 1993.

Klerman, J.A. and Leibowitz, A. "FMLA and the Labor Supply of New Mothers: Evidence from the June Cps," *the Population Association of America Annual Meetings.* Chicago, IL: RAND, 1998.
____. *Labor Supply Effects of State Maturity Leave Legislation*. New York: Russell Sage Foundation, 1997.
____. "The Work-Employment Distinction among New Mothers." *Journal of Human Resources*, 1994, *29*(2), pp. 277-303.
Leibowitz, A. A. "An Economic Perspective on Work, Family and Well-Being," *Work, Family, Health and Well-being Conference.* 2003.
Lindberg, L.D. "Women's Decisions About Breastfeeding and Maternal Employment." *Journal of Marriage and the Family*, 1996, *58*, pp. 239-51.
Naik, G. "Lancet Says Study Was Flawed," *Wall Street Journal.* London, 2004.
Nasman, E. "Parental Leave in Sweden: A Workplace Issue?," *Stockholm Research Reports in Demography.* Stockholm: Stockholm University, 1992.
Noble, S, and The ALSPAC study Team. "Maternal Employment and the Initiation of Breastfeeding." *Acta Padiatr*, 2001, *90*, pp. 423-8.
Plewis, I. "Millennium Cohort Study First
Survey: Technical Report on Sampling 2nd Edition," London: Centre for Longitudinal Studies, Bedford Group for Lifecourse & Statistical Studies, Institute of Education, University of London, 2003.
Roe, B., Whittington, L., Fein, S., and Teisl, M. "Is There Competition between Breast-Feeding and Maternal Employment?" *Demography*, 1999, *36*(2).
Rosenzweing, R. M. and Schultz, T. P. "The Behavior of Mothers as Inputs to Child Health: The Determinants of Birth Weight, Gestation, and Rate of Fetal Growth," V. R. Fuchs, *Economic Aspects of Health.* Chicago: the University of Chicago Press, 1982,
Ruhm, C. and Teague, L. J. "Parental Leave Policies in Europe and North America," in Francine Blau and Ronald Ehrenberg (eds.), *Gender and Family Issues in the Workplace.* New York, NY: Russell Sage Foundation Press, 1997,
Ruhm, C. "The Economic Consequences of Parental Leave Mandates: Lessons from Europe." *Quarterly Journal of Economics*, 1998, *113*(1), pp. 285-317.
____. "Parental Leave and Child Health." *Journal of Health Economics*, 2000, *19(6)*, pp. 931-60.
Sundstrom, M. and Duvander, E.A. "Gender Division of Childcare and the Sharing of Parental Leave among New Parents in Sweden." *European Sociological Review*, 2002, *18*(4), pp. 433-47.
U.K. Department of Trade and Industry. "Individual Employment Rights," 2003. http://www.dti.gov.uk/er/individual.htm
Waldfogel, J. "A Cross-National Perspective on Policies to Promote Investments in Children," *the Joint Center for Poverty Research 2002 September Research Institute "Family Investments in Children's Potential".* Chicago, Illinois, 2002.
____. "The Family Gap for Young Women in the United States and Britain: Can Maternity Leave Make a Difference?" *Journal of Labor Economics*, 1998, *16*(3), pp. 505-45.
____. "Family Leave Coverage in the 1990s." *Monthly Labor Review*, 1999, *October*, pp. 13-21.

____. "Family-Friendly Policies for Women with Children." *Employee Rights and Employment Policy Journal*, 2001, *5*(1), pp. 273-96.
____. "The Impact of the Family and Medical Leave Act." *Journal of Policy Analysis Management*, 1999, *18*(2), pp. 281-302.
____. "What Other Nations Do: International Policies toward Parental Leave and Child Care." *The Future of Children*, 2001, *11*(1), pp. 99-111.
Winegarden, C.R. and Bracy, M.P. "Demographic Consequences of Maternal-Leave Programs in Industrial Countries: Evidence from Fixed-Effects Models." *Southern Economic Journal*, 1995, *61*(4), pp. 1020-35.
Wisensale, S. K. *Family Leave Policy*. Armonk, New York: M. E. Sharpe, Inc., 2001.
Work-Life Research Centre. "Families and Work--Childcare and Family Statistics," Work-Life Research Centre, 2003.

