

ABSTRACT

Title of Dissertation: MOTHERS' LEVEL OF ATTACHMENT TO THE
LABOR MARKET FOLLOWING THE BIRTH OF
A SECOND CHILD

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Increased employment of mothers with infants has prompted an avalanche of studies about how mothers balance paid work and family. Most of that research has focused on how the birth of the first child impacts mothers' employment. Less is known about what happens after the birth of a second child. Combining the life course perspective with the classic labor supply theory and employing the 1979-1998 NLSY data, this study examines how mothers balance paid work and family when they have two children. Some comparisons are made between the first and a second birth.

The first comparison, the survival distribution of mothers' return to market work, finds no significant difference in the rate at which mothers return to employment after the first and a second birth. The results of Cox hazard models show some similarities and some differences in the determinants for the timing of return to paid work after the two births. They also highlight the importance of considering the impact of past life experiences on current decisions. Results of the competing risk models show that some predictors for full time and part time returns differ.

This study also examines what mothers' employment is like after returning to paid work by examining mothers' employment hours during the preschool years of the second child. Very different employment patterns are observed between those who began working full time and those who started part time. The changes in employment hours during this period would be missed without longitudinal data. The large number of mothers dropping out of the labor force over the five-year period suggests that reports focusing on the return to market work only overestimate mothers' economic activity. Fluctuations in the employment hours underline the dynamic nature of the balancing act: the equilibrium keeps shifting as children grow older, and mothers keep readjusting and chasing the optimal balance between care work and market work.

MOTHERS' LEVEL OF ATTACHMENT TO THE LABOR MARKET FOLLOWING
THE BIRTH OF A SECOND CHILD

by

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Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2004

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MOTHERS' ATTACHMENT TO THE LABOR MARKET FOLLOWING THE BIRTH OF A SECOND CHILD

INTRODUCTION

The strides women have made in their labor market involvement since the beginning of the twentieth century are impressive. All women, but particularly white women, have increased their labor force participation rapidly during the past three decades. More than half of women, regardless of marital status or the ages of their children, are now employed. Not only are women more likely to be employed, but they are also more likely to be working full time year-round than ever before. In addition, their jobs have changed in character as more and more women enter the labor market equipped with advanced degrees. Women have challenged occupational sex segregation by entering occupations that were previously completely male dominated. Increasingly many women have careers and occupy demanding managerial positions.

One of the numerous changes that characterize women's employment patterns is the change in their labor force participation over the life course. Unlike previously, women are less likely to interrupt their labor supply during the childbearing years. A majority of women now continue to work through all life stages, even when their children are very young. However, even if women's and men's life-time labor force participation patterns are more similar today, a gender gap still exists in the level attachment to the labor force. While men's life-long labor supply is dominated by a steady full-time employment, women's employment hours fluctuate and typically decline when they have small children. Even though women have made tremendous progress and have overcome numerous obstacles in their journey to a more equal employment status, they may still

have not yet faced the most difficult one. That is, how to balance the obligations of paid work and the family (Spain and Bianchi, 1996). Or in the words of Crittenden: "... women may have come a long way, but mothers have a lot farther to go" (2001, pp. 35).

How well women are able to combine paid work and child rearing is a fundamentally important issue for women's lives, not only because the juggling between the family and employment obligations is physically and emotionally exhausting (particularly if one has more than one young child) but more so because it is at the core of inequality between women and men, both at home and in the market sphere. As long as women are expected to be the primary caregiver of children, it will be very difficult—if not impossible—for women to achieve equity with men in the labor market. And without economic power, women will always lack influence at both the micro (e.g. household) and macro levels (e.g. political and ideological power) (Blumberg 1984; Blumstein and Schawartz 1991).

Most research on the impact of parenthood on women's employment has examined interruptions in labor force participation. The focus has typically been on questions such as whether and how soon mothers return to paid work after giving birth, typically for the first child. If we attempt to understand more fully women's economic behavior and how they deal with market work when they have small children, this perspective is limited for three reasons. First, knowing that a new mother is "in the labor force" masks a wide range of balancing strategies from sporadic part-time work in the home to full-time work at a regular job. The second limitation of previous studies is that they have focused mostly on the impact of the first birth (or unspecified parity). While the transition to parenthood with a first child is important to study, we must recognize that most American women still have at least two children, and the work-family conflicts

are accentuated with the arrival of a second child, especially when the first child is still a preschooler. The third weakness of previous studies is the tendency to focus on maternal employment at one or two points in time, soon after the birth of a child. What is missing is the recognition that maternal employment decisions may change as their children move from infant to toddler to preschool ages. Hence, we need to examine changes in mothers' level of attachment to the labor market over a longer period of time in order to understand how mothers navigate between the demands of home and employment.¹

This study differs from previous studies on maternal employment by shifting our focus in two ways: from mothers' employment after the first birth to mothers' employment following the birth of a second child, and from the incidence of labor force participation to the characteristics of that participation over time. By examining the level of mothers' attachment to the labor force, this study will expand our knowledge about the actual employment patterns of women with young children. Also, because the limited evidence suggests that the determinants of labor force participation are quite different from the factors that determine the number of hours worked, an expansion of research from labor force participation to the level of attachment to the labor market is likely to provide new insights into the ways in which mothers try to balance paid work and child rearing.

I will explore changes in mothers' attachment to the labor force during the five-year period after the birth of a second child using a framework that integrates the neoclassical economic theory and the life course perspective. In addition to evaluating the relative importance of the family's financial situation and a mother's personal characteristics in determining maternal employment patterns after the birth of a second

¹ By "level of attachment" to the labor market I mean employed hours.

child, I will examine how structural level factors, the timing of other life events, and previous employment experience influence mothers' labor supply. The outcomes I am specifically interested in are: how soon mothers return to market work and to what status (full time or part time) and how does their level of attachment change as their children grow older. While the focus of this study is on employment after a second childbirth, I will begin by looking at mothers' (re)entry to market work after the births of the first and second children and by comparing the processes that influence the timing of their (re)entry.

This study is structured as follows: First, I discuss the rationale for studying mothers' labor force attachment especially after the birth of a *second* child. Then, in chapter two, I review past research about *maternal* employment. In chapter three, I describe the conceptual framework used in this study and formulate the hypotheses. Next, in chapter four, I outline the analysis plan, describe the data set and the sample, and specify the coding of the variables as well as the hazard models. Then, in chapter 5, I present the results from the event history analyses, and in chapter 6, I discuss the results related to mothers' level of attachment to market work over time. Chapter 7 concludes this study.

CHAPTER I

RATIONALE

Why focus on the level of mothers' attachment to the labor force?

The way women combine paid work and child rearing is a fundamental issue for gender equality. It may well be the most important single impediment for women's ability to achieve economic equality in the labor market (Crittenden, 2001, pp. 87).

While only a minority of women drop out of the labor force permanently when they have children, most reduce their employment hours when their children are very young. Part-time employment may be in mothers' short-term interest because it helps them to achieve a manageable balance between paid work and caring for children, but there are several reasons why part-time employment—particularly if long term--may not be in mothers' best interest.

First, part-time employment often has short- and long-term negative economic consequences. It is one of the most important reasons why women experience a wage penalty--which increases with the number of children--when they become mothers (Budig and England 2001). As part-time employees, mothers often enter the diverse and less regulated labor market characterized by nonstandard employment arrangements. Part-time employment has attracted the attention of labor economists, family sociologists, women's rights groups, trade unions, policy-making organizations, and legislatures because of the concerns related to the quality of nonstandard employment arrangements (Bardasi and Gornick 2000; Hakim 1997). The growth in part-time employment has been driven both by changes in industrial composition (i.e. the decline in manufacturing and the increase in trade and services industries) and by the overall increase in

nonstandard employment within all industries and firms (Kalleberg et al. 2000; Tilly 1991).

Workers who have nonstandard employment arrangements (such as part-time hours) are more likely to have “bad” jobs characterized by low wage, low skill level, and limited or no benefits (Kalleberg et al. 2000). For example, according to the February 1995 Current Population Survey, almost 70 percent of women in regular full-time jobs had health insurance compared to only about 20 percent of women in regular part-time jobs. The situation was even worse for women who had temporary part-time jobs (e.g. temp agency or on-call). Less than 10 percent of them had health insurance.² Pension benefits follow the same pattern: 60 percent of regular full time workers had pensions, whereas only 20 percent of regular part-time employers and 10 percent of temporary part time workers had pensions (Kalleberg et al. 2000). As a result, for women (but not for men), becoming a parent is often associated with substantial short and long term economic sacrifices as they move into the often “bad” part time jobs unless they fall into the “retention part-time job” category. The retention part-time jobs are “good” part-time jobs that employers create to accommodate temporary changes in their employees’ work schedules (e.g. changes following childbirth). These part-time jobs are typically offered only to full-time, highly skilled workers. They are “good” because workers do not lose their benefits and are typically able to return to their pre-childbirth positions.

Another drawback to part-time employment is on the home front, where the cost of motherhood (due to reduced employment hours) may lead to a wife’s decreased bargaining power and to increasingly gendered parenting roles (England and Kilbourne

2. Not having a job that provides health insurance does not necessary mean that a person has no coverage. Many women have health insurance through their spouses.

1990; England 1992). When families attempt to balance the demands of paid work and raising children, scaling back one parent's employment hours can provide a means to manage the demands in a more satisfactory way. However, because scaling back as a balancing strategy is typically a gendered practice, it can perpetuate gender inequality by leading to a more pronounced gendered division of household labor. Often all or most child care and household tasks become a mother's responsibility since she "only" works part time. And once the roles and expectations have been established, they may continue out of habit long after a mother has returned to full-time employment.

While care work and reduction in employment hours may hurt a mother's career and/or financial status in the long run, they may benefit children and other people. Employers benefit from mothers' unpaid care work because it produces the next generation of employees. It also allows men to devote full-time effort to their jobs. The broad society also benefits from mothers' caring labor by having lower crime rates, productive workers, pleasant friends and spouses among other benefits (Budig and England 2001). Children benefit because longer post-birth leaves or reduced employment hours allow mothers to breastfeed for longer durations, which in turn improves children's health. Empirical evidence, which shows that breastfeeding declines dramatically in the months following the return to market work, confirms that employment conflicts with breastfeeding. In addition, mothers who are employed part time are significantly more likely to breastfeed, and for longer periods, than mothers who are employed full time (Duberstein Lindberg 1996).

Studies of the impact of maternal employment on children's cognitive and behavioral development have not found as clear differences between children of

employed and nonemployed mothers. The results have been inconsistent, but they generally indicate that if maternal employment has any negative effect on children's cognitive or behavioral development, it is minimal (Bianchi 2000; for a review, see Perry-Jenkins et al. 2000). However, work by Heymann (2000, pp. 56-57) suggests that children of parents who lack flexibility in their working conditions or are employed in the evenings experience serious achievement problems at school.

Mothers who keep their paid work hours constant obviously do not suffer from the same kind of wage penalty as mothers who lower their employment hours, but they may pay in other ways. For example, mothers who work full time while they have young children may feel much less successful in balancing paid work and family than their part-time counterparts (Milkie and Peltola 1999). They may also pay by lacking adequate sleep and sufficient time for themselves (Barnett and Rivers 1996; Epstein 1987).

If we are to gain a deeper understanding about changes in women's economic activity, it is important to examine whether the well-established short-term negative relationship between fertility and women's labor force participation holds between fertility and women's attachment to the labor market. In other words, does giving birth decrease a mother's employment hours in the same way that it decreases a mother's labor force participation?

Only a few multivariate studies have focused on changes in the extent to which mothers work while they have small children. Instead, most research documenting the balancing act women perform between their family and employment responsibilities has examined mothers' employment as a dichotomy, i.e. mothers are either in the labor force or not. Yet, focusing only on labor force participation is problematic for several reasons. First, since most women today remain employed when they have small children--albeit

often part time--), it is no longer sufficient to examine only the incidence of labor force participation. Rather, in order to fully gauge the impact of parenthood on women's employment, we need to expand our investigation into the actual nature of mothers' employment. Second, because mothers who are on maternity leave after a birth are counted as "employed" in many surveys, using the participation measure to estimate mothers employment overestimates how many mothers are actually working. For example, between the early 1970s and 1990s, the labor force participation of mothers who had a one-month-old child increased from 15 percent to 40 percent, but only 15 percent of these new mothers in the 1990s were actually at work one month after the birth (Klerman and Leibowitz, 1999).

Because examining labor force participation per se tells us only a small part of the story about how women combine employment and motherhood, we need to look beyond whether a mother participates in the labor force to how much they participate and how that participation changes as children grow older. The limited empirical evidence supports the need to treat the incidence of women's employment and the nature of that employment as two different, although related issues. For example, the factors that determine whether a woman is employed differ from those that determine whether she is employed full time or part time (Blank 1988, 1989; Hofferth 2000).

Why focus on maternal employment following a second child birth?

While we know a lot about mothers' employment after the birth of the first child, our knowledge of how a second child affects mothers' employment is very limited. This is in spite of the fact that most women in the United States continue to have at least two

children (Bachu and O'Connell 2001). Although many studies have included the number of young children as one of the predictors in women's employment studies, only one multivariate study (Klerman and Leibowitz 1999), to my knowledge, has specifically examined mothers' employment status when they have two young children.

If we think about mothers' lives from a life course perspective, it is evident that our knowledge about the changes in mothers' life long employment trajectories is limited to the narrow period right after the birth of the first child. For example, we do not know whether mothers follow the same patterns after a second birth as they did after the first. I would expect the arrival of a second child to have a different impact on mothers' employment than the arrival of the first child because of the added cost in both time and money of having a second child. In addition to feeding and clothing, a second child increases the share of family income that goes into child care, health care, hobbies, education, etc. Having two children is also likely to increase the amount of work missed due to additional sick days and in general due to attending to the needs of two different children.

One of the expenses that is added early on to the family budget is the cost of childcare. The cost of caring for two young children is particularly expensive because one caregiver can care for fewer infants and toddlers than older children and because this type of care is not as widely available (Casper 1995; Leibowitz, Klerman and Waite 1992). The cost of childcare is an especially pressing issue for low-income families in which both parents have to work full time in order to make ends meet. The arrival of a second child presents some couples no other choice but to drop paid child care because it takes too large of a chunk of their budget and to work in different shifts so that one parent can watch the children while the other one is at work (Rubin 1994). While solving

childcare problems with shift work is not ideal for married parents (especially for the long-term survival of the marriage), it is not even an option for single mothers (Presser 2000).

In addition to increasing direct financial costs, a second child also increases emotional costs. Balancing the needs of small children and employment schedules is likely to be more stressful with two or more children than with only one child, particularly if the young children are close in age. The timing of return and the level of a mother's employment after the birth of a second child may partially depend on how well a mother feels she was able to balance family and job responsibilities after the first child was born. If she feels that it was not too stressful, her employment trajectory following the second birth may be quite similar to the one after her first birth. On the other hand, if balancing employment and family was not satisfactory after the first child, a mother may change the way she combines employment and family when she has two children. It is also possible that even if a mother was able to combine employment and caring for the first child without much trouble, the added demands from the second child may simply require more changes. Of course, some women have no choice but to return to paid work almost immediately after the birth of a second child and continue working full time no matter how ambivalent they feel because their income is so vital for the survival of the family.

CHAPTER II
LITERATURE REVIEW

What do we know about how mothers balance paid work and family?

The expansion of women's labor force participation during the past few decades has been well documented. We know that the way in which women combine paid work and child rearing has changed dramatically during the past thirty years. In the 1950s, mothers tended to wait until their children started school before entering the labor force for the first time or returned to continue the employment they had started before marriage and motherhood. In the 1960s and the 1970s, mothers started to participate in the labor force in larger numbers even before their children had reached school age. And by the 1980s, the highest rate of increase in women's labor force participation was among mothers of infants. The labor force participation rates of mothers who had children one year of age or younger increased from 31 percent in 1976, to 51 percent in 1988, and reached 59 percent in 1998 (Bachu and O'Connell, 2000, figure 4). However, two years later, in 2000, there was a break in that trend as the percentage of employed women with infants fell to 55 percent (Bachu and O'Connell 2001). But as over a half of mothers still continue to be employed, at least part time, throughout the child bearing years, they face the challenge of balancing their paid jobs and caring for young children much sooner than in the past when mothers tended to stay at home longer. One way mothers attempt to manage paid employment while their children are very young is by reducing their employment hours.

By shifting our focus from mothers' labor force participation to employment hours, we get quite a different picture of how mothers combine paid work and child

rearing. While over half of married women with preschool-age children were employed for one or more hours in 1998, only about 35 percent of married women with preschool-age children were employed full time.³ The percentage employed full time is substantially higher (59) if we consider only *employed* married women with children of the same age (Cohen and Bianchi 1999, table 2). That means that about 65 percent of all married mothers and about 40 percent of employed married mothers work less than full time while their children are young. The percentage is not only lower compared to labor force participation, it has remained relatively stable during the past two decades. On average, married women with children younger than six years, who were employed part time, worked 31 hours a week in 1978 and about 34 hours in 1998 (Cohen and Bianchi 1999, table 2).

The interest in how mothers manage to combine market work with the myriad of tasks associated with caring for young children led to the emergence a distinct research area of “Work and Family” in the 1960s and 1970s. Much of the attention has centered around the consequences of women’s market work on the quality of family life and the well being of family members (Perry-Jenkins 2000). Researchers who study the effects of women’s multiple roles include those who emphasize the strain and conflict mothers experience as they struggle to balance family and paid work, and those who believe in the positive impact of occupying multiple roles (e.g. increased self esteem, opportunities for social relationships and challenge, monetary income) (for a review, see Arendell 2000). While employment can be beneficial for mental health, many employed mothers do experience real work-family strains (Hochschild 1997). Some studies suggest that it is the role of mother that is particularly stressful for women, at least partially because of the

3. Refers to a previous week.

cultural expectations about “good mothering” that employed mothers may have a difficult time meeting (Barnett and Barush 1987).

A special area in the work and family literature is time use studies, which are based on detailed information about what people do each hour of the day. These studies have been helpful in illuminating how mothers divide their time between paid work and home, and how the allocation of time to different tasks may have changed over time. One way, for example, that employed mothers have responded to increased demands on their time is by reducing the amount of time they spend on household duties (Bianchi 2000). Some of the household tasks are increasingly done by husbands, paid workers, and others are left undone. Time use studies also indicate that while mothers’ time in paid work has increased, the direct time they spend with their children has not decreased (Bianchi 2000). Employed mothers manage to make up for their absence during paid work hours and end up spending as much direct time with their children as full-time homemakers.

Another distinct area of work and family research includes studies that focus on occupational gender gap and its consequences. The argument that women choose to work in jobs that offer relatively low pecuniary compensation in exchange for a high level of flexibility needed to balance their child rearing responsibilities has found little support. Women are not more likely to be in jobs that offer flexible schedules and reduce job-family conflict (e.g. see Glass and Camarigg 1992).

Along with the studies that focus on the consequences of maternal employment, a separate, but related research area has developed on the timing of mothers’ return to employment after childbirth. Most of these studies have concentrated in explaining whether and how soon mothers return to market work after childbirth (Desai and Waite

1991; Greenstein 1989; Hofferth 2000; see Joesch 1994 for review). The theoretical approach that dominates these studies is the neoclassical labor supply theory. According to the theory, decisions about whether and when to enter the labor market, as well as how much to work, are determined by the relative costs and benefits of staying at home versus working for pay. In the neoclassical labor supply theory, “reservation wage” refers to the value of a mother’s time at home, while “full wage” equals a mother’s current or potential market wage (Blau and Ferber 1992). Factors such as the presence of young children, other family income, availability of market substitutes (e.g. commercial childcare), and tastes and preferences affect the reservation wage. The full wage, on the other hand, consists of a woman’s current or potential wage, which is determined by her human capital (e.g. education, paid work experience) and structural factors, such as the demand for female labor (Blau and Ferber 1992, pp. 101-103). Anything that increases the reservation wage decreases the likelihood that a woman is employed, and anything that increases the full wage, raises the likelihood that a woman is employed. The full wage and the reservation wage can also be stated in the form of opportunity costs whereby the full wage is equal to the opportunity cost of not working for pay and the reservation wage is synonymous to the opportunity cost of working for pay. According to the neoclassical economic theory, a mother’s employment decision is straightforward and rational: she will be employed if her full wage is higher than the reservation wage. If it is lower than the reservation wage, she will stay at home. Similarly, the higher the full wage, the sooner the mother is expected to return to paid work after the birth of a child and the more hours she is expected to work.

In sociological research, the relationship between the full wage and the reservation wage is often expressed by the concept of “role incompatibility” which arises

from the competing demands between small children and paid work. The basic tenet behind the role incompatibility theory is that the roles of mother and employee are inherently in conflict, pulling mothers to opposite directions, because there are not enough hours in a day to accomplish all tasks required by both roles. While many reject the idea that having multiple roles make employed mothers feel conflicted (e.g. Marks and McDermid 1996; Crosby and Jaskar 1993), there is evidence that at least some role combinations, such as having a small child and a full-time job, negatively affect a mother's sense of balance (Milkie and Peltola 1999). Other variations of the reservation vs. the full wage terminology that show up in sociological and demographic studies include "push and pull", "choice and constraint," "household labor supply," "market and home wage," "opportunity cost of working and not working," and "supply and demand." While the terminology varies, they all share the same idea of "see-saw" like relationship in which the value of a mother's time at home increases if the value of her time at market work decreases and vice versa.

Given the predominance of the neoclassical labor supply theory in the past studies, I review the literature about maternal employment within the framework of the reservation and the full wage. Specifically, I review the evidence for the influence young children, other family income, child care, tastes and preferences, education, earnings, and various structural factors on three aspects of mothers' employment: labor force participation, timing of return to market work, and the level of attachment to the labor market.

2.1. Reservation Wage

As I mentioned above, the reservation wage is the component of the neoclassical labor supply theory that reflects the value of a woman's time at home. There are at least four factors that affect the reservation wage: 1) Presence of young children 2) other family income 3) availability of market substitutes (e.g. commercial child care), and 4) tastes and preferences which are influenced by cultural norms (Blau and Ferber 1992, pp. 103). Next, I will review the literature related to each one of them.

Children

Having already reviewed the impact the presence of children have had on mothers' paid work over time, I will concentrate here on the effect of parity and birth interval on maternal employment.

In the 1970s and 1980s, mothers with one infant had higher labor force participation rates than mothers with two or more children, but by the end of 1990s, the difference had narrowed, and by 2000 it was no longer significant (Bachu and O'Connell 2001, table 4).⁴ Multivariate studies from the 1970s and the 1980s also suggest a similar narrowing trend (Cramer 1979; Mott and Shapiro 1982), although the studies from the 1990s show that, all else being equal, additional children still decrease mothers' participation in the labor force (Klerman and Leibowitz 1994, 1999; Leibowitz and Klerman 1995).

Whether parity influences how soon a mother returns to market work has not been widely examined. Earlier studies do not find a significant relationship between parity and

4. Nakamura & Nakamura (1994) found that mothers' labor force participation *increased* with additional children. However, their results are based on a quite restricted sample that includes only white women with high school education.

the timing of (re)entry (Joesch 1994), while more recent research shows that additional children slow down mothers' (re)entry (Hofferth 2000).

The impact of parity on mothers' level of attachment to market work (i.e. employment hours) has been declining. In 1998, only a slightly higher percentage of mothers with their first child were employed full time compared with mothers who had two or more children (38 vs. 34 percent) (Bachu and O'Connell 2000, table F). In 2000, there was no longer a significant difference in mothers' full time or part time employment by birth order among mothers with infants (Bachu and O'Connell 2000, table 4). Evidence from multivariate studies is less clear. Some multivariate studies from the 1980s, as well as from the 1990s suggest that the number of children per se does not change mothers' involvement in market work (Blank 1989; Drobnic et al. 1999), while others show that as the number of children increases, mothers' level of attachment to market work decreases (Klerman and Leibowitz 1999). Studies about the effect of children on women's wages, which indicate that a large part of the wage penalty of motherhood is due to reduced employment hours (i.e. more mothers are employed part-time), would seem to support the negative relationship between parity and mothers' attachment to market work (Budig and England 2001; Waldfogel 1997). However, the relationship may be more complex. There is some evidence that the percentage of mothers who have been working full time and return to their pre-childbirth job full time actually *increases* with parity (Klerman and Leibowitz 1999). And interestingly, mothers who are working full time are not likely to switch to part-time employment if the number of preschoolers they have increases (Blank 1989). Rather, they are more likely to end their market work in that situation (Blank 1989), which seems to contradict the above findings by Klerman and Leibowitz.

While the above studies provide us important information about how parity influences maternal employment, they leave plenty of room for further investigation. For example, the information is based on a small number of studies and some are so old that their results may no longer apply. Further, since Klerman and Leibowitz (1999) provide only percentages of mothers in each employment status, it is unclear which mothers continue working full time in the same job even with two children. Or who are the mothers who participate in the labor market part time? More importantly, none of the studies tell us anything about the stability (or lack of it) in mothers' market work during their children's first years of life, unless we assume that a labor force status measured at one point in time represents accurately long-term attachment. In other words, little is known how mothers' labor supply might fluctuate during their children's preschool-age years. Only one study has examined how mothers' labor supply changes during their children's preschool-age period, and it found that nonemployment is a more likely alternative to full-time work when a child is less than 3 years, and when a child is between 3 and 5 years of age, part-time work becomes a common alternative to full-time work (Bardasi and Gornick 2000). However, these results are based on cross-sectional data and are calculated for a hypothetical mother with a set of average characteristics.

Spacing of children is another aspect of fertility that is likely related to mothers' labor supply. For example, having a second child soon after the first one intensifies an already demanding caring period and makes the balancing of care work and market work more difficult. However, birth interval has been less examined because most studies have concentrated on the period following the first birth. The two studies that have included spacing, come to different conclusions: In the 1970s, very short (0-1 year) and

very long (4-5 years) birth intervals reduced married mothers' annual employment hours most (Cramer 1979). By the early 1990s, spacing of children no longer seems to affect how soon mothers returned to employment (Joesch 1994).

Other income

A second component of the reservation wage is other family income. Since a mother's ability to reduce her employment requires that she has other resources to cover living expenses, access to other income has always been an important predictor of maternal employment. Most studies have found that mothers (particularly white) who have more access to income other than their own are less likely to participate in the labor force and return to market work later than women whose families rely extensively or solely on their own earnings (Blau and Robins 1991; Desai and Waite 1992; Eggebeen 1988; Hofferth 2000; Leibowitz and Klerman 1995; Greenstein 1989; Gordon and Kammeyer 1980; Leibowitz, Klerman, and Waite 1992; McLaughlin, 1982; Waite 1980).⁵ For married mothers this income comes from a husband's earnings, for non-married mothers it may come from public assistance. Aid to Families with Dependent Children (AFDC), that single mothers with young children may receive, has been shown to delay mothers' return to market work after a birth (Hofferth 2000). One study from the early 1990s suggests that the impact of husbands' income is restricted to mothers who would prefer not to work for pay (Desai and Waite 1991). Overall, these studies which span several decades suggest that mothers are "pushed" into the labor market when their husband's income is not sufficient to support the family. In other words, economic

5. For exceptions see Klerman and Leibowitz (1994); Wenk and Garrett (1992); and Yoon and Waite (1994).

“constraints” force a mother to market labor. However, more recent studies show that the importance of husbands’ earnings as a predictor has declined during the past few decades (Bardasi and Gornick 2000; Leibowitz and Klerman 1995). Black mothers' labor force participation may follow a different pattern: there is some evidence that it is positively related to the husband's income level (Gordon and Kammeyer 1980; Yoon and Waite 1994).

Empirical evidence for how other family income affects the level of mothers’ attachment to the labor force (i.e. employment hours) is based on two studies. Cramer (1979) measured the impact of a husband’s income on mothers’ annual employment hours after a second or higher order birth. His analysis, based on data from the early 1970s, found a negative relationship between other family income and the level of mothers’ attachment to market work. However, this decline was mostly due to mothers dropping out of the labor force. A more recent study, that examines mothers’ employment hours at the time of (re)entry to market work after a childbirth, finds a similar negative relationship: mothers who have greater access to other family income are less likely to (re)enter paid work full time (Hofferth 2000).

Childcare

Another factor that influences the value of mothers’ time at home is the availability of childcare. Mothers’ participation in the labor force—whether part or full time—is dependent on finding affordable care for the child(ren). Mothers use various childcare arrangements, most commonly organized child care facilities, such as day care centers, nurseries, or preschools (Casper 1996). Mothers who work full time are much more likely than mothers who work part time to have their children cared for in organized

childcare facilities. An exception to that might be childcare facilities provided by employers. Hofferth (2000) found that mothers were more likely to return to work on a part time basis (rather than full time) if they had a child care center at their work site. Care provided by relatives has become less common because with rising rates of women's labor force participation, there are fewer adult relatives available to provide such care. Studies that have examined whether the presence of another adult in the household (e.g. a grandmother) increases maternal employment have produced mixed results (Blau and Robins 1991; Klerman and Leibowitz 1990; Leibowitz, Klerman, and Waite 1992).

The ability to find reliable and affordable care is not a new problem. In the 1986 National Longitudinal Survey of Youth, over a million women reported that they were out of the labor force because they could not arrange childcare. Minority mothers with more than two children and limited education were especially likely to experience underemployment due to high childcare costs (Cattan 1991). Many studies report a negative effect of childcare costs on mothers' labor supply (for a review, see Leibowitz, Klerman, and Waite 1992). Economic research on the impact of state and federal tax credits on maternal employment shows that eligibility for larger childcare tax credits increases mothers' labor force participation (Blau and Robins 1991) and expedites return to employment (Klerman and Leibowitz 1990; Leibowitz, Klerman, and Waite 1992).

Some parents rely on non-overlapping shift work as a way to solve childcare problems. Shift work is particularly common among dual-earner spouses with young children, indicating that it can provide a means for many parents with young children to be employed without utilizing (or minimizing) paid child care. In 1993, fathers provided 16 percent of preschoolers' care while mothers were employed (Casper 1996, table 1).

How many hours parents are employed and the timing of their work shift is related to the extent to which parents rely on each other for childcare (Brayfield 1995; Casper 1996; Presser 1988). This type of “team-care” is more common among dual-earner couples when either father or mother is employed full time on fixed non-day shift than when a mother is employed part time on fixed non-day shift. When a mother’s shift is in the evening or at night, fathers and other relatives are especially likely to care for the children. Family income level may also affect how parents utilize shift work (Marshall 1993). Middle-class parents are more likely to work non-overlapping part-time shifts, whereas in low-income families, both parents are likely to be employed full-time in non-overlapping shifts. In fact, non-overlapping shift work is often the only feasible child care solution for parents in low income families because they could not afford to purchase commercial child care, particularly if they have more than one child (Rubin, 1994).

Tastes and preferences

The fourth component of the reservation wage is a mother’s taste or preference for time at home. Empirical evidence suggests that some of the processes that influence female labor force participation differ between women who are highly committed to market work and those who are committed in staying at home (for a review, see Rosenfeld 1996). However, because most of these multivariate studies are based on data from the 1970s, up to mid-1980s, it is uncertain how much their findings apply to later years. With this caveat in mind, these earlier studies indicate, that having young children under age six reduces labor force participation only for women who preferred to stay at home (Rexroat and Shenan 1984). Similarly, commitment to market work

influences how soon a mother returns to employment. Those who are committed to market work and/or have a positive attitude towards mothers' employment, return to market work sooner than women who are more committed to caring for their children themselves (Desai and Waite 1991; Greenstein 1989). Further, availability of other family income slows down a mother's return to market work *only if* she prefers to be a full-time mother. In addition, occupational characteristics, such as the presence of many mothers in the occupation, hasten return to a job only for those mothers who would prefer to stay at home (Desai and Waite 1991).

But a stronger personal commitment to market work does not necessarily translate into full-time employment hours. Moen and Smith (1986) found unexpectedly that mothers with pre-school age children, who had been employed intermittently part and full time during the five year study period (1972-75), exhibited the strongest commitment to employment. Their finding is important for two reasons: First, because this group of women has typically been labeled as the least committed to the labor market. Second, because it demonstrates the danger of equating actual past employment with a subjective work commitment. In fact, the mothers who had been employed continuously full time during the five year period (i.e. had the greatest attachment to the labor market) expressed relatively low levels of commitment. They probably had to work full time due to economic necessity.

Commitment to market work is not necessarily highly correlated with education either (Ferree 1987). Working class women, whose jobs might not be considered careers or even interesting jobs by many, are very committed to their paid jobs and perceive themselves as breadwinners even when their husbands are employed. Qualitative interviews (from the late 1990s) of female hospital workers (ranging from janitors to

nursing directors) also point out that feelings of self-sufficiency and accomplishment attached to a worker's identity are not limited to well educated women. "I'm just the kind of person who likes to work...in order to take care of myself and not depend on other people taking care of me, [is] very important" demonstrates the importance of self-sufficiency that paid employment can provide (Garey 1999, 42). Sense of accomplishment and fulfillment are clearly evident in the words of this hospital worker: "I like to work...I think it's what people do for the most part...I mean I'm really glad that I have to job that challenges me mentally, and I feel like one of the reasons I got this job is because I'm smart and that's a great ego boost for me" (pp. 42). These statements reveal a less frequently mentioned non-economic benefit that employment can offer for mothers. It provides a break from full-time motherhood as indicated by these words of a part-time hospital worker: "I think that's a very healthy balancing thing, and it not only gets you out there, [but it also] gives you a sense of accomplishment and a sense of fulfillment, because I don't think you can get everything from your children or your husband" (Garey 1999, pp. 73).

Further, the persistence of the commitment to market work may not be as invariant as is often believed. Some women change their pre-childbirth plans to return to paid work and choose instead to stay at home with their infants (Fried 1998; Hock et al. 1984). Also, mothers who must return to paid work earlier than they would prefer sometimes have difficulties with the transition back to their jobs (Fried 1998).

The most commonly used work commitment measure asks women at a young age whether she plan to be employed at age 35. It does not indicate the extent to which a person would prefer to be employed. And since most studies address how commitment to market work predicts mothers' labor force participation, it is less clear how

commitment to market work is related to employment hours (Moen and Smith 1987). In addition, since most past studies have focused on maternal employment after the first birth, we do not know whether the commitment carries over to the labor supply after the second child's birth.

2.2. Full Wage

As noted above, the reservation wage is determined by factors that raise the cost of (re)entering market work (such as young children, availability of other income, childcare, and tastes and preferences). In contrast, the full wage is influenced by factors that increase the cost of staying home, thereby making employment more appealing. According to the economic labor supply theory, factors that increase the likelihood that a mother begins market work (i.e. increase her full wage) include a mother's current or potential wage, which are influenced by her human capital (e.g. education, employment experience) and structural factors such as demand for female labor (Blau and Ferber 1992, pp. 101-103). I will review next the empirical evidence for the effects of earnings, education, employment experience, and several structural factors on mothers' labor supply.