Table 1: Descriptive Statistics for Variables used for Analyses

Variable	Mean	Std.Dev.	Min	Max
Outcome variables				
Ever breast-fed	0.719	0.449	0	1
Months breast fed	2.668	3.317	0	11
Receive prenatal care	0.980	0.141	0	1
Low birth weight (2,500g or less)	0.073	0.260	0	1
Return in months	6.206	2.660	0	12
Pre-birth leave in weeks	7.965	7.757	0	39
Took pre-birth leave less than 3 weeks	0.208	0.406	0	1
Took pre-birth leave 3-5 weeks	0.287	0.452	0	1
Took pre-birth leave 6-8 weeks	0.260	0.439	0	1
Took pre-birth leave 9-11 weeks	0.037	0.188	0	1
Took pre-birth leave 12-15 weeks	0.073	0.261	0	1
Took pre-birth leave 16-23 weeks	0.063	0.243	0	1
Took pre-birth leave 24 or more weeks	0.072	0.258	0	1
Took post-birth leave for 0-4 months	0.335	0.472	0	1
Took post-birth leave for 5-7 months	0.275	0.447	0	1
Took post-birth leave for 8 months or more, or still on leave	0.390	0.488	0	1
Mother's characteristics				
Mom age	29.153	5.675	14	51
Mom age squared	882.1	329.7	196	2601
Mom-white	0.905	0.293	0	1
Mom-black	0.030	0.170	0	1
Mom-mixed race	0.013	0.114	0	1
Mom-Asian	0.047	0.212	0	1
Mom-other race	0.005	0.067	0	1
Married or cohabiting	0.882	0.323	0	1
Single-Never married	0.102	0.303	0	1
Single-Previously married	0.016	0.127	0	1
Mom higher degree	0.045	0.208	0	1
Mom first degree	0.168	0.373	0	1
Mom diplomas in higher education	0.110	0.313	0	1
Mom A/AS/S levels	0.114	0.318	0	1
Mom O level/ GSCS grads A-C	0.363	0.481	0	1
Mom GCSE grades D-G	0.096	0.295	0	1
Mom other academic qualifications	0.018	0.131	0	1
Mom none of these qualifications	0.086	0.281	0	1
Income group 1 (less than £10,399)	0.160	0.367	0	1
Income group 2 (£10,400-£20,799)	0.328	0.469	0	1
Income group 3 (£20,800-£31,199)	0.254	0.436	0	1
Income group 4 (£31,200-£51,999)	0.192	0.394	0	1
Income group 5 (£52,000 and over)	0.066	0.249	0	1
Child's characteristics				
Baby's age months	9.222	0.529	8	12
Baby-white	0.893	0.310	0	1
Baby-black	0.029	0.167	0	1
Baby-mixed race	0.031	0.174	0	1
Baby-Asian	0.044	0.206	0	1

Baby-other race	0.003	0.057	0	1
Child first-born	0.524	0.499	0	1
Baby-boy	0.513	0.500	0	1
Normal delivery	0.628	0.483	0	1
Any illness or problems during pregnancy	0.396	0.489	0	1

N=11,686

Note: The data are obtained from the Millennium Cohort Study First Survey, February 2004. The sample population includes children with mothers who worked during pregnancy. Among the population, 11 mothers did not have information on pre-birth leave and 7 mothers did not have information on employment after childbirth. 3,685 mothers still on leave are included in the third category.

Table 2: Effects of Mothers' Characteristics on Mothers' Pre- and Post-birth Leave-taking, Odds Ratios and Standard Errors from Multinomial Logit Models