Earnings

According to the neoclassical labor supply theory, a mother's own earnings increase her labor supply by raising the opportunity cost of working less. In other words, the higher a mother's earnings, the more she stands to lose if she reduces her employment hours partially or completely. The empirical evidence supports the theory: mothers with higher earnings are more likely to be employed after giving birth (Blau and

Robins 1991; O'Connell 1990; Cramer 1979; Klerman and Leibowitz 1994; Leibowitz and Klerman 1995; Waite 1980; Wenk and Garrett 1992; Yoon and Waite 1994). They are also more likely to return sooner to paid work (Klerman and Leibowitz 1994; Desai and Waite 1991; Greenstein 1989). It may be, though, that mothers' own earnings are losing at least some of the importance in determining how soon a mother (re)enters market work after childbirth (just as husband's income is) because in a more recent study (using data from 1990), mothers' earnings did not have a significant impact on the timing of (re)entry. It is also likely that labor force participation may overestimate mother's actual market work. Klerman and Leibowitz (1994) show that while mothers with higher earnings are more likely than mothers with lower earnings to be employed three months following childbirth, they are no more likely to actually be at work. The discrepancy rises from the fact that women with higher earnings are more likely to be on maternity leave, and many studies count employees on short leaves as still employed.

Again, the number of studies that have examined the effect of mothers' earnings on employment hours is limited. One, from the 1970s, shows that increased wage level decreases mothers' annual employment hours (Cramer 1979) perhaps because women with higher earnings are better able to negotiate part-time arrangements or perhaps they can afford to reduce their employment hours. A more recent study indicates that mothers with higher wages are more likely to return to part-time employment within the year following childbirth than mothers with lower wages (Hofferth 2000).

Education

In addition to earnings, past studies have also used education as a proxy for the opportunity cost of paid work. As for earnings, studies throughout the past few decades

have found quite consistently that more educated mothers are more likely to participate in the labor force after childbirth (Blau and Robinson 1991; Shapiro and Mott 1979; Mott and Shapiro 1982, McLaughlin 1982; Greenstein 1989; Eggebeen 1988; Waite 1980; Wenk and Garrett 1992; Leibowitz and Klerman 1995; Klerman and Leibowitz 1999). They are also more likely to return sooner to market work than less educated mothers (Greenstein 1989; Hofferth 2000; Klerman and Leibowitz 1999) (for an exception, see Wenk and Garrett 1992). In a study, which used NLSY data from 1979 to 1986, education did not impact the timing of return to employment during the first three months, but mothers with more education were more likely than those with less education to return to paid work after the first three months (Desai and Waite 1991). The authors suggest that this may be due to the greater likelihood of more educated mothers breastfeeding their infants and hence taking longer to return to market work. Or, this may be partially due to some ambiguity in the NLSY data about mothers' employment status in the first three months.

The relationship between education and the level of attachment to the labor force is inconclusive: An earlier study found no significant relationship between education and a mother's annual hours (Cramer 1979). Another study from the 1980s suggested that the employment hours of more educated mothers fluctuate more as a result of changes in the family than employment hours of less educated mothers (Moen 1985). More recent studies, on the other hand, find the opposite, showing that the higher a mother's education, the more likely she is to work full time six months after a birth (Klerman and Leibowitz 1994, table 4) and to return to employment (part- or full-time) than to stay at home (Hofferth 2000). While the discrepant findings between these studies may represent differences in mothers' labor supply in different time periods, they may also be

due to the fact that they each define the level of attachment differently. In addition, numerous other methodological differences between the studies make the comparison difficult.

Employment experience

Employment experience is another determinant of the full wage because it increases a person's wage level. All else being equal, a person with longer employment experience has a higher earnings level than a person with shorter employment experience. Hence, employment experience is a positively predictor of mothers' labor supply. While the cumulated employment experience is an important predictor for post-delivery labor supply, it has not been included in many studies of maternal employment. This may be due to difficulties of measuring women's long term attachment of market work. Unlike men's labor force participation that tends to be continuous after schooling, women's long term employment is more difficult to measure because it has more interruptions, particularly at child bearing years. Studies that have included it, find that the longer women have been employed, the more likely they are to return to paid work post-delivery (Hofferth 2000; Greenstein 1989; Waite 1980).

A particular part of labor market experience that is strongly related to maternal employment is employment during pregnancy. Mothers who work for pay during pregnancy are more likely to return to market labor than those who are not employed during pregnancy (Hofferth 2000; Joesh 1994; Klerman and Leibowitz 1999, O'Connell 1990). And the longer a woman works into the pregnancy, the sooner she will return after the delivery, many probably returning to the same employer (Even 1987; Hofferth

2000; O'Connell 1990). In fact, almost all women (89 percent) who were employed full time before and after childbirth returned to the same job (Klerman and Leibowitz 1999).

Structural factors

A common complaint about the neoclassical labor supply theory is that, as a choice-based supply side theory, it focuses mostly on micro level determinants and does not pay adequate attention to macro level demand factors. This is a problem because structural factors, such as unemployment level and certain characteristics of occupations, create the boundaries within which mothers can make decisions about their labor supply. For example, a high unemployment rate may force a mother to stay at home. Moreover, occupations vary in the extent to which they accommodate employees' social needs by allowing part-time work, "flex-time" or maternity leave. Hence it is important to consider structural factors when examining mothers' employment.

The neoclassical labor supply theory specifies at least two structural factors--the demand for female labor and an increase in overall productivity of the economy--which are theorized to increase women's labor supply because they increase earnings (Blau and Ferber 1992 pp. 101-102). However, these factors have not received much empirical attention in studies about maternal employment, perhaps because data limitations. Below I will review the empirical evidence about the relationship between maternal employment and structural factors, such as occupation, the demand for female labor, and the unemployment rate.

Occupation

Because the ability to take time off or to cut back employment hours in order to spend more time at home with a child is not uniform across different occupations, a mother's ability to change her labor supply may depend to some extent on her occupation. Empirical evidence offers little support for the idea that women occupy certain kinds of jobs in large numbers because they offer more flexibility making it easier to combine paid work with child rearing. In fact, predominantly female jobs have been *less* flexible, allowing very little control over time use, and typically lack benefits (Bielby and Bielby 1988; Glass and Camarigg, 1992). The only thing that is flexible about these jobs is that they are often part time, which leaves more time for the family (unless one has a second job). On the other hand, women in professional occupations, in which part time employment is less common, may be better able to negotiate a change in their employment arrangement following childbirth because, as highly skilled employees, their employers are eager to retain them (Kalleberg et al 2000; Tilly, 1991). Professional employees are also more likely to have sick leave and maternity leave benefits that allow them to take time off.

While there is no evidence that the type of occupation affects whether mothers participate in the labor force, it appears that certain occupational characteristics impact the timing of mothers' return to market work (Avioli 1985; Desai and Waite 1991; Greenstein 1989; Wenk and Garrett 1992). For example, mothers in higher prestige occupations (re)enter sooner to market work than mothers in lower prestige occupations (Greenstein 1989). Other occupational characteristics that expedite the return include the opportunity to work part-year, the availability of on-the-job training, and presence of many mothers in a job (Desai and Waite 1991). How the availability of part-time work

impacts mothers' return to market work is less clear. For example, Desai and Waite (1991) found that mothers who work in occupations with many part-time employees take longer to return to market work following the first birth. They suggest that mothers in part-time jobs might simply quit when they have children because they typically do not have paid sick leave or other benefits that would create a strong incentive for them to return soon to the same job. Hofferth (2000), on the other hand, found that mothers whose employers offer part-time work as a benefit return to paid work sooner than mothers without that possibility. The results of the two studies may differ because in the latter study, part-time work is a benefit a full-time employee can opt to use, whereas in the study by Desai and Waite, women who work with many part-time employees likely work part time permanently themselves and lack benefits that make it possible to take time off. The discrepant findings may also be, at least partially, due to changes in mothers' employment as well as due to increased part-time employment opportunities in more recent years.

The level of attachment to the labor market (i.e. employment hours) is also influenced by occupation. In general, women and men in professional, managerial, and technical occupations work longer hours than those in other occupations. They also report wanting to work about five hours less than they do (Jacobs and Gerson 2000, table 3.3). Similar differences are also evident in mothers' employment hours. Mothers in managerial and executive positions may have a more difficult time working part time for a longer period of time than mothers with other types of occupations because the corporate culture expects managers and executives to work full time (Fried 1998; Hochschild 1997). And mothers in more traditional female jobs (i.e. nurse, librarian) are more likely to work part time than mothers in less-female occupations (O'Connell et al.

1989; Olson et al. 1990). It is possibly that mothers who have professional occupations are in the best situation to be able to negotiate part time hours compared to mothers in traditionally female jobs or in executive and managerial occupations (Marshall 1993).

It is difficult to determine how generalizable these results are because they are mostly based on a small number of qualitative studies using small samples.

Demand for female labor

The second structural factor that influences mothers' full wage is the demand for female labor. It is a part of the full wage because it can increase women's wages, and consequently serves as an incentive for women to work for pay. Empirical evidence shows that the demand for female labor (typically measured as the extent to which the occupational structure is skewed toward predominantly female occupations) has a strong positive effect on women's labor force participation in general (Cotter et al. 1998; Jones and Rosenfeld 1989; Oppenheimer 1973). While the demand for female labor is likely to have the same effect on *mothers'* labor supply as for all women, only one study of maternal employment has included the demand for female labor. This study shows that higher demand for female labor increases mothers' labor force participation only if they have completed childbearing (Waite 1980). However the data for this study are almost three decades old, cross-sectional, and include only married women. No study, to my knowledge, has examined how the demand for female labor influences the timing of *mothers'* return to market work or their level of attachment.

Unemployment rate

The third structural factor is the unemployment rate, because it is also likely to influence mothers' employment opportunities. A high unemployment rate can hinder the entrance or return to market work and is often accompanied by downsizing which tends to make employees insecure about their positions and hence hesitant to ask for any time off (Fried 1998). While a regional unemployment rate does not seem to impact mothers' participation in the labor market (Joesch 1994; Waite 1980), it can slow down their return to market work (Hofferth 2000). The unemployment rate at the national level may also affect mothers' employment negatively, although an unemployment rate measured at the national level may not be a good indicator as it obscures local variations (Leibowitz and Klerman 1995).

Summary

The above literature review reveals a complex set of factors and circumstances that create the framework in which mothers and their families make decisions about how to best combine care work and family work. In general, past research shows that higher earnings, more education, longer employment experience, and preference for market are all factors that tend to increase the likelihood that after childbirth a mother will return to market work, do so sooner, and possibly work more hours. Young children, particularly more than one, and access to income other than one's own tend to have the opposite effect on mothers' labor supply. Whether a mother participates in the labor force, how soon, and how much are further influenced by parents' ability to arrange child care for their child(ren), the demands of their current jobs, and the employment opportunities in the local labor market.

Most of the studies focus on mothers' labor force participation, several on the timing of mothers' return to market work, but only few on the level of attachment to the labor force. And because most of the studies focus on mothers' employment after the first birth, we do not know whether the above relationships apply to mothers' labor supply following the birth of a second child. Only one study has examined specifically that period in women's lives. While the study by Klerman and Leibowitz (1999) provides information about the continuity and extent of mothers' market work, the information it provides about mothers' employment after a second child's birth is quite limited: it tells us--at six months after the second birth--what percentage of mothers are employed and are they employed full or part time with the same or different employer. Obviously, that leaves many questions unanswered. First, because this study reveals only a snap shot of mother's labor market status at one point in time after the second childbirth, we still do not know how having two children affects mothers' labor market attachment in the long run. Instead of being constant, the level of mothers' attachment to the labor market is likely to change as their second child grows from infancy to toddlerhood and becomes a preschooler. Second, the labor supply of part-time workers is still not well understood because the category "part time," which includes everyone who works between one hour and 34 hours a week, is likely to hide large differences in the attachment to the labor market. Third, do the factors that influence mothers return to market work change when they have two children, rather than one? These are the kinds of questions I will address in the following chapters.

CHAPTER III

CONCEPTUAL FRAMEWORK AND HYPOTHESES

Following the birth of a second child, a mother's labor supply can follow different patterns. The amount of time mothers take off around childbirth varies, and once they return to market work, some return part time, while others full time. Of those who return part time, some continue in that status for a long time, while others move to full time hours after a few months or years. Most mothers who return to market work will stick with it, but some may find balancing the demands of their jobs and caring for two children too overwhelming and reduce their employment hours or drop out of the labor force completely.

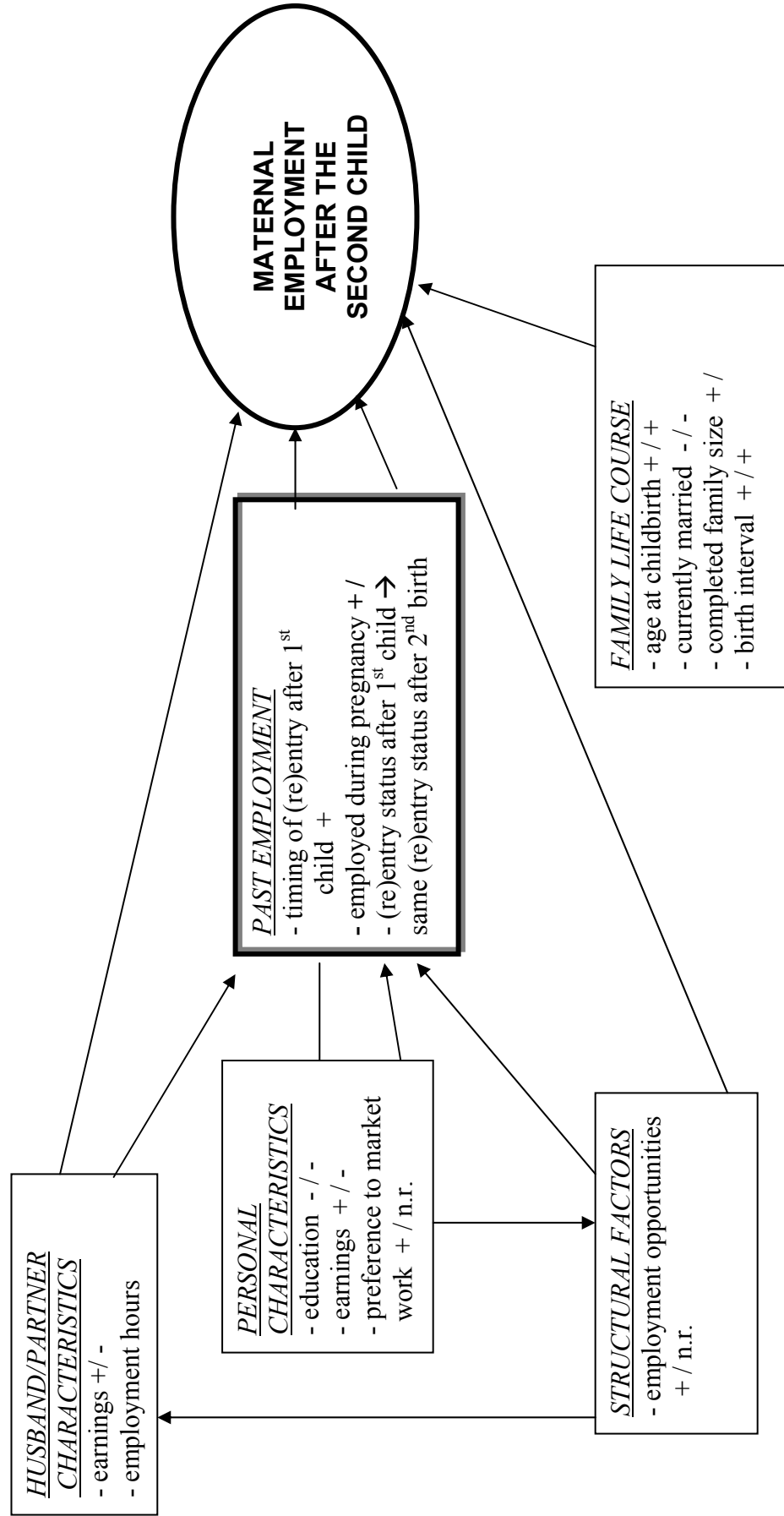
Each part of the process—whether mothers return, how much time they take off, and how many hours they work once they return—is typically influenced by a myriad of factors, although for some mothers there are no decisions to make: they have to be employed and work full time in order to keep the family solvent (or otherwise go on welfare). How mothers balance paid work and child care depends to a large extent on the level of other family income, typically husbands' earnings (Blau and Robins 1991; Desai and Waite 1992; Eggebeen 1988; Hofferth 2000; Leibowitz and Klerman 1995; Greenstein 1989; Gordon and Kammeyer 1980; Leibowitz, Klerman, and Waite 1992; McLaughlin 1982; Waite 1980). But mothers' labor supply is no longer dictated by financial constraints alone. Many mothers also prefer to be active participants of the labor force, either because they have invested years of schooling and career building or because they receive other type of non-monetary satisfaction from their jobs (Garey 1999; Moen and Smith 1986). But a mother's ability to reduce her labor supply even

when she could afford it and would like to do so is circumscribed by other factors. For example, how parents want their child(ren) to be cared for as well as the type of care they are able to find and afford are likely to affect whether and how much mothers work (Brayfield 1995; Casper 1996; Leibowitz, Klerman, and Waite 1992; Presser 1988; Rubin 1994). Also, the timing of the second birth (relative to the first) may influence how mothers decide to combine work and family. They may be more likely to decrease their involvement in the labor market if the first child is still very young at the time of the second child's birth or if the family considers having more children. Further, structural factors, including the occupational structure of the local labor market and the level of unemployment may influence mothers' ability to return to paid work, particularly if they are not returning to the same job (Hofferth 2000; Leibowitz and Klerman 1995). In addition, a mother's work experience after her first child was born is likely to influence how much she works after the birth of the second child (Klerman and Leibowitz 1999) (See figure 1).