	Pre-birth leave-taking						Post-birth leave taking	
Models	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	3-5 weeks vs. less than 3 weeks	6-8 weeks vs. less than 3 weeks	9-11 weeks vs. less than 3 weeks	12-15 weeks vs. less than 3 weeks	16-23 weeks vs. less than 3 weeks	24 or more weeks vs. less than 3 weeks	5-7 months vs. less than 5 months	8 or more months vs. less than 5 months
Mom higher degree	0.965	0.848	0.833	0.544*	0.562+	0.886	1.331*	1.043
	(0.122)	(0.117)	(0.217)	(0.149)	(0.168)	(0.215)	(0.160)	(0.128)
Mom first degree	1.019	1.032	0.864	0.91	0.662*	0.729*	1.740**	1.324**
	(0.083)	(0.088)	(0.140)	(0.127)	(0.110)	(0.114)	(0.131)	(0.099)
Mom diplomas in higher education	0.987	0.932	0.649*	1.064	0.843	0.972	1.375**	1.015
	(0.089)	(0.089)	(0.129)	(0.151)	(0.137)	(0.148)	(0.112)	(0.081)
Mom A/AS/S levels	0.982	1.018	0.853	0.891	0.664*	0.825	1.467**	1.098
	(0.088)	(0.094)	(0.152)	(0.128)	(0.108)	(0.123)	(0.119)	(0.085)
Mom GCSE grades D-G	0.969	1.250*	1.143	1.590**	1.136	1.414*	1.043	1.085
	(0.105)	(0.133)	(0.221)	(0.219)	(0.168)	(0.198)	(0.099)	(0.085)
Mom other academic qualifications	0.809	0.994	0.539	1.456	0.915	1.034	1.169	1.334+
	(0.175)	(0.213)	(0.288)	(0.416)	(0.299)	(0.306)	(0.239)	(0.234)
Mom none of these qualifications	0.908	1.384**	1.184	1.926**	1.711**	1.967**	0.942	1.410**
	(0.110)	(0.160)	(0.253)	(0.277)	(0.249)	(0.277)	(0.104)	(0.117)
Child first-born	1.132*	0.97	0.894	0.685**	0.573**	0.576**	1.384**	1.246**
	(0.066)	(0.059)	(0.103)	(0.062)	(0.058)	(0.055)	(0.076)	(0.064)
Baby-black	0.821	0.756	0.421+	1.059	1.556*	2.069**	1.571**	1.800**
	(0.140)	(0.136)	(0.198)	(0.245)	(0.343)	(0.416)	(0.260)	(0.265)
Baby-mixed race	0.713*	0.798	0.799	0.640+	0.521*	1.124	1.029	1.251+
	(0.108)	(0.123)	(0.243)	(0.158)	(0.148)	(0.237)	(0.155)	(0.165)
Baby-Asian	1.074	1.178	0.604	0.768	1.022	2.005**	1.456**	1.776**

	(0.149)	(0.165)	(0.206)	(0.172)	(0.219)	(0.350)	(0.194)	(0.208)
Baby-other race	0.496+	0.435+	0.024	0.559	0.614	0.028	0.971	0.976
	(0.208)	(0.197)	(0.098)	(0.367)	(0.414)	(0.075)	(0.415)	(0.392)
Baby-boy	1.012	1.053	0.894	1.085	0.97	0.98	0.985	0.987
	(0.054)	(0.058)	(0.094)	(0.088)	(0.085)	(0.081)	(0.048)	(0.044)
Never married	0.818	0.703**	0.721	0.923	0.792	0.778+	0.877	0.88
	(0.102)	(0.088)	(0.178)	(0.143)	(0.121)	(0.114)	(0.106)	(0.079)
Previously married	0.751	0.622*	1.269	0.66	0.999	0.833	0.783	0.747+
	(0.169)	(0.145)	(0.469)	(0.208)	(0.285)	(0.240)	(0.172)	(0.130)
Mom age	1.039	0.975	0.946	0.755**	0.650**	0.672**	1.132**	0.896**
	(0.048)	(0.045)	(0.083)	(0.045)	(0.040)	(0.040)	(0.049)	(0.032)
Mom age squared	0.999	1	1.001	1.004**	1.006**	1.006**	0.999+	1.002**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Income group 1	1.098	1.079	0.892	1.438**	2.788**	2.867**	1.01	2.709**
	(0.124)	(0.121)	(0.195)	(0.203)	(0.392)	(0.387)	(0.114)	(0.219)
Income group 3	0.982	0.836*	0.817	0.718**	0.707*	0.745*	1.309**	0.763**
	(0.074)	(0.064)	(0.120)	(0.082)	(0.097)	(0.096)	(0.087)	(0.048)
Income group 4	0.975	0.743**	0.849	0.504**	0.661*	0.794	1.910**	0.957
	(0.081)	(0.064)	(0.140)	(0.073)	(0.109)	(0.118)	(0.144)	(0.071)
Income group 5	0.767*	0.578**	1.02	0.619*	0.731	0.535*	2.139**	1.335*
	(0.090)	(0.073)	(0.226)	(0.125)	(0.179)	(0.136)	(0.247)	(0.153)
Low birth weight	0.356**	0.230**	0.415**	0.436**	0.616**	0.427**	1.420**	1.899**
	(0.035)	(0.026)	(0.086)	(0.066)	(0.088)	(0.064)	(0.150)	(0.177)
Problem during pregnancy	1.006	1.308**	1.718**	1.691**	2.292**	1.972**	1.035	1.182**
	(0.057)	(0.075)	(0.183)	(0.139)	(0.203)	(0.167)	(0.052)	(0.054)
Types of delivery							0.969	0.933
							(0.051)	(0.046)
Observations	11675	11675	11675	11675	11675	11675	11679	11679

Standard errors in parentheses, + significant at 10%; * significant at 5%; ** significant at 1%.

Note: The sample population for Models 1 through 6 includes children with mothers who worked during pregnancy and provided information on pre-birth leave, and the sample for Models 7 and 8 includes children with mothers who worked during pregnancy and provided employment information after childbirth. The comparative group for Models 1 through 6 is mothers who took pre-birth leave of less than 3 weeks. The comparative group for Models 7 and 8 is mothers who took post-birth leave for 0-4 months. For Models 7 and 8, those who were on leave or had not yet returned to work at the time of the survey were coded by using the child's age as the month of post-birth leave. For the categorical variables, mothers still on leave or not yet returned to work were included in the category of "took leave 8 or more months". The omitted categories are married and cohabiting, education O level, white babies, and income group 2.

Table 3: Effects of Mothers' Pre-birth Leave-taking on Receipt of Prenatal Care and on the Occurrence of Low Birth Weight, Odds Ratios and Standard Errors from Logistic Models

Dependent variable	Prenatal care		Low Birth Weight	
Models	(1)	(2)	(3)	(4)
Pre-birth leave in weeks	1.013		0.983**	
	(0.008)		(0.005)	
Pre-birth leave 3-5 weeks		1.405+		0.357**
		(0.266)		(0.035)
Pre-birth leave 6-8 weeks		1.878**		0.243**
		(0.385)		(0.028)
Pre-birth leave 9-11 weeks		5.165*		0.461**
		(3.736)		(0.095)
Pre-birth leave 12-15 weeks		1.516		0.474**
		(0.398)		(0.071)
Pre-birth leave 16-23 weeks		1.904*		0.708*
		(0.523)		(0.100)
Pre-birth leave 24 or more weeks		1.574+		0.471**
		(0.385)		(0.071)
Family characteristics	Yes	Yes	Yes	Yes
Observations	11665	11665	11680	11680