Using neoclassical labor supply theory as a starting point, I develop a model predicting mothers' labor supply at a life stage when her reservation wage has in all likelihood increased with the birth of the second child. While the neoclassical labor supply theory addresses well the crux of the factors that influence mothers' labor supply decision—the financial need and financial rewards—it is limited in other ways. For example, the theory has an underlying bias because it views the wage level as the primary factor that “pulls” women to market work. This bias shows in the fact that “taste and preferences” in the theory are part of the reservation wage as preferences for staying home. Women's preference for employment for non-economic reasons is not reflected in the theory. There are also other factors that are not considered. For example, different

FIGURE 1. FACTORS THAT INFLUENCE MATERNAL EMPLOYMENT AFTER THE BIRTH OF THE SECOND CHILD

The signs by each variable correspond with the hypotheses: The first sign predicts the timing of (re)entry (for example, + predicts faster (re)entry). The second sign predicts full time (re)entry. N.r. denotes that a covariate is not predicted to impact the timing or type of (re)entry.



types of occupations have their own constraints that influence a mother's ability to alter her labor supply. Managers who supervise other employees may be forced to take less time off than they would like to. And, at the top management level, which consists mostly of men whose employment is not affected by having a young child, the token female managers may hesitate to take time off (Fried 1998). Further, the neoclassical labor supply does not consider how the timing of life events may influence mothers' labor supply. For example, if the birth of the second child completes the family building stage, the impact of a second child on mothers' employment may be different than if the family considers having additional children.

In order to contextualize mothers' employment experiences at the time of the second childbirth, I create a model that combines the neoclassical labor supply theory with the life course perspective. While the life course perspective does not aid in predicting *how* the different factors influence mothers' labor supply decisions, it provides an excellent guide for characterizing the life stage after the birth of the second child. First, the life course perspective highlights factors ignored by the neoclassical labor supply theory (e.g. the importance of timing of life events). With its emphasis on complex interrelated processes, the life course perspective provides a framework that integrates macro and micro level variables that play a part in mothers' employment opportunities. Second, according to the life course perspective, each individual's life consists of multiple simultaneous "age-graded trajectories" (e.g. work careers and family lives). How well these different trajectories are synchronized has consequences for individuals' lives. Since children typically have more impact on women's lives than men's, fitting the family trajectory with the employment trajectory is often more difficult for women than for men. Third, with its appreciation for "the long way" of thinking

(Elder 1994, p. 4), the life course perspective is also particularly appropriate here because the focus is on maternal employment at a later point in life than in most previous studies (i.e. years after the birth of the first child). Lastly, the life course perspective is also valuable because it emphasizes the interconnectedness of life transitions in earlier and later parts of life. In other words, a person's past affects his/her present, and his/her present affects his/her future (Ryder 1965).

The shortcomings of using labor force participation as the sole indicator of mothers' market work became evident in earlier parts of this proposal. Labor force participation overestimates how much mothers of young children work for pay (Cohen and Bianchi 1999; Klerman and Leibowitz 1994) and masks a large variation in the actual number of employment hours. If we are truly interested in understanding how mothers balance paid work and care of young children, we need to look beyond the labor force participation decision. A more informative picture of maternal employment can be created by examining the degree of mothers' attachment to the labor force (i.e. hours) and how it changes as children move from infancy to toddler hood to preschool ages. Hence, in addition to the timing of mothers' (re)entry to market work, I will examine the nature of employment at (re)entry (full vs. part time) as well as the extent to which mothers are employed during the first five years following the birth of a second child. This should provide a more nuanced picture of how mothers' combine paid work and childcare. While the focus of this study is on the time period following the birth of a second child, I will perform the same analysis for mothers' labor supply after the first birth in the beginning part of the study. This comparison will situate the analysis in the past research and set the stage for the further investigation regarding mothers' employment after the second birth.

Now I will turn to the factors associated with mothers' labor supply, and elaborate on how each one of them affects mothers' decisions in balancing paid work and child rearing. A schematic model of the relationship between the different factors and maternal employment after the second birth is depicted in figure 1. The hypotheses about the relationships are mostly based on mothers' employment after the first child because past research has mostly concentrated on that period of mothers' lives. However, the factors do not necessarily have the same impact on mother's employment after the second child is born. A comparison of the effects of these factors on mothers' labor supply after the first and second child will reveal how much the processes differ. The figure also reflects data limitations. For example, it does not include childcare because that information is not available for all the years. I will discuss data limitations further in chapter four.

HYPOTHESES

Past employment

Employment during pregnancy

Employment experience, especially employment during pregnancy, is an important predictor of mothers' labor supply. Employment during pregnancy increases the likelihood that a mother will be employed after childbirth (Hofferth 2000; Joesch 1994; Klerman and Leibowitz 1999; O'Connell 1990). Mothers also tend to (re)enter market work sooner after a birth if they were employed close to the end of the pregnancy (Hofferth 2000; O'Connell 1990). However, it is not known whether employment during a second pregnancy has similar positive impact on mothers' employment as

employment during the first pregnancy. But, the fact that a mother is employed while pregnant with her second child means she went back to paid work after the first child was born. Whether she did so due to financial pressures or other reasons indicates that she is more “tied” to the labor market, and perhaps to her job, than a mother who was not employed during second pregnancy. Hence, the opportunity cost of not (re)entering paid work at all or relatively soon is likely higher for a mother who was employed during second pregnancy than for a mother who was not employed while pregnant for her second child. For example, the cost of not returning and/or returning relatively soon may mean a loss of the job a mother had prior to the childbirth. However, employment during pregnancy per se, is not likely to influence how many hours a mother works once she returns. Therefore, I would hypothesize, that

H: mothers who were employed during their second pregnancy are likely to (re)enter market work sooner than mothers who were not employed during the pregnancy, but that

H: Employment during second pregnancy does not predict the level of attachment at a (re)entry

Employment after the first child

When examining maternal employment after the birth of the second child from a life course perspective, it is important to consider how a mother’s current decisions are influenced by her earlier life experiences. Another factor related to past employment that is likely an important predictor of how a mother will balance paid work and child care once she has two children is her employment experience after the first child. It would seem that while a mother’s labor supply between the first and a second child partially

reflects her general, long-term preferences and/or economic necessities for market work, it also reflects the specific circumstances of the life stage following the first birth. By that I mean the way in which the many aspects of a mother's life coalesce at the time of childbirth and influence her subsequent involvement in the labor force. The circumstances are not likely to be identical after the first and the second birth. For example, a husband's earnings may increase enough between the first and the second birth making it feasible for a mother to stay at home longer or return to paid work part time after the second child is born. Or after experiencing the stress of combining paid work and raising the first child (and realizing the added childcare costs of the second child), the same level of a husband's earnings may seem sufficient for a mother to decide to lower her market labor—particularly if the first child is still very young at the time of the second birth. Or maybe a work situation after the second birth is such that a mother's supervisor can not grant her as long of a break as she had after the birth of her first child. In other words, we should not assume that the effects of factors that influence mothers' labor supply at one point in time remain unchanged at some later point in time (Moen et al. 1990).

Past research shows that labor market experience is an important predictor for maternal employment after a first birth, but less is known about the situation after the second birth. The only multivariate study that allows comparison shows that compared to the situation after the first birth, mothers' labor force participation and part-time employment are lower at six months following a second birth. However, the level of full time employment apparently remains relatively stable (Klerman and Leibowitz 1999).

The classic labor supply perspective would predict that mothers (re)enter market work later and are employed for fewer hours after the birth of a second child than after

the first child because additional children increase the value of a mother's time at home (i.e. her reservation wage). However, whether the second child would change a mother's labor supply and by how much would depend on the relative value of a mother's reservation and full wage at the time of the second child's birth. I would hypothesize that

H: the sooner mothers (re)entered a job after the *first* birth, the sooner they (re)enter a job after birth of a *second* child, and that

H: mothers are likely to begin employment at the same level of hours after the second birth as after the first birth.

Husband/partner characteristics

Income

A mother's labor supply is highly interdependent with the lives of other family members. When a family contemplates how best to arrange family members' paid work and child care, a husband's (or a partner's) earnings play an important role in determining whether both spouses have to work or whether one of them can reduce his or her attachment to the labor force. Because access to income from other sources is what enables the family to decide that a mother stays at home longer with a new baby or works part time, her ability to take off more time or to work less can be viewed as a luxury that is available only for women who can afford to forego some or all of their own earnings. The negative impact of the level of a husband's income on a mother's labor force participation and the timing of her return to market work after childbirth is well documented in past research (Blau and Robins 1991; Desai and Waite 1992; Eggebeen 1988; Leibowitz and Klerman 1995; Greenstein 1989; Gordon and Kammeyer 1980; Leibowitz, Klerman, and Waite 1992; McLaughlin 1982; Waite 1980). However,

husband's income has been losing its relevance as women's employment has become increasingly common. That might be also because men with substantial earnings are likely to be married to well-educated women who command high salaries themselves. However, even if the original negative relationship between a husband's income and mother's employment is weakening, it still exists (Leibowitz and Klerman 1995). Hence,

I would hypothesize that the higher the husband's/partner's income,

H: the longer it takes for a mother to return to market work

and

H: the more likely a mother is to return part time

Personal Characteristics

The fact that the impact of husband's earnings on maternal labor supply has been diminishing indicates that the way a mother balances paid work and care of young children is no longer based solely on the level of husband's earnings. Mothers' own earnings--boosted by increasing levels of education--have become an important factor that "pulls" them to market work (Leibowitz and Klerman 1995). And as the labor force participation of mothers—even when they have young children—has become increasingly normative, many women plan to be employed throughout their adult lives. As a result, mothers may feel "pulled" to the market work as much due to their desire to have a paid job and to be a part of the labor force with other adults as due to financial needs.

Education

Availability of income other than a mother's own earnings is not always a sufficient reason for a mother to cut back her market work. She must also want to reduce her labor supply. That may be a difficult choice to make, particularly for those women who have invested time, energy, and money in obtaining advanced degrees and in establishing careers. And because they have spent many years at school, many women find themselves building careers and families simultaneously--both needing maximum attention at the same time.

The relationship between a mother's education and her labor supply is complex due to the multiple ways in which it is thought to influence women's decisions (Cramer 1979; Desai and Waite 1991). In many studies, education has been used to proxy human capital and the wage rate; in other studies it has been a proxy for preferences regarding childcare (Blau and Robin 1991; Greenstein 1989; Waite 1980); and in yet other studies education has been assumed to indicate mothers' commitment to market work (Mott and Shapiro 1982). The question remains; if one controls for a mother's preference to market work and her wage level, as well as a husband's income, what is the net effect of a mother's education on her labor supply?

The neoclassical labor supply theory posits a positive relationship between women's education and their labor supply, but the life course perspective suggests the possibility that the effect of education may change after women become mothers. There is some evidence that women's feelings about labor force participation change as they become mothers (Fried 1998; Hout et al. 1984). Perhaps better educated mothers differ from less educated mothers with regard to their child rearing goals? Mothers with higher levels of education may place greater emphasis on the mental and intellectual development of their children, particularly during the first years of life, than less

educated mothers (Bianchi and Robinson 1997; Leibowitz 1974; 1975). A recent study provides some evidence for this by demonstrating that middle class parents (both white and black) are more likely to engage in parenting style that stimulates children social and cognitive development than low-income or poor parents (Lareau 2002). Among parents of young children, this type of parenting philosophy could easily lead mothers to drop out of the labor force or reduce their employment hours in order to stay at home to cultivate the social capital of their children. On the other hand, mothers with college degrees are likely to want to get back to their careers, and as long as they can find child care that meets their standards, they may decide to return to their jobs. The latter prediction is more in line with the neoclassical labor supply theory and the findings of past research which have quite consistently shown that the higher the education, the more likely mothers are to be employed and to return sooner (Blau and Robinson 1991; Shapiro and Mott 1979; Mott and Shapiro 1982, McLaughlin 1982; Greenstein 1989; Eggebeen 1988; Waite, 1980; Wenk and Garrett 1992; Leibowitz and Klerman 1995; Klerman and Leibowitz 1999). What exactly is the mechanism though with education affects mothers' level of attachment to market work (i.e. hours), however, is not clear in these multivariate studies.

Since I control for a mother's earnings and her commitment to market work, education is most likely to proxy child rearing preferences in this study. If we think about the decision of how to combine paid work and child rearing as a "joint preference for paid work and child rearing," I would suggest that more educated mothers try to maximize both their desire to continue in their job and equally strong desire to be more present in their children's lives by limiting their employment while their children are young. Hence, I hypothesize that the higher the education,

H: the later mothers will (re)enter market work

and

H: the more likely a mother is to (re)enter market work part time

Earnings

As discussed earlier, the neoclassical labor supply theory posits that higher earnings “pull” mothers into the labor force because the higher their earnings the higher their opportunity cost of not working for pay. Mothers with higher earnings are also better able to afford good quality, reliable child care which in turns allows her to return to her job. There is plenty of empirical evidence that supports the positive relationship between mothers’ earnings and labor force participation. While education and earnings are correlated with each other, the results of several studies (that include both of education and income in their models) demonstrate that each one of them can have a significant positive effect on mothers’ labor force participation (Blau and Robins 1991; Klerman and Leibowitz 1994; Leibowitz and Klerman 1995) and timing of their (re)entry (Klerman and Leibowitz 1994; Desai and Waite 1991; Greenstein 1989) (for exception, see Hofferth 2000). Hence, I will include mothers’ earnings in the model, in addition to mothers’ level of education.

While higher earnings may be pulling mothers to (re)enter market work soon after childbirth, the “pull” may not extend to employment hours as is suggested by findings that indicate that higher earnings were actually positively related to part time (re)entry after childbirth (Hofferth 2000). Perhaps mothers with higher earnings are better able to afford to cut their wages than mothers with lower earnings. Consequently, I would hypothesize that the higher a mother’s earnings

H: the sooner she returns to market work

and

H: the more likely she is to (re)enter part time

Preference for market work

No matter what their education or earnings, some mothers feel “pulled” to market work because they prefer to be employed, at least part time. As women’s labor force participation has increased during the past decades, being part of the labor force and earning a salary have become an integral aspect of many women's adult identity. And because most American women are employed, a work place and colleagues can provide an important community without which a person may feel alienated from society. While working outside the home may make life particularly hectic, it can also provide women with different kinds of rewards and a sense of accomplishment than working at home. Hence, the extent to which mothers’ employment changes after her second child is born is likely to depend partially on how committed she feels to market work. Evidence from earlier studies suggests that preference for market work at least used to act as a buffer for changes in the family and the job. Mothers who had planned to be employed as adults were more likely to stay employed when they have young children (Rexroat and Rosenfeld 1984) and to return to market work sooner than mothers who preferred to stay at home (Desai and Waite 1991; Greenstein 1989). However, there is some evidence that strong commitment to market work does not necessary translate into higher employment hours (e.g. Moen and Smith 1986). Hence, I would hypothesize

H: that mothers who are employment-oriented are more likely to (re)enter paid work sooner than mothers who are home-oriented

but that

H: there is no significant relationship between a mother's commitment to market work and whether she (re)enters employment full or part time

Structural factors: employment opportunities

The neoclassical labor supply theory and the life course perspective both acknowledge the importance of human agency in decision making. But the neoclassical labor supply theory emphasizes less than the life course perspective that those decisions are subject to the constraints of the larger context within which individuals construct their lives including structural aspects of the labor market. For example, unemployment rates that fluctuate with economic cycles create idiosyncratic opportunity structures that color mothers' decisions about how to combine paid work and child rearing.

The neoclassical labor supply theory predicts that an increase in the demand for female labor raises women's labor supply because women's earnings are likely to be higher when there are more employment opportunities. However, there is questionable empirical support for a positive association between the demand for female labor and earnings level (Bianchi 1995). A high level of unemployment can also influence how mothers balance paid work and family by reducing the actual number of jobs available or by making mothers hesitant to request any kind of changes in their employment arrangements. Past research provides some evidence that the demand for female labor leads to an increase in mothers' labor force participation (Waite 1980), while a high unemployment rate may have the opposite effect (Leibowitz and Klerman 1995). High unemployment rate may also delay mothers' return to market work after childbirth (Hofferth 2000). Hence, I would hypothesize that

H: the more employment opportunities mothers have, the sooner they (re)enter market work but that

H: employment opportunities are not related to mothers' (re)entry status

Family Life Course

The same event can have hugely different consequences on a person's life depending on when it takes place (Elder 1994). Childbirth, for example, always changes women's lives, but its timing in a woman's life influences the nature of its impact. Glick (1977) expressed this type of longitudinal view and the importance of the sequence of events in the "Family Life Cycle" in which he divided family life into five different stages and examined how characteristics of the average family change from one stage to another. Since then, the life cycle stage concept has been utilized in only a few studies about mothers' labor supply (Drobnick et al. 1999; Waite 1980). The findings suggest that entering into a certain stage of the family life cycle, such as parenthood, increases the likelihood of dropping out of the labor force (Drobnick et al. 1999).

In addition to the timing in one's own life, the impact of an event depends on when it occurs in historical time. For example, a mother's return to employment two months after the birth of a child does not raise eye brows today but fifty years ago it would have probably been frowned upon in the neighborhood. The issues related to the family life course that I will consider in this study are the age at childbirth, marital status, the fertility expectations, and the spacing of the first and the second births.⁶

⁶ Historical time period is excluded because it can't be separated from the age of a mother.