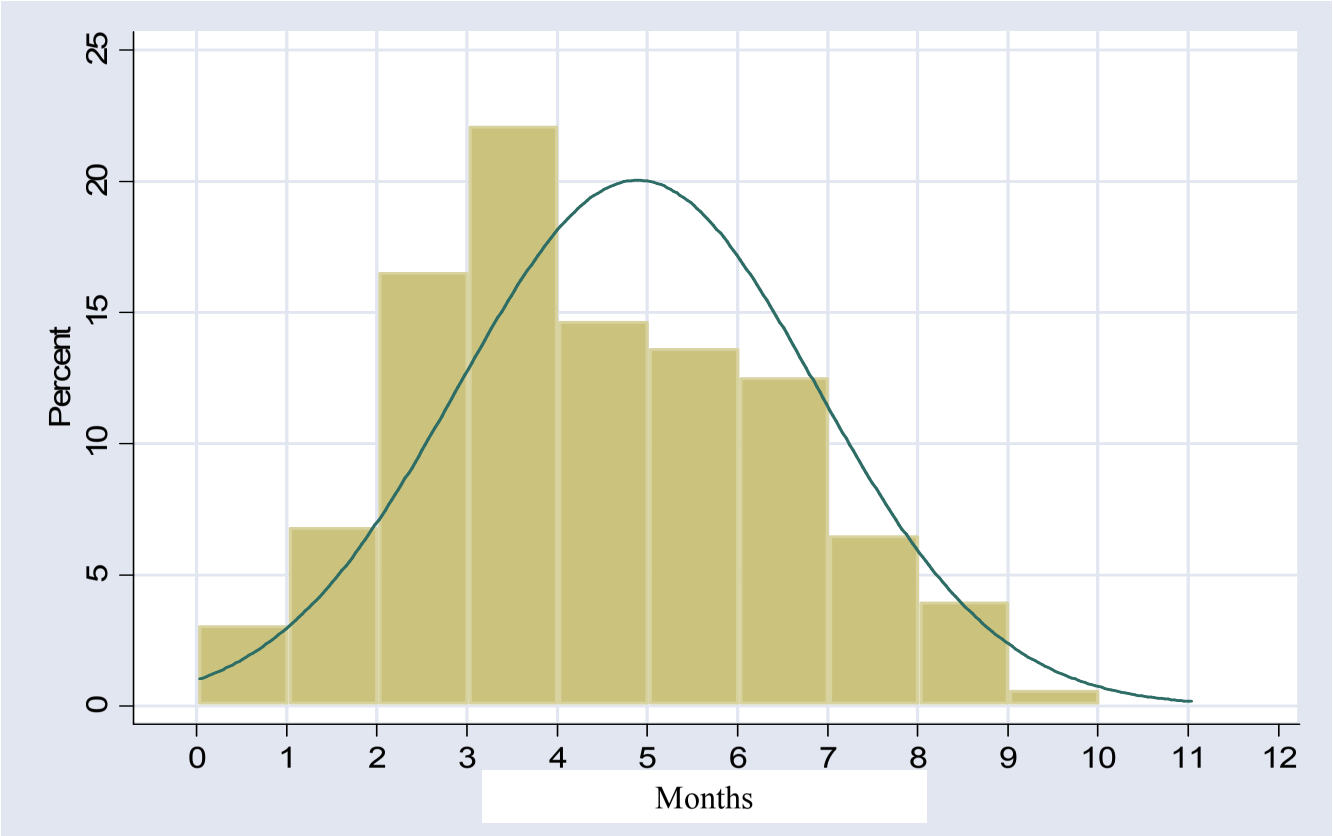
Standard errors in parentheses, + significant at 10%; * significant at 5%; ** significant at 1%.
Note: The sample population includes children with mothers who worked during pregnancy and provided information on pre-birth leave. All models include family/mothers' demographic variables (marital status, age, education, and income), children's demographic variables (race, child first-born, gender, low birth weight). In the models 2 and 4, the omitted category is mothers who took pre-birth leave of less than 3 weeks. Complete results are presented in Appendix 1.

Table 4: Effects of Mothers' Post-birth Leave-taking on Whether Children are Ever Breast-fed and on Mothers' Stopping Breast-feeding, Odds Ratios and Standard Errors from Logistic Models, and Hazard risk Ratios and Standard Errors from Cox's Hazard Models

Dependent variable	Ever Breast-fed		Months Breast Fed	
Methods of analysis	Logistic		Cox's Hazard	
Models	(1)	(2)	(3)	(4)
Return in months	1.054**		-0.070**	
	(0.009)		(0.005)	
Return in 5-7 months		1.206**		-0.196**
		(0.072)		(0.032)
Return in 8 or more months		1.370**		-0.450**
		(0.073)		(0.031)
Family characteristics	Yes	Yes	Yes	Yes
Observations	11682	11682	7758	7758

Standard errors in parentheses, + significant at 10%; * significant at 5%; ** significant at 1%.
Note: The sample population for all models includes children with mothers who worked during pregnancy and provided employment information after childbirth but Models 3 and 4 limits the sample to only children with mothers who initiated breast-feeding. All models include family/mothers' demographic variables (marital status, age, education, and income), children's demographic variables (race, child first-born, gender, low birth weight), types of delivery, and problems during pregnancy. In the models 2 and 4, the omitted category is mothers who took leave for 0-4 months. Those who are still breast-feeding at the time of the survey are coded by using children's age as the months of breast-feeding. (Results without these cases are not different from the results included the cases; therefore, I included the cases in the model). Those who were on leave or had not yet returned to work at the time of the survey were coded by using the child's age as the month of mothers' post-birth leave. For the categorical variables, mothers still on leave or not yet returned to work were included in the category of "post-birth leave 8 or more months". Complete results are presented in Appendix 2.

Figure 1:Mothers' Post-birth Leave in Months



Notes: Sample population of the graph includes mothers who only worked during pregnancy and returned to work, therefore, it excludes those who remained on leave at the time of survey (N=7,994).

Figure 2: Kaplan-Meier Survival Estimate for Breast-feeding

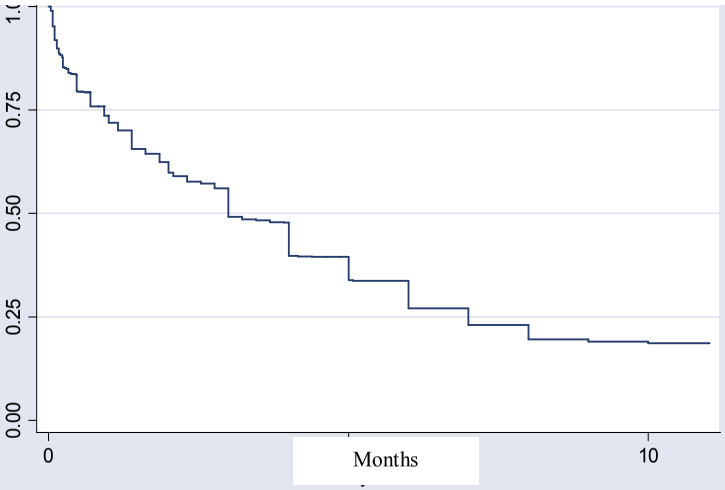


Figure 3: Kaplan-Meier Survival Estimate for Breast-feeding by Month Categories

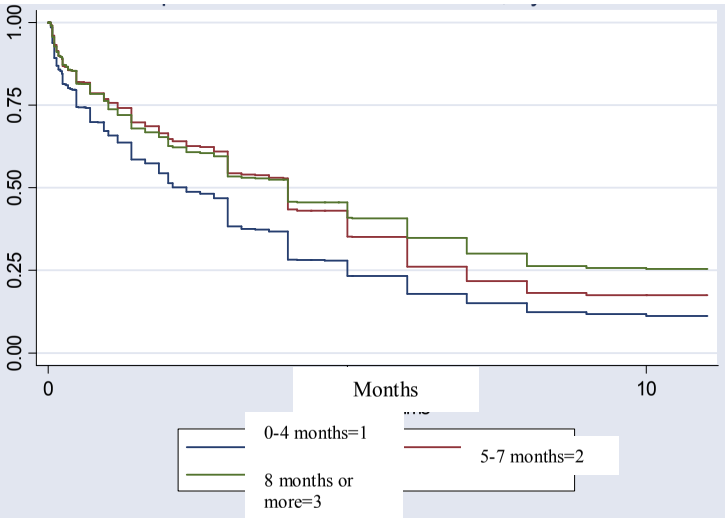
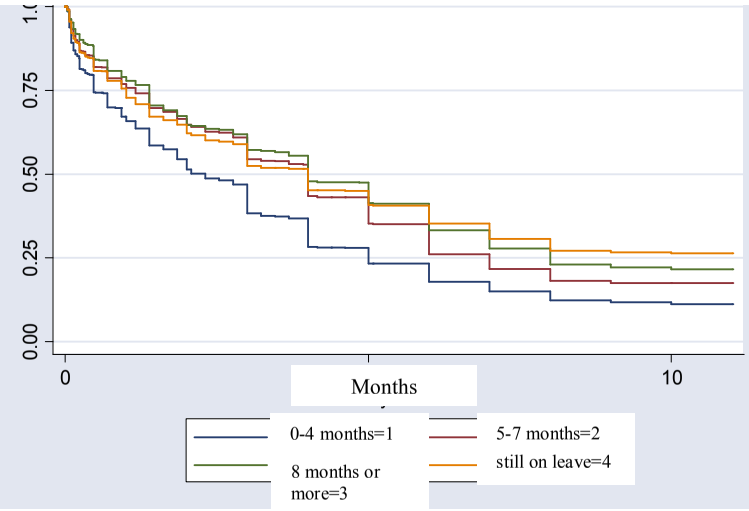


Figure 4: Kaplan-Meier Survival Estimate for Breast-feeding by Month Categories (4)



Appendix 1: Effects of Mothers' Pre-birth Leave-taking on Receipt of Prenatal Care and the Occurrence of Low Birth Weight, Odds Ratios and Standard Errors from Logistic Models (Expanded results from Table 3)