Age at childbirth

As mentioned above, the impact of childbirth in a woman's life partially depends on the age at which she has a child. Women who have a child at young age before experiencing other major life events, such as completion of schooling and/or marriage are more likely to experience severe economic difficulties throughout their lives than women who have children later in life. This is at least partially due their lower human capital level, which in turn reduces the opportunity cost of staying at home with a child (and increases the reservation wage). In other words, taking longer to return to market work after childbirth is less likely to damage the earnings and career potentials of those with less human capital because they are likely to have jobs in which these opportunities are quite limited.

Having a child at young age has been found to reduce mothers' labor supply. Teenage mothers with infants are less likely to be in the labor force than older mothers. They are also less likely to be employed full time than their older counter parts. This may be at least partially because younger mother may still be at school. On the other hand, their unemployment is also higher than older mothers, particularly if they have more than one child. While a birth of the first child reduces both groups' labor force participation and the full time employment, a second birth lowers them even further (Bachu and O'Connell 2001).

The empirical evidence of the impact of age at childbirth on the *timing* and *type* of (re)entry to employment appear to be at odds with the theoretical arguments. The relationship between the age at childbirth and the timing of (re)entry has been marginally significant at best (Desai and Waite 1991; Hofferth 2000). Further, women who had childbirth at younger age do not appear to differ significantly in their risk of returning to

employment full time vs. part time from women who had their child at older age (Hofferth 2000).

Even if the scant empirical evidence suggests that age at childbirth may not impact the timing or type of mothers' (re)entry to market work (controlling for other variables), I would still hypothesize, based on the multiple impediments childbearing at early ages imposes on employment, that

H: the older the mother at childbirth, the sooner she (re)enters market work
and

H: the older the mother at childbirth, the more likely she is to (re)enter market work full time.

Marital status

A second family life course event that may impact mothers' labor supply after childbirth is a change in marital status. Entrance into a marriage typically increases the amount of family budget available to purchase child care services which in turn would allow a mother to work for pay. Married mothers are also more likely to be employed than mothers without a spouse because a husband can provide child care while a mother works outside the home (Casper 1996). Separated, divorced, and widowed mothers, but especially never married mothers, lack these resources a husband typically brings to the household. Hence there is more pressure for mothers without a husband to be employed, but the absence of a husband's financial contribution makes it more difficult to afford child care, although previously married women may receive some financial assistance from their former spouses. Separated and divorced mothers might even be able to share some of the child care responses with the father of their children, while never married

mothers with small child(ren) must manage it all on their own, although they might receive some public assistance, such as Aid to Families with Dependent Children (AFDC).⁷

Married mothers have had a higher labor force participation rate than all other mothers, although the difference has been narrowing in the 1990s, and in 2000, the trend reversed as 57 percent of all other mothers participated in the labor force compared to 54 percent of married mothers (Bachu and O'Connell 2001, table 3). Mothers with infants also differ in their employment hours depending on their marital status: Never married mothers are least likely to be employed full time (29 %) and previously married mothers most likely (44 %). Married mothers hold the middle ground, with 34 percent of them working full time.

The effect of marital status on the *timing* of mothers return to market work is inconclusive. In an earlier study (using data between 1979 and 1985), women who were married at the time of childbirth returned to market work sooner than non-married mothers (Desai and Waite 1991). A more recent study, on the other hand, suggests that marital status (or having two parents) does not have a significant impact on the timing of mothers' return to employment (Hofferth 2000). Neither does it appear to influence whether they (re)entered paid work at full or part time level (Hofferth 2000).

Nevertheless, I hypothesize that

H: currently married mothers (re)enter market work sooner than never married mothers and

H: currently married mothers are more likely to (re)enter market work part time than never married mothers

7. A program that existed during most of the 54 NLSY data collection.

Fertility expectations

The third aspect of the family life course is fertility expectation, or family formation stage. Women who have reached the life stage when they consider their family completed (i.e. they do not plan to have any more children) are likely to make different employment decisions than mothers who still plan to have more children (Waite 1980). Perhaps women who dropped out of the labor force after the first child's birth and who are thinking of having another child relatively soon after the first birth, may think that it is not "worth" going back to paid work for a short period since they would have to interrupt their employment soon after the birth of the second child. Or alternatively, if they are working part time, they may not want to make the transition to a greater commitment of full-time employment until they think they will not be having another child. In other words, many women who are in the middle of the child bearing stage of the life cycle may keep their employment responsibilities "lighter" and make changes only after they think they finished bearing children. Hence, I would hypothesize that compared to mothers who plan to have more than two children, those who have completed childbearing

H: are more likely to return to paid work sooner

but

H: are no more likely to work full or part time when they (re)enter

Birth interval

The final aspect of family life course that is likely to affect maternal employment is the time interval between the birth of the first and the second child. Caring for one young child is time consuming, but having two preschool-age children increases the

intense and constant care work that young children demand. The rise in caring time is reflected in the economic labor supply theory, which predicts that the presence of young children reduces mothers' labor supply because small children increase the reservation wage, i.e. the value of mothers' time at home. And having two young children is likely to increase a mother's reservation wage more than one child, particularly when the children are close in age. Further, the value of mothers' time at home with two children is also likely to be higher also because the second child increases the cost of commercial child care.

The limited empirical evidence related to the effect of birth spacing on maternal employment is not always consistent with the predictions of the neoclassical labor supply model. Some find that spacing does not appear to be related to the timing of mothers' return to market work (Joesch 1994), while others show that when the number of preschoolers increases, mothers are more likely to drop out of the labor force of (Blank 1989). Nevertheless, I would hypothesize that the longer the birth interval,

H: the sooner mothers (re)enter market work

and

H: the more likely mothers are to (re)enter full time

Control variables

Race

I will include race as a control variable because race differences still exist in the extent to which mothers are employed even if white and black women's labor force participation and timing of return have become increasingly similar (Desai and Waite, 1991; Hayghe and Bianchi 1994; Hofferth 2000).

Geographic region

I will control also for geographic region because labor markets are differentiated by geographic region (Jones and Rosenfeld 1989). For example, being in the South has particularly positive influence on women's share of the labor force (Cotter et al. 1998; Jones and Rosenfeld 1989).

Health

Since certain disabilities or other types of health problems can limit a person's ability to participate in the labor market, I will control for a mother's health status.

CHAPTER IV

METHODOLOGY

In this chapter, I outline the plan for the analysis and describe the data and the sample. I also discuss the coding of the variables and reasons for “missing” variables. After that, I explain how the timing of mothers’ (re)entry to market work is modeled, both with and without specifying the level (i.e. hours) at which they begin employment.

Analysis plan

The goal of this analysis is to provide a more comprehensive picture of mothers’ labor supply after the birth of a second child than is currently available. The analysis consists of three main parts. The first part focuses on the timing of mothers’ reentry to paid work and the processes related to it. In order to place the transition to employment after a second birth in the context of current knowledge regarding maternal employment after the first birth, I compare the timing and determinants of mothers (re)entry market work after a second birth to the timing after the first birth. After that, I expand the analysis of the period after a second birth, and incorporate factors unique to maternal employment after a second birth. In the next part of the analysis, I examine whether the factors that influence the hazards of mothers’ (re)entry to market work after a second birth vary by the type of the (re)entry (i.e. full or part time). This multivariate analyses should help us understand the processes that determine the timing and the type of mothers’ (re)entry to market work and how they are similar or different depending on the parity. In the final part of the analysis, I examine the degree to which mothers stay employed once they have (re)entered paid work and how their employment hours change

over time as the second child grows older. This part is descriptive and should give us a general understanding of maternal employment patterns during the five-year period after the birth of a second child.

I will first give a general description of the analysis and after explaining the sample and the variables, I will provide more details about modeling of the event history data.

Entry to market work after a second childbirth

The timing of (re)entry to paid work after the birth of a second child is a pivotal life course event because it marks the beginning of the long-lasting, often complex and stressful process of balancing paid work and the care of two children. And even if most women have at least two children, no one, to my knowledge, has focused on mothers' (re)entry to employment after the birth of a second child.

I will use panel data and event history methods to examine the rate at which mothers (re)enter market work and the factors that influence their (re)entry. To understand how much time mothers take off before they (re)enter market work after the second birth, I will create a graph, using the Life-table survival method that depicts the probability of a mother still being at home at each year after the birth of a second child. Next, using Cox event history modeling, I will examine how the factors discussed above influence how soon mothers (re)enter market work. And since some mothers' decisions about how soon to (re)enter market work may depend on whether they (re)enter part time or full time, I will estimate the impact of the different factors separately for full time (35+ hrs/wk), high part time (21-34 hrs/wk) or low part time (1-20 hrs/wk) modeling the three different statuses as competing risks. In the past, most studies dichotomized mothers'

employment, but some of the more recent analyses have begun to differentiate between a full-time and a part-time (re)entry status (e.g. see Blank 1989; Hofferth 2000; Klerman and Leibowitz 1999). This study goes one step further by differentiating between high and low part time employment hours.

The level of attachment to market work after a second childbirth

Instead of stopping the analysis at the point of (re)entry into the labor force, as most past studies have done, I will further examine what happens *after* mothers have (re)entered market work. What kind of employment patterns do they follow during this period when juggling work and family is likely to be most difficult, especially if the two children are close in age? And how does mothers' attachment to market work change as their second child grows older? Since the focus is on how mothers balance paid work *and* family, this part of the analysis includes only mothers who (re)entered market work during the first year after the second birth and examines their employment behavior during the preschool years of their second child. I would expect that the majority of mothers have (re)entered paid work within a year after a second child's birth because previous studies that have examined the timing of mothers' (re)entry to market work indicate that over a half of mothers are back in paid work within the first year: 69 percent after the *first* childbirth (Desai and Waite 1991) and 52 percent after unspecified birth order (Hofferth 2000). Klerman and Leibowitz (1999) who noted mothers' labor supply status by parity at *six* months after childbirth found that almost a half (45.5 %) of mothers had already returned to paid work during the first half a year after the birth of a *second* child.

This part of the analysis is descriptive. I compare percentage of mothers in four different levels of attachment to the labor market (full time, high part time, low part time, and not employed) over time as their second child grows older. To examine how much mothers level of attachment (i.e. hours) changes over the years from their (re)entry status, I distinguish between mothers based on their employment hours at their (re)entry to market work.

In sum, the findings of this study should improve our understanding of how mothers balance paid work and child rearing after the birth of a second child. Not only will we learn how soon and at what level of attachment mothers will begin the “balancing act” after the second child is born, but also what factors drive the timing and the type of the (re)entry. In addition to the issues related to the (re)entry to market work, we will also learn about mothers’ employment during the five years after the second birth. Unlike previous studies, I distinguish among part-time workers who are employed less than twenty hours per week and those who are employed closer to full time as their realities of balancing paid work and family while rearing two children are likely to be quite different. The results will show whether this distinction is warranted. Finally, the findings of this study will inform us about the differences and similarities in mothers’ (re)entry to market work after the first and the second birth.

Data and the sample

I use 1979-1998 data from the National Longitudinal Survey of Youth (NLSY79) in this analysis. The survey was designed by the Center for Human Resource Research at the Ohio State University and data collection has been conducted by the National Opinion Research Center (NORC). The NLSY79 is a cohort panel study consisting of a

nationally representative sample of 12,686 women and men who were 14-21 years of age as of December 31, 1978 (i.e. they were born between 1957-64). By the latest interview in 1998 their ages ranged from 34 to 41. In addition to the main cross-sectional sample, the original 1979 study includes two other independent probability samples: a supplemental sample of blacks, Hispanics, and poor whites, and the other of respondents who were serving in the Armed Forces. Face-to-face interviews using paper survey instruments and pencil-entered responses (PAPI) were conducted through 1992. Starting in 1993, interviewers have employed Computed Assisted Personal Interview (CAPI) methods to conduct the face-to-face interviews. The respondents were interviewed annually between 1979 and 1994, and biannually since then. The retention rate of the total sample by 1998 was 84.3 percent (8,399 respondents).⁸

Given that this study uses data that have been collected over a twenty year period, the issue of missing data becomes unavoidable. Data can be missing because respondents were not interviewed in certain years, either because they could not be located or they refused to be interviewed. Even if they were located and agreed to be interviewed, some questions don't have answers because of erroneous skip patterns or if a respondent refused to answer specific question. Missing data is particularly troublesome for multiple regression analysis because SAS drops from an analysis any case that includes even one missing value. That means that if a respondent has otherwise a perfect record for twenty years, but has a value missing for one single variable, the

⁸ Retention rate is defined as the percentage of base year respondents within each sample type remaining eligible who were interviewed in a given survey year. Included in the eligible sample are deceased and difficult to find respondents whom NORC does not attempt to contact (NLSY79 User's Guide, table 2.5.1).

entire case is lost. To prevent a massive loss of data, I imputed some of the missing values. The guidelines I used to impute missing data are specified in appendix 1.

After imputations, the sample for this study has been constructed in the following way: My goal was to include as many of the 6,238 women in the 1979 NLSY baseline survey as possible (The 6,238 female respondents in the NLSY79 include 3108 women in the main sample, 2,719 in the supplemental sample, and 456 women in the military sample – see table 1.4.1 in the *NLSY79 User's Guide*). However, I had to exclude the 456 females in the military sub-sample because my analysis focuses on the employment patterns of civilian women (also, most of the military sample was dropped in 1985). I also excluded the poor white women (901) in the supplemental sample because they were dropped from the interview schedule after the 1990 interview. Of the remaining 4,926 women, 2898 had their first child between 1979 and 1998, and 2199 had their second child during the same period. I left out the 27 women whose first and second children were twins and the 24 women whose second and third children were twins because employment decisions of mothers who have twins are likely much different from those of mothers who have one child at a time. I will also exclude 21 women who did not work at all between 1979 and 1998 and 2 women who were interviewed only once or twice during the twenty-year period because they are a unique group that has a lot of missing data. Thus, the final sample size is 2825. Of them, 2131 had a second birth during the survey years.

As I mentioned above, SAS only accepts cases with no missing values in any year in event history regressions. The sample for the analysis of (re)entry to market work after the first birth only includes 2229 mothers, omitting 596 (21 percent) who had more missing data than could be imputed. The sample for the analysis of return to work after a

second birth includes 1667 mothers, leaving out 464 (22 percent) cases due missing values that could not be imputed. Table 1 describes both the regression sample as well as the “full” sample.⁹

Variables

Next, I describe the coding of the dependent and independent variables, and discuss reasons for unavailable variables.

Dependent variables

Timing of (re)entry to employment after a child birth

The NLSY79 has collected detailed information about respondents’ employment since the beginning of the study. The work history data file provides a week-by-week employment status from January 1, 1978 to the end of 1998. Among other things, the data set includes information about mothers’ employment hours for each week between 1979 and 1998. Merging of the work history file with the main dataset allows one to tie mothers’ employment status with their fertility history and other information and to track respondents’ weekly employment status (including hours) through the years.

Unfortunately, the NSLY79 employment information is not perfect. According to the NLSY79 employment definition, mothers who are on paid vacation, on sick leave, on unpaid leave of less than one month or on maternity leave of less than 90 days are counted as employed and at work. This makes it impossible to estimate accurately which mothers are actually at a paid job during the first three months after the birth. Because of

⁹ The full sample is larger than the regression sample because the full sample includes observations that might have missing values, while only observations with no missing

this ambiguity in the data, I will give all mothers the first three months off (i.e. 12 weeks) and begin the counting from week 13. The (re)entry to market work is defined as the first week after a birth (plus 12 weeks) in which a mother's employment hours exceed zero.

Level of attachment to the labor market

The second dependent variable measures the level of a mother's attachment to market work. Each year, the survey collects information about employment hours by asking respondents: "How many hours per week do/did you *usually* work at this job?" Answers are recorded in exact number of hours and summed up if a respondent has more than one job, and the "usual hours worked per week at all jobs" is duplicated for each week in the week-by-week work history. Unless the respondent changes jobs (and with the change of jobs also changes the number of hours he/she are employed), the value of the usual hours is the same for all 52 weeks in a year. Unfortunately, this variable is not ideal for my purposes because it is likely to miss some short-term changes in employment hours. For example, if a mother works temporarily part time for a couple of months after she returns to employment, but then switches back to her normal full-time hours, she would likely report that she "typically" works full time at her job. Basically, the survey picks up changes in employment hours only if the change has become "typical," the meaning of which is determined by the respondent and is likely to indicate something that is longer term, something more permanent. Hence, by using the question about usual employment hours, I am able to capture only changes of longer duration, which is likely to bias my estimates downwards. Nonetheless, given how little we know

about changes in mothers' attachment to the labor market while their children are young, this data can still provide valuable new information.

To create the level-of-attachment-to-market-work indicator, I coded the usual weekly employment hours in all jobs into four dummy coded categories: not employed; employed at a low part time level (1-20 hours a week); high part time level (21-34 hours a week); and full time (35 + hours a week). This information is then linked to the period of interest (i.e. the period following the first or second birth), so that we can create measures of the level of attachment to the labor market when a woman (re)enters paid work after a birth, as well as annual measure of a level of attachment for the five years following the second birth.

Independent variables

In chapter three, I hypothesized how past employment, husband's characteristics, mother's characteristics, family life course factors, and structural aspects related to the labor market might influence the timing of mothers (re)entry to market work after the birth of a second child. In this chapter, I will describe how each one of these factors is measured.

Employment between the first and a second birth

a) Timing of (re)entry to market work after the birth of the first child

This variable is measured as the number of weeks between the first birth and a mother's (re)entry to market work starting at week thirteen. It is the dependent variable in the models predicting mothers' (re)entry to market work after the first birth, and an independent variables for the second birth models.

b) Level of attachment at (re)entry to market work

This variable is used in the competing risk analysis to predict whether mothers' begin employment full or part time after either the first or the second child. The continuous employment hours is recoded into the five dichotomous variables to describe the weekly level of attachment as follows: not employed (0 hours); low part time (1-20 hours); high part time (21-34 hours); and full time (35 + hours).

Employment during pregnancy

A mother's employment status during a pregnancy is dummy coded, with one indicating that a mother was employed during pregnancy. It is created for the pregnancies leading to both the first and a second births.

Husband's characteristics

Annual Employment hours

The annual-employment-hours measure is a product of a number of weeks a husband worked a previous year and the number of hours he worked during those weeks. I recoded husband's continuous employment hours, which were determined only for married women, into a three dummy variables: not employed during the previous year, employed part time (1 – 1820 hours), and employed full time (more than 1820 hours). In order to keep SAS from dropping women with missing values from the analysis (which they would have any year they were not married), I created a fourth dummy category, "no spouse."

Annual Income

A husband's annual income consists of pre-tax earnings from all jobs (wages, salary, commission, tips, net business income, and net farm income) a year prior to a birth. It is top coded by the NLSY, and the method varies by a survey year. For women with no husband, the value is zero. I log the income measure (using the natural logs) because the large scale of income measured as actual dollars causes coefficient to round to zero. The advantage of log income is that it measures proportional differences in the income continuum rather than absolute dollar amounts (Cotter et al 1998, pp. 1691).

Mother's characteristics

Earnings

The NLSY constructs an hourly rate of pay in a current or a most recent job which includes tips, overtime, and bonuses, and is calculated before deductions. I use a continuous hourly rate of pay that the mother reports for one year prior to a birth. If an hourly rate of pay was missing because a mother had no employment hours that year, the variable was coded zero. For the regression analysis, I take the natural logarithm of a mother's earnings.

Education

Education is measured as the highest grade or a year of regular school *completed* at the time of each interview. The original variable ranges from 0 to 20 (1-12 grades and 1-8 years of collage). I collapsed the categories into five dichotomous variables: 1. Less than high school (i.e. less than 12 grades); 2. high school diploma (12th grade); 3. some college (1-3 years of college); 4. Bachelor's degree (4 years of college); 5. Post-graduate

studies (more than 4 years of college). The education variable is allowed to vary by year so that women who have gone back to school are credited with higher levels of education for subsequent years.

Family vs. employment preference

During the 1979 interview, NLSY respondents were asked: “What would you like to be doing when you are 35 years old?” Response categories included 1) have present job 2) have some occupation 3) be married raising family and 4) other. Those who said that they wanted to be married raising family were asked: “Would you like to be working in addition to being married/keeping house/raising family”? Respondents could answer “yes” or “no.” I combined responses to these two questions into three dummy variables as follows: Those who answered 1 or 2 to the first question are coded as expressing a “work preference.” Those who answer that they plan to be married and raising family to the first question *and* “yes” to the second question regarding employment are coded as “no preference” since they do not specifically prioritize either family or employment (this category also includes those who answered “other” to the first question). Those who answered that they want to be married and raising family to the first question *and* “no” to the question about being employed are coded as having a “family preference.”

Structural factors

Employment opportunities

Employment opportunities are proxied by the local unemployment rate that NLSY79 constructs annually. To create the measure, NLSY79 draws from state and local labor force data from the May publication of *Employment and Earnings* that is

published by the U.S. Department of Labor. For respondents who live in metropolitan areas, the unemployment rate refers to the rate of a metropolitan area. For others, the rate is computed as the unemployment rate for the balance of the state. The reference period is the month of March (for more details, see NLSY79 Codebook Supplement 1979-1998 for the main file, p. 293). The unemployment rate is coded in six percentage categories: 1) < 3.0 2) 3-5.9 3) 6-8.9 4) 9-11.9 5) 12-14.9 6) 15+ percent, and is allowed to change every year.

Family life course

Fertility expectations

Whether a mother still considers having more children or whether she thinks that this particular child completes the desired family size is measured by a question "How many (more) children do you expect to have?" Respondents were asked this question in most interviews. For the years, when it was not asked, I used the previous year's answer. I recoded the answers into a dummy variable: 1 if a respondent expects to have (more) children, 0 if she does not. This variable is also allowed to vary annually.

Birth interval

Birth interval is measured by a continuous variable that indicates the number of months between the first and the second birth. This variable is created by NLSY79.

Age at childbirth

A mother's age at the first and at the second birth is coded as a continuous variable.

Marital status

Marital status, which is allowed to vary every year, is coded into three dummy variables: never married; married, spouse present; other (including separated, divorced, and widowed).

Control variables

Race/ethnicity

The variable that I use is based on both race and ethnic origin information collected during the 1978 household screening, and is the recommended race variable in the NLSY79 User's Guide (table A.3.1.) I dummy-recode the three categories of this variable: "non-Hispanic black", "Hispanic", and "non-black, non-Hispanic." The last category includes respondents whose race was coded "white" (non-Hispanic) or "other." The "other" category includes Native-Americans, Hawaiian/Pacific Islanders, and persons of various Asian origins.

Geographic region

Geographic region of residence is measured by the following four dummy variables: 1) Northeast 2) North Central 3) South and 4) West. This is a time-dependent variable.

Health

Current health status is based on annually collected information about whether a respondent has an employment-limiting health problem(s). It is coded as a dummy, one indicating a positive response, and is time-dependent.

Unavailable variables

There are several variables I would have liked to have included in the analysis, but for various reasons could not. The first one is child care. Lack of data is the main reason for the absence of child care information. Questions about child care did not begin until 1982. Information about child care (mostly cost and location) was asked from mothers who were at school, in training, or employed. But in a study like this that tries to understand what determines how soon a mother begins market work after having had a baby, one would need to know if issues related to child care (e.g. availability, cost) are keeping a mother from working for pay. That kind of information is not available for most years.

The presence of another adult household member besides a husband or a partner—who could possibly provide child care—is not part of the study either. While the data allows for an identification of an additional adult household member, I do not include the information because past studies which have examined the effect of an adult household members other than a spouse on mothers' return to employment have not found it to be a significant predictor (Hofferth 2000; Klerman and Leibowitz 1990; Leibowitz, Klerman and Waite 1992). Additional household members may not help in a mother's (re)entry to market work partially at least because an additional adult in the household may be an elderly parent whose presence may actually impede a mother's market work since they typically increase the amount of care work she does. This

omission is not likely to have much impact, however, because few children are cared for at home. For example, in 1993 only about 15 percent of preschoolers were cared for in their home by a grandparent, another relative, or by a non-relative, and only a subset of these caregivers are likely to co-reside with the family (Casper 1996, figure 1). Even if a half of them did reside in the same household that would amount only for about seven percent of all preschool children's care.

A second variable that shines with its absence is occupation. As discussed above, occupations vary in their degree of flexibility and autonomy which can influence how mothers' combine paid and care work. However, using a mother's occupation prior to a birth of a child does not make much sense since she may well have a different job after the birth of a child, particularly if she stays home for a while. But using the occupation at the time of a mother's (re)entrance to predict her (re)entrance to employment does not work either because both variables would be on the same side of the equation. In addition, the NLSY cautions against making too much out of occupation changes because often what appears to be an occupation change is simply a slightly different description of tasks (by a respondent) which leads data coders to designate the occupation a different code.

The study includes a mother's earnings which, I believe, partially compensates for the absence of occupation because women with higher earnings are more likely to have occupations with more autonomy and more flexibility, both in every day life and in their ability to negotiate more favorable maternity leaves and employment arrangements.

Employer policies, which can also influence the rate at which mothers return to market work (Hofferth 2000), are not included either because of data limitations.

Collection of the information about maternity policies did not begin until 1985.

Questions about company provided child care has been asked only since 1988, and questions related to flexible work schedules did not begin until 1989 and even then were asked only from those who were employed for more than 20 hours a week. Since maternity leaves rarely exceed three months, having information about them would not make much difference at any rate since I give all women in this study three months off.

Modeling the timing of (re)entry to market work

First, I estimate the rate at which mothers (re)enter market work after a birth (without specifying the type of the (re)entry), and what factors influence the hazards of mothers' (re)entry to paid work. Then, I estimate the risk of (re)entry to market work by a type of (re)entry (i.e. full, high part time, and low part time). But, first a word about censoring. In other words, about mothers who do not (re)enter market work after childbirth.

I calculate the number of weeks between the week of a child's birth (plus 12 weeks) and the week a mother begins employment. Mothers who do not start employment before the end of the data collection (in 1998) or before a subsequent child is born are censored. Because I am interested in the differences in mothers' (re)entry to paid work between the first and second births, I need to censor mothers (at the time of a subsequent birth) if they do not (re)enter market work until after having another baby in order to keep the two groups mutually exclusive. Not censoring them would muddy the distinction because some of the mothers who would be starting employment for the first time after the first birth in fact would have two children since they were not employed between the two births. After the first birth, 474 (17 percent of the 2825) were censored. 328 of them were censored at second birth. After a second birth, 398 (19 percent of

2131) women were censored. 196 of them were censored at a third birth. In other words, the difference between “2-censoring-sample” (that I use) and “1-censoring-sample” is 329 cases after the first birth, and 196 cases after a second birth. The difference ends up being smaller in the analysis sample because, as I explained above, any case that had any missing values (after imputations) had to be excluded from the analysis: 238 (vs. 328) after the first birth and 139 (vs. 196) cases after a second birth.

To evaluate how much censoring of mothers at subsequent birth might have affected the results, I run a separate analysis for a sample of mothers who were censored only if they had not (re)entered market work by the end of the study (i.e. the “1-censoring sample”). The results do not differ from the ones I present in this study. This may be because the difference in the censoring (due to having a subsequent child) starts to affect the samples only after the majority of mothers have already returned to employment. During the first year, when 62-65 percent of the mothers (re)enter market work, censoring due to a subsequent birth is minimal, but increases the second year. Between the second and the fifth year, 29-44 mothers are censored each year because they have a subsequent child before returning to employment. During the remaining years, 181 women after the first birth and 146 women after the second birth are censored. These numbers are much larger than in previous years because they include those who did not return to employment by the end of the study in addition to those who did not return to paid work prior to having a subsequent child. The number of censored cases is also higher after the first birth than after a second (345 vs. 285) because more women have a subsequent birth before returning to paid work after the first than after a second child (the number of censored cases will be discussed further in the results section).

Cox hazard models

In the multiple regression analysis for the rate and the type of a mother's (re)entry to market work, I use the semi-parametric Cox regression method because I am primarily interested in the effects of explanatory variables rather than the actual shape of the overall hazard function, and the Cox method does not require one to specify a particular baseline hazard function. Because it is not necessary to try to fit the data into a particular hazard function, the Cox coefficient estimates tend to be rather robust. In addition, the Cox method accommodates both discrete and continuous measurements of variables as well as time-varying covariates. The Cox model is typically expressed in a log hazard form as follows:

$$\log h(t) = a(t) + b_1x_1 + b_2x_2 \dots b_kx_k$$

In this model, the hazard for an individual is a function of $a(t)$, a baseline hazard function, and $b_1x_1 + \dots b_kx_k$, a set of k time-constant covariates. Because the baseline hazard is not specified in the Cox model, it is called semi-parametric. The hazard rate— $h(t)$ —signifies the risk that a person will experience an event at time t , given that she/he has not experienced the event before time t .

The Cox model is also called a “proportional” hazard model because it assumes that the effect of an explanatory variable does not interact with time, i.e. a person's hazard is a constant proportion of a hazard of another individual (Allison 1995). However, when time-dependent covariates are introduced to a model (as they are in this study), the hazard ratios cannot stay constant because time-dependent covariates will change at different rates for different individuals. Fortunately, relaxing this assumption

is typically inconsequential for the results (Allison 1995; Teachman 1983; Yamaguchi 1991).

For time-independent variables, one can test whether the assumption of proportionality has been violated by adding to the model an additional variable that is the product of the original time-independent variable and time. The interactions that turned out to be significant need to be included in the final model (Yamaguchi 1991). When the Cox model includes time-dependent covariates, all we need to do is to tie a particularly explanatory variable into its time-specific value. In the model below, the second explanatory variable is time-dependent ($X_s(t)$).

$$\log h(t) = a(t) + b_1x_1 + b_2x_2(t) \dots b_kx_k$$

Modeling the timing of (re)entry to market work by event type: Competing risk models

How soon a mother begins market work after giving birth is, at least in some instances, likely to depend on how many hours she will be employed once she starts. She may feel more comfortable beginning employment sooner if she does not need to leave her young child every day for eight to ten hours. But since reduced employment hours are available only to those who can rely on other income, the impact of husband's earnings on the timing of a mother's (re)entry to market work may vary by the type of her (re)entry (i.e. full or part time).

To find out if this is the case, I will examine the effect of covariates on three different (re)entry types: full time, high part time, and low part time. This can be accomplished by examining the three types of a (re)entry statuses ("events") one at a time, while censoring the remaining types of events. For example, in the model that

examines high part time (re)entries, (re)entries to a job at high part time level (21-35 hours a week) are treated as the events of interest and all other types of (re)entries are censored. In other words, each type of an event is a separate model, and mothers who experience one type of event (e.g. (re)entry to high part time job) are removed from the risk of experiencing another type of event (e.g. full time or low part time (re)entry). The sum of hazards of each event type equals the hazards of all events. The competing risk hazard model can be expressed as

$$\log h_j(t) = a_j(t) + b_{j1}x_1 + b_{j2}x_2(t) \dots b_{jk}x_k$$

with subscript j indicating that there is a different log hazard for each j -type of event determined jointly by a set of coefficients specific for that type of event and by an (unspecified) baseline hazard for that type of event (Allison 1984).

I estimate all the Cox models using PROC PHREG program in SAS. Tied data (i.e. multiple events happening simultaneously) are handled by the exact method which assumes that events occur continuously, but are tied due to less than precise measurement.

The only results that are weighted are the descriptive sample statistics in table 1 and the cross tabulations that describe mother's employment hours during the five-year period (charts 1 through 5). I use the 1998 weights per the recommendation of the NLSY User's Guide (p. 36). The multivariate regression results are not weighted because weighting of event history models is not recommended (Cox 1997; NLSY79 User's Guide, pp. 36).

CHAPTER V
RESULTS

Sample description

Table 1 shows the weighted descriptive statistics at the time of the birth of the first and second child. The first two columns characterize the full sample. Columns three and four describe women who are included in the regression analysis. This group is smaller than the full sample (in the first two columns) because SAS excludes anyone who has any missing values. The exclusions of observations due to missing values do not appear to have been very systematic because the samples are quite similar. The married women's economic situation improves between the first and a second birth as their husbands' annual incomes increase from about eighteen thousand to twenty five thousand. Women's own hourly rate of pay, on the other hand, stagnates at approximately seven dollars an hour. A large majority of husbands are employed full time, and 12 to 17 percent are employed part time. Very few husbands were unemployed a year prior to a birth of a child (less than one percent). Women's education increases between the first and a second birth, so that when the second child is born, 46 percent have a high school diploma, 36 to 38 percent have a Bachelor's degree or at least some college education, and about 6 percent have more than four years of college. In 1979, in the first NLSY interview, these women were asked (at ages 14-21) what they plan to do when they are 30 years of age. A large majority—about 70 percent—plan to have a job, only 10 percent indicated as their sole plan to raise family, and about 20 percent did not have a clear preference (i.e. they plan to do both). Women are about 25 years of age

Table 1. Weighted Frequencies and Means at the Time of the First and a Second Birth for the full sample and the regression sample (standard deviations in parentheses)

Variables	<i>Full sample</i>		<i>Regression sample</i>	
	<i>1st birth</i>	<i>2nd birth</i>	<i>1st birth</i>	<i>2nd birth</i>
	(n=2825)	(n=2131)	(n=2229)	(n=1667)
<u>Background variables</u>				
<i>Race/ethnicity (%)</i> ¹				
Hispanic	6.4	7.0	5.7	6.2
Black	12.0	11.8	11.9	11.7
White	81.6	81.2	82.4	82.1
Poor health limits employment (%)	10.0	8.0	10.2	8.2
<i>Region (%)</i>				
Lives in North East	18.8	18.7	19.2	19.6
Lives in North Central	28.1	30.1	28.0	29.5
Lives in South	34.4	33.3	34.2	32.8
Lives in West	18.6	17.9	18.6	18.1
<u>Husband's characteristics</u>				
Husband's income in thousands of dollars	17.0 (31.4)	24.4 (36.1)	18.2 (33.1)	25.9 (38.2)
Log of husband's income	6.2 (4.80)	7.6 (4.30)	6.5 (4.7)	8.0 (4.1)
<i>Husband's employment hours (%)</i> ²				
Husband not employed	0.69	0.65	0.39	0.37
Husband employed part time	17.2	14.6	16.0	12.4
Husband employed full time	82.1	84.7	83.6	87.2
<u>Mother's characteristics</u>				
Hourly pay (\$)	7.1 (8.6)	7.0 (8.5)	7.2 (8.5)	7.2 (8.9)
Log of hourly pay	5.7 (2.1)	5.2 (2.6)	5.8 (1.9)	5.3 (2.6)
<i>Education (%)</i>				
Less than high school	15.3	11.4	13.8	9.8
high school diploma	43.4	46.4	43.1	46.1
1-3 years of college	21.1	21.2	21.7	22.1
Bachelor's degree	14.1	14.4	15.2	15.5
More than Bachelor's degree	6.13	6.6	6.2	6.4

<i>Employment/family preference¹ (%)</i>				
Employment preference	70.1	69.6	70.6	70.1
Family preference	10.0	10.4	9.4	9.8
No preference	19.8	19.9	20.1	20.1
<u>Family life course</u>				
Age at childbirth	24.8	27.5	25.0	27.5
	(5.0)	(4.5)	(4.9)	(4.4)
<i>Marital status (%)</i>				
Never married	22.4	9.9	22.7	10.3
Married, spouse present	72.1	83.9	72.3	83.8
Divorced/separated/widowed	5.5	6.2	5.0	5.9
Expects to have more children (%)	85.7	44.5	86.1	45.7
Months between 1st & 2nd births		43.1		42.4
		(28.90)		(28.2)
<u>Structural factors</u>				
Local unemployment rate (%)	6.0-8.9	6.0-8.9	6.0-8.9	6.0-8.9
	(1.1)	(1.0)	(1.1)	(1.0)
<u>Past employment</u>				
Employed during pregnancy (%)	81.8	68.3	83.6	68.8
- Median number of weeks not employed after a birth	20.00	24.00	18.00	21.00
	(151.70)	(147.20)	(144.60)	(141.80)
<i>Entry status after childbirth (%)</i>				
Full time (35+ hrs/wk)	50.0	44.5	50.5	44.80
Part time high (21-34 hrs/wk)	13.0	15.0	13.5	15.50
Part time low (1-20 hrs/wk)	20.6	22.3	20.5	22.30
(censored)	16.5	18.3	15.4	17.40

Notes:

1. Measured only in 1979.
2. Hours are calculated for married women only.

when their first child is born and two and a half years older at the time of the second birth. While over 20 percent of women haven't married yet when their first child is born, only 10 percent are never married by the time of their second birth. After having their first child, about 86 percent of mothers were expecting to have a second child, and about

a half was planning to have a third child after they had had two. Women had their first two children approximately two and a half years apart.