Dependent variable	Prenatal care		Low Birth Weight	
Models	(1)	(2)	(3)	(4)
Pre-birth leave in weeks	1.013		0.983**	
	(0.008)		(0.005)	
Pre-birth leave 3-5 weeks		1.405+		0.357**
		(0.266)		(0.035)
Pre-birth leave 6-8 weeks		1.878**		0.243**
		(0.385)		(0.028)
Pre-birth leave 9-11 weeks		5.165*		0.461**
		(3.736)		(0.095)
Pre-birth leave 12-15 weeks		1.516		0.474**
		(0.398)		(0.071)
Pre-birth leave 16-23 weeks		1.904*		0.708*
		(0.523)		(0.100)
Pre-birth leave 24 or more weeks		1.574+		0.471**
		(0.385)		(0.071)
Mom higher degree	1.06	1.079	0.393**	0.381**
	(0.471)	(0.480)	(0.091)	(0.090)
Mom first degree	1.321	1.333	0.628**	0.637**
	(0.372)	(0.375)	(0.075)	(0.077)
Mom diplomas in higher education	1.345	1.382	0.859	0.843
	(0.401)	(0.412)	(0.106)	(0.105)
Mom A/AS/S levels	1.142	1.147	0.700**	0.708**
	(0.292)	(0.293)	(0.090)	(0.092)
Mom GCSE grades D-G	0.77	0.759	0.833	0.843
	(0.162)	(0.160)	(0.112)	(0.115)
Mom other academic qualifications (incl.overseas)	0.481*	0.476*	0.365**	0.361**
	(0.174)	(0.172)	(0.124)	(0.124)
Mom none of these qualifications	0.451**	0.453**	1.313*	1.305*
	(0.084)	(0.085)	(0.160)	(0.161)
Child first-born	1.108	1.107	1.844**	1.905**
	(0.175)	(0.175)	(0.151)	(0.157)
Baby-black	0.579+	0.602	1.671**	1.510*
	(0.184)	(0.191)	(0.317)	(0.290)
Baby-mixed	0.668	0.694	1.062	0.995
	(0.216)	(0.226)	(0.221)	(0.210)
Baby-Asian	0.388**	0.393**	3.167**	3.227**
	(0.086)	(0.087)	(0.415)	(0.429)
Baby-other	0.643	0.658	1.383	1.253
	(0.666)	(0.679)	(0.846)	(0.769)
Baby-boy	0.954	0.959	0.760**	0.764**
	(0.128)	(0.128)	(0.055)	(0.056)
Never married	0.819	0.828	1.25	1.217
	(0.164)	(0.166)	(0.174)	(0.170)
Previously married	0.74	0.744	1.244	1.173
	(0.329)	(0.331)	(0.326)	(0.311)
Mom age	1.174+	1.162	0.965	1.001

	(0.114)	(0.113)	(0.050)	(0.053)
Mom age squared	0.998	0.999	1.001	1.001
	(0.002)	(0.002)	(0.001)	(0.001)
Income group 1	0.494**	0.505**	0.954	0.875
	(0.098)	(0.101)	(0.121)	(0.113)
Income group 3	1.165	1.182	0.894	0.89
	(0.272)	(0.276)	(0.092)	(0.092)
Income group 4	1.07	1.102	0.872	0.844
	(0.294)	(0.303)	(0.103)	(0.101)
Income group 5	1.075	1.113	0.794	0.738
	(0.487)	(0.504)	(0.146)	(0.137)
Low birth weight	0.488**	0.534**		
	(0.093)	(0.104)		
Observations	11665	11665	11680	11680

Standard errors in parentheses, + significant at 10%; * significant at 5%; ** significant at 1%.
Note:
The sample population includes children with mothers who worked during pregnancy and provided information on pre-birth leave. The omitted categories are married and cohabiting, education O level, white babies, and income group 2. In the models 2 and 4, the omitted category is mothers who took pre-birth leave of less than 3 weeks.

Appendix 2: Effects of Mothers' Post-birth Leave-taking on Whether Children are Ever Breast-fed and on Mothers' Stopping Breast-feeding, Odds Ratios and Standard Errors from Logistic Models, and Hazard risk Ratios and Standard Errors from Cox's Hazard Models
(Expanded results from Table 4)

Dependent variable	Ever Breast-fed		Months Breast Fed	
Methods of analysis	Logistic		Cox's Hazard	
Models	(1)	(2)	(3)	(4)
Return in months	1.054**		-0.070**	
	(0.009)		(0.005)	
Return in 5-7 months		1.206**		-0.196**
		(0.072)		(0.032)
Return in 8 or more months		1.370**		-0.450**
		(0.073)		(0.031)
Mom higher degree	3.336**	3.343**	-0.609**	-0.613**
	(0.544)	(0.546)	(0.064)	(0.064)
Mom first degree	3.911**	3.888**	-0.460**	-0.457**
	(0.360)	(0.359)	(0.038)	(0.038)
Mom diplomas in higher education	1.822**	1.819**	-0.193**	-0.191**
	(0.147)	(0.146)	(0.042)	(0.042)
Mom A/AS/S levels	1.944**	1.941**	-0.188**	-0.188**
	(0.152)	(0.152)	(0.041)	(0.041)
Mom GCSE grades D-G	0.755**	0.754**	0.181**	0.181**
	(0.054)	(0.054)	(0.051)	(0.051)
Mom other academic qualification	1.655**	1.655**	-0.287**	-0.280**
	(0.323)	(0.323)	(0.096)	(0.096)
Mom none of these qualifications	0.499**	0.500**	0.092	0.100+
	(0.038)	(0.038)	(0.059)	(0.059)
Child first-born	2.016**	2.026**	0.089**	0.079**
	(0.106)	(0.107)	(0.029)	(0.029)
Baby-black	10.093**	10.106**	-0.511**	-0.515**
	(2.532)	(2.535)	(0.074)	(0.074)
Baby-mixed	3.613**	3.614**	-0.399**	-0.392**

	(0.631)	(0.631)	(0.072)	(0.072)
Baby-Asian	3.093**	3.080**	-0.198**	-0.189**
	(0.427)	(0.425)	(0.059)	(0.059)
Baby-other	5.949*	5.904*	-0.429+	-0.423+
	(4.411)	(4.378)	(0.220)	(0.220)
Baby-boy	1.031	1.032	0.036	0.036
	(0.046)	(0.046)	(0.025)	(0.025)
Never married	0.615**	0.616**	0.139*	0.142*
	(0.053)	(0.053)	(0.057)	(0.057)
Previously married	1.015	1.016	0.081	0.086
	(0.176)	(0.176)	(0.104)	(0.104)
Mom age	1.193**	1.194**	-0.050*	-0.055*
	(0.041)	(0.041)	(0.021)	(0.021)
Mom age squared	0.998**	0.998**	0	0
	(0.001)	(0.001)	0.000	0.000
Income group 1	1.017	1.023	0.059	0.055
	(0.079)	(0.080)	(0.049)	(0.049)
Income group 3	1.300**	1.296**	-0.011	-0.014
	(0.080)	(0.080)	(0.036)	(0.036)
Income group 4	1.404**	1.401**	0.096*	0.088*
	(0.106)	(0.107)	(0.039)	(0.039)
Income group 5	1.910**	1.896**	0.109+	0.108+
	(0.266)	(0.264)	(0.056)	(0.056)
Low birth weight	0.713**	0.713**	0.325**	0.319**
	(0.061)	(0.061)	(0.050)	(0.050)
Types of delivery	1.211**	1.211**	-0.153**	-0.152**
	(0.060)	(0.060)	(0.027)	(0.027)
Problem during pregnancy	1.125*	1.126*	0.076**	0.076**
	(0.052)	(0.052)	(0.026)	(0.026)
Observations	11682	11682	7758	7758

Standard errors in parentheses, + significant at 10%; * significant at 5%; ** significant at 1%.

Note:

The sample population for all models includes children with mothers who worked during pregnancy and provided employment information after childbirth but Models 3 and 4 limits the sample to only children with mothers who initiated breast-feeding. Those who are still breast-feeding at the time of the survey are coded by using children's age as the months of breast-feeding. Those who were on leave or had not yet returned to work at the time of the survey were coded by using the child's age as the month of mothers' post-birth leave. For the categorical variables, mothers still on leave or not yet returned to work were included in the category of "post-birth leave 8 or more months". The omitted categories are married and cohabiting, education O level, white babies, and income group 2. In the models 2 and 4, the omitted category is mothers who took leave for 0-4 months.