Over 80 percent of mothers were employed while they were pregnant with their first child and almost 70 percent were employed while pregnant with their second one. The length of the time mothers stayed away from market work after a birth is slightly different between the two samples. The median length of time at home after the first birth is 20 weeks (i.e. 5 months) in the full sample and two weeks less in the regression sample. After the second birth, they tend to stay at home few weeks longer: the median length of time at home is 24 weeks (i.e. 6 months) in the full sample and 3 weeks less in the regression sample. After the first birth, more mothers began employment full time than after a second birth (50.0% vs. 44.5%, $X^2 = 330$, $p < .0001$). Both levels of part time employment are more common after a second than after first birth (13.0% vs. 15.0%, $X^2 = 72$, $p < .0001$; 20.6% vs. 22.3%, $X^2 = 124$, $p < .0001$).

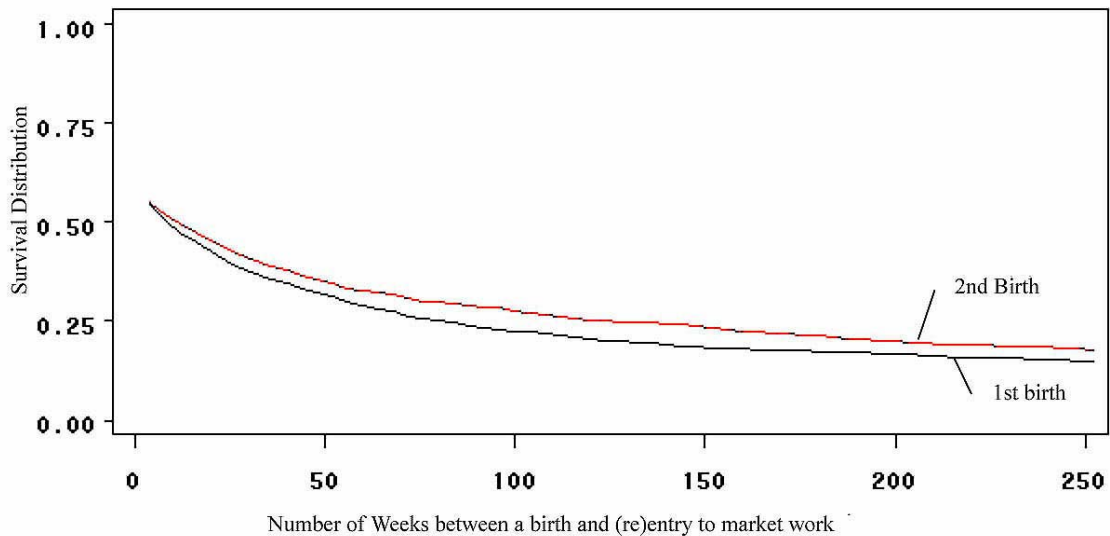
Timing of (re)entry to market work: Survival distribution

Figure 2 shows the survival distribution in four-week intervals for (re)entry to market work after the first and a second child during the first five years after each birth using a life table method. The top line refers to a second birth and the bottom line to the first birth. The graph shows that women take a longer to (re)enter market work after the second birth than after the first. The gap between the two groups is small, approximately 3-5 percentage points, but it persists throughout the five years and is statistically significant.¹⁰ At three months, when the counting of the weeks begins, about 40 percent

¹⁰ -2 Log likelihood is statistically significant at .0001 level. Also B.I.C. which equals 6, is statistically significant.

of mothers with either one or two child(ren) have (re)entered market work (table 2, first column for each birth). Three months later, 54 percent of mothers with one child have

Figure 2. Survival distribution of (re)entry to market work during the first five years after the first and second birth



begun market work, compared to 51 percent of mothers with two children. At the time of the second child’s first birthday, 62 percent of mothers are employed. Same is true for 65 percent of mothers when their first child turns one. The difference is largest, approximately 5 percentage points, when the children are two and three years of age. By the time the children turn four, the difference has narrowed again to 80 vs. 83. At the end of the five year period, 82 percent of mothers with two children have (re)entered market work compared to 85 percent of mothers with one child.

Table 2 also shows the interval hazard rates at which mothers (re)entered paid work after the first and a second child. The rates are very similar throughout the five

year period. The hazard rate is .50 for the first three months, during which 40 percent of mothers (re)entered market work, but then declines dramatically for the remaining years.

Table 2. Information about mothers' (re)entry to market work after the first and a second birth

	After the first birth (n=229)				After the second birth (n=1667)			
Time interval	Cum % (re)enter	Interval hazard	Number returned	Number censored	Cum % (re)enter	Interval hazard	Number returned	Number censored
By the end of the								
3 months	40.5	0.50	902	0	39.8	0.49	664	0
4th month	46.5	0.03	134	0	46.0	0.03	103	0
5th month	51.2	0.02	106	0	49.4	0.01	56	0
6th month	54.1	0.01	63	0	51.5	0.01	35	0
7th month	56.1	0.02	45	0	53.5	0.01	34	1
8th month	59.3	0.02	71	3	56.1	0.01	43	2
9th month	60.9	0.01	36	1	57.8	0.01	29	0
10th month	62.8	0.01	42	1	59.5	0.01	27	0
11th month	64.4	0.01	36	1	61.0	0.01	26	2
12th month	65.5	0.01	24	1	62.3	0.01	21	0
By the end of the								
2nd year	76.6	0.01	240	29	71.5	0.01	148	34
3rd year	81.2	0.00	94	43	76.0	0.00	67	35
4th year	83.2	0.00	35	41	79.9	0.00	53	31
5th year	85.0	0.00	28	44	82.1	0.00	26	34
After the 5th year		0.00	28	181		0.00	50	146
Total			1884	345			1382	285

Timing of mothers' (re)entry to market work after the first and a second childbirth:

Comparison of the predictors

Table 3 examines factors that influence mothers' (re)entry to paid work after the birth of the first child (model 1) and after the second child (model 2). Column one for

Table 3. Cox hazard model predicting the risk of (re)entering employment after the birth of a first and a second child (standard errors in parentheses)

<i>Variables</i>	1st child		2nd child	
	<i>Model 1¹</i>	<i>h</i> <i>ratio</i>	<i>Model 2¹</i>	<i>h</i> <i>ratio</i>
<u>Background</u>				
<u>Race/ethnicity</u>				
Black	0.447*** (0.065)	1.564	0.218** (0.079)	1.243
Hispanic (White) #	0.183** (0.067)	1.200	-0.066 (0.078)	0.936
<u>Health</u>				
Health problem limits employment	-0.057 (0.104)	0.945	0.158 (0.123)	1.171
<u>Region</u>				
Resides in North Central	-0.012 (0.076)	1.012	-0.025 (0.089)	0.976
South	0.112 (0.069)	1.118	0.001 (0.082)	1.001
West (North East) #	-0.011 (0.081)	0.989	0.076 (0.094)	1.079
<u>Husband's characteristics</u>				
Income (log)	-0.063*** (0.006)	0.939	-0.007 (0.008)	0.993
<u>Mother's characteristics</u>				
Hourly pay (log)	0.047** (0.016)	1.048	0.049** (0.015)	1.050

<u>Education</u>				
Less than high school	-0.605*** (0.082)	0.546	-0.523*** (0.101)	0.593
(High school diploma) #				
1-3 years of college	0.068 (0.060)	1.071	-0.035 (0.069)	0.965
Bachelor's degree	0.171* (0.082)	1.186	0.044 (0.095)	1.045
More than Bachelor's degree	0.596*** (0.115)	1.815	0.178 (0.128)	1.195
<u>Family & employment preference</u>				
Family preference	-0.134 (0.092)	0.875	0.021 (0.105)	1.021
No preference	-0.030 (0.062)	0.970	0.060 (0.072)	1.062
(Employment preference) #				
<u>Family life course</u>				
Age at childbirth	-0.204*** (0.008)	0.815	-0.212*** (0.009)	0.809
<u>Marital status</u>				
Married, spouse present	1.527*** (0.064)	4.603	1.135*** (0.092)	3.111
Separated/divorced/widowed	0.961*** (0.105)	2.614	.701*** (0.116)	2.016
(Never married) #				
<u>Fertility expectations</u>				
Expects more children	0.802*** (0.081)	2.230	-.704*** (0.064)	0.494
(Doesn't expect more) #				
<u>Structural factors</u>				
Unemployment rate	-0.047+ (0.025)	0.954	-.107*** (0.031)	0.899
<u>Employment during pregnancy</u>				
Employed during pregnancy	0.631*** (0.079)	1.879	1.181*** (0.085)	3.259
n		2229		1667

Number of events	1884	1382
-2 Log likelihood	21771***	15737***
Df	20	20

+ p <1.0 * p <.05 ** p<.01 *** p<.001

Notes:

Omitted category in regressions

1. The effect of a mother's wage does not change when education is excluded. Similarly, the effect of education remains the same when a mother's wage is excluded.

both models shows the parameter estimates and standard errors in parentheses. Column two shows hazard ratios. A hazard ratio of one means that a particular variable has no effect on the risk of mothers' (re)entry to market work; a hazard ratio higher than one indicates a variable increases the risk; and a hazard ratio less than one indicates that a variable reduces the risk of (re)entry. For dummy variables with values 1 and 0, the hazard ratio is interpreted as "the ratio of the estimated hazard for those with a value of 1 to the estimated hazard for those with a value of 0 (controlling for other variables)" (Allison 1984). For example, the estimated risk ratio of 0.593 for variable "less than high school" (table 3 model 2) means that mothers with less than high school education are 59 percent as likely to (re)enter paid work any given week compared to mothers with high school education. For quantitative predictors, the hazard ratio indicates change in the hazard for one unit-change in the covariate. To ease interpretation, subtract 1 from the risk ratio and multiply it by 100. For example, for the variable "age at childbirth," the hazard ratio of 0.809 (table 3 model 2) means that for each one-year increase in a mother's age at childbirth, the hazard of (re)entering market work declines by an estimated 19 percent (Allison 1995).

Model 1, which shows the factors that affect the timing of mothers' (re)entry to market work after the first birth, reiterates to a large extent what we already know from past research: A husband's higher income slows down mothers' (re)entry to market work, while mothers higher education and higher earnings hasten it. And, as one would expect based on previous studies, women who had their first birth at an older age, (re)enter market work later than women who were younger when they had their first baby. Women who had their first birth when they were nineteen or younger are most different: they are almost seven times more likely to begin employment than women who gave birth at 25-29 years of age (categorical data not shown). Marital status has also a major impact on the risk of (re)entry: Never married women have a much lower risk than currently married or previously married women. In fact, married women have more than four times higher risk of beginning market work than never married women. A higher unemployment rate slows down the transition by reducing the risk of (re)entry by 4.6 percent, although it is only marginally significant. Past employment experience, particularly during pregnancy, dramatically increases the risk of (re)entry. Those who were employed while pregnant with their first child have 88 percent higher risk of beginning employment at any given week than women who were not employed during pregnancy. Mothers who expect to have more children after their first child (re)enter market work *sooner* than mothers who do not expect to have more children. Since a large majority of women expect to have more than one child (86 percent), perhaps this small minority of women who do not plan to have more than one child is unique in some ways (they are not older or more educated, though). Since the first child is "it," perhaps they feel particularly strongly about staying at home to enjoy the experience. They may

also worry less about taking more time off market work since they are not expecting additional interruptions for care work in the future.¹¹

Model 2 is identical to model 1 but shows the impact of the covariates on a mother's (re)entry to market work after the birth of a *second* child. Comparison with model 1 makes it clear that the processes affecting the rate at which mothers begin market work after a second birth differ slightly from those predicting (re)entry after the first birth. For example, a husband's income slows down (re)entry to market work after the first birth. However, after a second birth, a husband's income no longer has a statistically significant influence on the (re)entry hazards, although its direction remains the same. While it is tempting to conclude from these results that a husband's income no longer matters after a second birth, it may be misleading because when employment during pregnancy is not considered in the model, a husband's income is significant ($p =$

¹¹ Cox hazard models assume that hazards are proportional throughout the observation period (i.e. they do not interact with time). To find out if any one of the time-dependent variables violates the assumption, I interacted each one of them with the duration variable and added the interaction term into the basic model.

None of the predictor variables for the period after the second birth violated the proportionality assumption. Hence no interaction terms are added to models related to mothers' employment after the second birth. Of the variables after the first birth, only a husband's income and employment during pregnancy were statistically significant and had a negative sign. However, a negative sign in an interaction term involving time can mean one of the two things: The variable which is interacted with duration may have a declining impact on the hazard rate or the baseline hazard rate is declining over time. The latter situation, also called "duration dependency" (Yamaguchi 1991), exists when mothers with the highest risk (re)enter market work, leaving behind a subsample of women who have much lower hazard for (re)entering paid work. To tease apart a real change in the impact of an explanatory variable vs. change in the baseline hazard, I included in the models a variable that controls for the baseline hazard in addition to the interaction terms.

The interaction term between time and employment during pregnancy was not significant when added to the model. The interaction term between husband's income and time was significant at .05 level but has only a minor impact (0.2) on the hazard or (re)entry. The covariate for the baseline hazard shows that the baseline hazard declines approximately 14 percent every 10 week interval.

.039). In other words, an inclusion of employment during pregnancy in the model may hide the significance of a husband's income because whether a mother is employed while expecting a second child is already determined to a large extent by a husband' income. On the other hand, husband's income probably has much less impact on the timing of mothers' (re)entry on market work after a second child than after the first child because even if it is significant when employment during pregnancy is not taken into consideration, the effect is smaller than after the first birth (data not shown). In addition, when the effect of husband's income is examined separately for mothers who were employed during pregnancy and those who were not, husband's income is not significant (table 7).

Contrary to my hypothesis, but partially corroborating findings of past research, mothers with less education return to market work later than mothers with more education. I say "partially" because, after a second birth, the impact of education on the timing of mothers' (re)entry to market work differs only between those who finished high school and those who did not. The latter group stays at home longer. Mothers with a college degree do not (re)enter market work significantly faster than mothers with a high school diploma. After the first birth, however, the effect of education is stronger, and mothers with at least a Bachelor's degree have a significantly higher risk of (re)entering market work sooner than mothers with a high school diploma.

As I predicted, mothers who still expect to have more children take longer to start employment than mothers who think they are finished after the second one. After the first birth, expecting to have more children has the opposite effect on the risk of (re)entry. Also supporting my hypothesis, the local unemployment rate has a strong negative impact on the timing of mothers' (re)entry to market after a second birth. After the first

birth, its effect is to the same direction, but is only marginally significant. Past employment experience, especially employment during pregnancy, has a strong impact on the timing of mothers' (re)entry to market work as I expected. Mothers who worked while pregnant with their second child have more than three times higher risk of (re)entering market work after the child is born than mothers who were not employed during pregnancy. After the first birth, having been employed during pregnancy also increases a mother's risk of (re)entering market work, but the impact is much smaller (1.879 vs. 3.259).

For the other covariates, the effects on the (re)entry to paid work are similar after the first and a second birth. For example, a mother's own earnings capacity "pulls" her to start employment earlier regardless of parity, as I expected. Perhaps higher pay at least partially proxies a high level professional or managerial occupation that does not accommodate long absences from the office. Mothers with higher pay are also better able to purchase the kind of care they want, making (re)entry to market work easier. In addition, compared to mothers with lower pay, mothers with higher pay are more likely to have jobs that offer benefits such as part time work, and liberal leave which have been shown to hasten (re)entry to market work (Hofferth 2000). A mother's preference for primarily family or employment focused life is not significant in either model, and only after the first birth it is in the expected direction. After both births, mothers who were older at the childbirth take longer to (re)enter market work. Marital status at the time of the second birth affects mothers' (re)entry to market work as it did with the first child. After both births currently and previously married mothers are more likely to (re)enter market work than never married mothers, but the effect is higher after the first birth than after a second (4.603 vs. 3.111).

Other than Hispanic origin, all the background variables work the same way after both births, although they tend to have a smaller impact after a second birth. Compared to white women, Black women have 56 percent higher risk of (re)entry after the first child and 24 percent higher after a second child. Hispanic mothers also begin employment earlier than white mothers, but the difference exists only after the first birth. Neither a mother's health status nor her region of residence has a significant impact on the risk of (re)entering market.

As families try to balance care work with market work, some couples co-ordinate their employment hours so that they can get by without using commercial child care as much as possible, either for financial reasons or because they want to be the ones caring for the child(ren). Hence, I examined the effect of a husband's employment hours on the timing of mothers' (re)entry market work after childbirth. The results indicate that whether a husband is employed full time, part time, or is unemployed does not significantly impact the timing of mothers' (re)entry to market work after either the first or a second birth (data not shown). The only instance in which the effect of husband's employment hours even approaches significance is when a husband is unemployed. But, in that situation a mother takes longer to (re)enter market work after the first and after a second childbirth ($p = <.10$). The results are similar with or without husband's income in the model.

Timing of mothers' (re)entry to market work after the first and a second childbirth:

Comparison of the predictors among women who had at least two children

Thus far I have compared the women who had at least two children to women who had at least one child. The latter group includes those who did not go on to have

more children because I wanted this group to be consistent with the way past research has examined mothers' return to employment after the first childbirth. However, a comparison of what mothers do after a second child with what they do after the first child is flawed because some of the women in the latter group actually never return after the second birth because they do not have more than one child. As a result, I reexamine the differences after the first and a second birth only among mothers who had at least two children (i.e. I exclude mothers who had only one child).

Exclusion of the women who had only one child reduces the sample size by 562 and changes the composition because the women who had only one child differ from mothers who had more children. For example, mothers who had only one child are more educated, have higher earnings, have husbands with higher income, (re)enter market work sooner and are more likely to work at full time level than women who had more children (table 4).

When we compare the same group of women after their first and second births, we see that mothers take slightly longer to (re)enter after their first childbirth (table 5). Three months after the first birth, 37 percent of women had (re)entered market work compared to 40 percent after the second birth. This is not surprising since the characteristics of mothers who had one child only are related to higher labor supply. The differences in the timing of (re)entry after the first and after a second child are most notable following the first five months after the births and when the children are two and three years of age as is evident in the wider gap between the two lines in figure 3. However, this difference in the timing of return after the first and after the second birth is no longer significant (-2 Log Chi square=.0174, df=1, p. <.8951). There is, though, a significant difference in the level at which these mother (re)enter market work after the

first and a second birth. Mothers are slightly less likely to be employed full time after a second birth than after the

Table 4. Weighted frequencies and means at the time of the first birth for women who only had one child (standard deviations in parentheses)

Variables	<i>Regression sample</i>	
	<i>1st birth</i> (n=2229)	<i>1st birth</i> (n=562)
<u>Background variables</u>		
<i>Race/ethnicity (%)</i> ¹		
Hispanic	5.7	4.2
Black	11.9	12.4
White	82.4	83.4
Poor health limits employment (%)	10.2	8.7
<i>Region (%)</i>		
Lives in North		
East	19.2	16.9
Lives in North Central	28.0	25.0
Lives in South	34.2	39.6
Lives in West	18.6	18.5
<u>Husband's characteristics</u>		
Husband's income in thousand of dollars	18.2 (33.1)	21.9 (40.2)
Log of husband's income	6.5 (4.7)	6.3 (4.90)
<u>Mother's characteristics</u>		
Hourly pay (\$)	7.2 (8.5)	9.02 (9.36)
Log of hourly pay	5.8 (1.9)	6.2 (1.60)
<i>Education (%)</i>		
Less than high school	13.8	10.7

high school diploma	43.1	42.1
1-3 years of college	21.7	23.5
Bachelor's degree	15.2	14.9
More than Bachelor's degree	6.2	8.9
<i>Employment/family preference¹ (%)</i>		
Employment preference	70.6	72.1
Family preference	9.4	8.13
No preference	20.1	19.8
<u>Family life course</u>		
Age at childbirth	25.0	27.6
	(4.9)	(5.40)
<i>Marital status (%)</i>		
Never married	22.7	24.4
Married, spouse present	72.3	67.1
Divorced/separated/widowed	5.0	8.6
Expects to have more children (%)	86.1	70.1
<u>Structural factors</u>		
Local unemployment rate (%)	6.0-8.9	6.0-8.9
	(1.1)	(1.1)
<u>Past employment</u>		
Employed during pregnancy (%)	83.6	87.1
<i>Mean number of weeks not employed after a birth</i>		
	72.3	47.6
	(144.60)	(103.50)
<i>Entry status after childbirth (%)</i>		
Full time (35+ hrs/wk)	50.5	62.3
Part time high (21-34 rs/wk)	13.5	13.7
Part time low (1-20 hrs/wk)	20.5	17.3
(censored)	15.4	6.63

Notes:

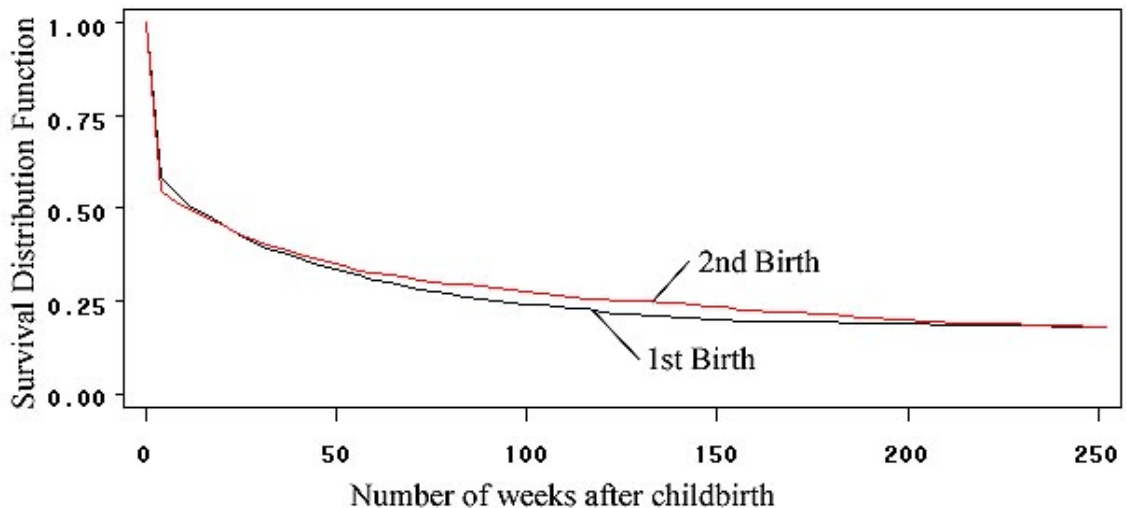
1. Measured only in 1979.

2. Hours are calculated for married women only.

Table 5. Information about mothers' (re)entry to market work after the first and a second birth among women who had two children

Time interval	After the first birth (n=1667)				After the second birth (n=1667)			
	Cum % (re)enter	Interval hazard	Number returned	Number censored	Cum % (re)enter	Interval hazard	Number returned	Number censored
By the end of the								
3 months	36.95	0.45	616	0	39.83	0.49	664	0
4th month	42.71	0.02	96	0	46.01	0.03	103	0
5th month	47.95	0.02	87	0	49.37	0.01	56	0
6th month	50.99	0.02	51	0	51.47	0.01	35	0
7th month	52.73	0.01	29	0	53.51	0.01	34	1
8th month	56.45	0.02	62	0	56.10	0.01	43	2
9th month	58.25	0.01	30	0	57.84	0.01	29	0
10th month	60.41	0.01	36	0	59.47	0.01	27	0
11th month	62.09	0.01	28	0	61.04	0.01	26	2
12th month	63.23	0.01	19	0	62.31	0.01	21	0
By the end of the								
2nd year	74.96	0.01	192	22	71.50	0.01	148	34
3rd year	79.71	0.00	72	39	76.00	0.00	67	35
4th year	81.14	0.00	19	38	79.92	0.00	53	31
5th year	82.12	0.00	11	38	82.10	0.00	26	34
After the 5th year		0.00	11	171		0.00	50	146
Total			1359	308			1382	285

Figure 3. Survival distribution of (re)entry to market work during the first five years after the first and a second birth among women who had two children.



first one second birth than after the first one (44.8% vs. 46.4%) and more likely to employed at the high part time level (15.5% vs. 13.4%) (chi square=494, df=9, $p < .0001$) (data not shown).

The determinants predicting the risk of (re)entering market work after the two births do not change much when we exclude the one-child-only mothers as is apparent in table 6. There are only three notable differences: 1) the effect of having a Bachelor's degree is now only marginally significant ($p = .06$), 2) the effect of unemployment rate becomes significant at .05 level, and 3) the impact of expecting to have more children increases from 2.230 to 3.037. The influence of other covariates remains similar.

Table 6. Cox hazard model predicting the risk of (re)entering employment among women who had two children (standard errors in parentheses)

<i>Variables</i>	1st child		2nd child	
	<i>Model 1¹</i>	<i>h ratio</i>	<i>Model 2¹</i>	<i>h ratio</i>
<u>Background</u>				
<u>Race/ethnicity</u>				
Black	0.428*** (0.077)	1.535	0.218** (0.079)	1.243
Hispanic (White) #	0.173* (0.077)	1.189	-0.066 (0.078)	0.936
<u>Health</u>				
Health problem limits employment	-0.034 (0.119)	0.967	0.158 (0.123)	1.171
<u>Region</u>				
Resides in North Central	-0.025 (0.089)	0.975	-0.025 (0.089)	0.976
South	0.171 (0.081)	1.074	0.001 (0.082)	1.001
West	-0.053 (0.094)	0.948	0.076 (0.094)	1.079
(North East) #				
<u>Husband's characteristics</u>				
Income (log)	-0.061*** (0.007)	0.941	-0.007 (0.008)	0.993
<u>Mother's characteristics</u>				
Hourly pay (log)	0.042* (0.019)	1.043	0.049** (0.015)	1.050
<u>Education</u>				
Less than high school (High school diploma) #	-0.679*** (0.094)	0.507	-.523*** (0.101)	0.593
1-3 years of college	0.036 (0.072)	1.037	-0.035 (0.069)	0.965
Bachelor's degree	0.184+ (0.099)	1.202	0.044 (0.095)	1.045

More than Bachelor's degree	0.759*** (0.145)	2.136	0.178 (0.128)	1.195
<i><u>Family & employment preference</u></i>				
Family preference	-0.147 (0.108)	0.863	0.021 (0.105)	1.021
No preference	0.013 (0.072)	1.013	0.060 (0.072)	1.062
(Employment preference) #				
<i><u>Family life course</u></i>				
Age at childbirth	-0.216*** (0.011)	0.805	-0.212*** (0.009)	0.809
<i><u>Marital status</u></i>				
Married, spouse present	1.586*** (0.076)	4.883	1.135*** (0.092)	3.111
Separated/divorced/widowed	0.977*** (0.133)	2.656	.701*** (0.116)	2.016
(Never married) #				
<i><u>Fertility expectations</u></i>				
Expects more children	1.111*** (0.107)	3.037	-.704*** (0.064)	0.494
(Doesn't expect more) #				
<i><u>Structural factors</u></i>				
Unemployment rate	-0.070* (0.029)	0.933	-.107*** (0.031)	0.899
<i><u>Employment during pregnancy</u></i>				
Employed during pregnancy	0.599*** (0.091)	1.820	1.181*** (0.085)	3.259
n	1667		1667	
Number of events	1359		1382	
-2 Log likelihood	15255***		15737***	
df	20		20	

+ p < 1.0 * p < .05 ** p < .01 *** p < .001

Notes:

Omitted category in regressions

1. The effect of a mother's wage does not change when education is excluded. Similarly, the effect of education remains the same when a mother's wage is excluded.

The impact of past employment experience on the timing of (re)entry after a second birth

An additional factor that makes the processes of beginning market work after the second birth different from that after the first birth is that the second birth takes place later in the life trajectory. A mother is in a different place in her life than when she had her first child, particularly if several years passed between the births. By the time the second child is born, a mother already knows something about balancing child rearing and paid work. Her experience with the first child is likely to influence how she will balance work and family when she has two children.

One of the factors related to being in a different life stages in the family life course at the time of the first and a second birth that I hypothesized to matter for the timing of mothers' (re)entry to market work after a second birth is the length of time between the two births. I predicted that the sooner a mother has her second child, the longer it takes for her to (re)enter market work because having two young children makes care work more physically demanding and increases the cost of alternative care. The results in table 7 model 1 indicate the opposite (i.e. the closer the two children are in age, the sooner a mother (re)enters market work) although the relationship is weak and only marginally significant. Perhaps couples who plan to have a second child space the births intentionally close together so that the most care-intensive and often stressful phase of life is over sooner. Many may also like to have their children closely spaced so that the children will have more company of each other.

How long a mother took time off from employment after the *first* birth is also likely to be associated with how soon she will start market work after a second child.

Table 7. Expanded Cox hazard model for the risk of (re)entering employment after the birth of the first child (standard errors in parentheses)

<i>Variables</i>	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>	
		<i>h</i> <i>ratio</i>	<i>employed</i> <i>during</i> <i>pregnancy</i>	<i>h</i> <i>ratio</i>	<i>not</i> <i>employed</i> <i>during</i> <i>pregnancy</i>	<i>h</i> <i>ratio</i>
<u>Background</u>						
<u>Race/ethnicity</u>						
Black	0.238**	1.287	.198*	1.219	-0.066	0.936
	(0.080)		(0.091)		(0.174)	
Hispanic (white)#	-0.057	0.947	-.213*	0.808	-0.075	0.927
	(0.078)		(0.091)		(0.155)	
<u>Health</u>						
Health problem limits employment	0.157	1.166	.430**	1.537	-0.275	0.760
	(0.123)		(0.137)		(0.277)	
<u>Region</u>						
Resides in North Central	-0.029	0.967	-0.005	0.995	0.108	1.114
	(0.089)		(0.104)		(0.181)	
South	0.004	1.008	0.087	1.091	0.070	1.073
	(0.082)		(0.094)		(0.172)	
West	0.074	1.074	.201+	1.223	-0.058	0.943
	(0.094)		(0.108)		(0.193)	
(North East)#						
<u>Husband's characteristics</u>						
Income (log)	-0.008	0.998	0.001	1.001	-0.002	0.998
	(0.008)		(0.009)		(0.018)	
<u>Mother's characteristics</u>						
Hourly pay (log)	.049**	1.00	0.008	1.008	-.069***	0.933
	0.015		(0.031)		0.020	
<u>Education</u>						
Less than high school	-.503**	0.600	-.493***	0.611	-0.744***	0.475
	(0.102)		(0.138)		(0.160)	
(High school diploma)#						
1-3 years of college	-0.061	0.945	-0.014	0.986	0.027	1.027
	(0.071)		(0.080)		(0.160)	
Bachelor's degree	-0.002	1.008	-0.036	0.965	0.279	1.322

More than Bachelor's degree	(0.098) 0.129 (0.131)	1.136	(0.109) 0.078 (0.140)	1.081	(0.252) -0.170 (0.474)	0.843
<i><u>Work / Family preference</u></i>						
Family preference	0.008 (0.105)	0.991	0.075 (0.126)	1.078	0.197 (0.199)	1.217
No preference (Work preference) #	0.060 (0.072)	1.066	.149+ (0.084)	1.161	0.043 (0.148)	1.044
<i><u>Family life course</u></i>						
Age at childbirth	-.205*** (0.010)	0.815	-.254*** (0.012)	0.776	-.166*** (0.020)	0.847
<i><u>Marital status</u></i>						
Married, husband present	1.143*** (0.093)	3.141	1.068*** 0.113	2.911	.750*** (0.176)	2.117
Separated/divorced/widowed (Never married)#	.728*** (0.117)	2.08	.644*** (0.149)	1.904	.741*** (0.198)	2.099
<i><u>Fertility expectations</u></i>						
Expects more children (doesn't expect more)#	-.714*** (0.065)	0.493	-.672*** (0.073)	0.511	-1.153*** (0.136)	0.316
<i><u>Birth spacing</u></i>						
Months between 1st & 2nd birth	-.002+ (0.001)	0.998	0.000 (0.001)	1.00	-.006* (0.003)	0.994
<i><u>Structural factors</u></i>						
Unemployment rate	-.104*** (0.031)	0.896	-.078* (0.037)	0.925	-.194** (0.063)	0.823
Employed during pregnancy	1.198*** (0.085)	3.712				
<i><u>Employment after 1st birth</u></i>						
Length of break after first birth			-.005*** (0.001)	0.995	-.004*** 0.000	0.996
n	1667		1128		539	
Number of events	1382		1043		339	
-2 Log likelihood	15734***		10963***		3360***	
df	21		21		21	

+ p < 1.0 * p < .05 ** p < .01 *** p < .001

Notes: # Omitted category

The impact the length of a break after the first child has on the length of the break after a second child is examined separately for those who worked during the second pregnancy (model 2) and those who did not (model 3) because the length of a break after the first child is highly correlated with employment during pregnancy. Supporting my hypothesis, both models 2 and 3 indicate that there is a small but significant relationship between the length of a break after the first birth and after the second. Every additional week a mother took off from market work after the first birth reduces her risk of (re)entering paid work after a second child by .5 and .4 percent. That means that the more time a mother takes off after the first birth, the longer she is likely to take off after a second birth. For example, a mother who took off three months after the first birth is about 6 percentage points less likely to (re)enter market work at any week after a second birth. Models 2 and 3 also show that the length of the birth interval between the two births does not appear to make any difference among those who were employed while pregnant for a second child, but reduces the hazard of (re)entry slightly for those who were not. Some of the mothers who were not employed during pregnancy may not have gone back to paid work at all between the first and the second child. In fact, 57 % of mothers who were not employed while pregnant with their second child were not employed at all between the two births. These mothers may find it more difficult to (re)enter market work the longer they have been at home raising the two children.

In sum, the processes that predict the timing of mothers' (re)entry to market work after the first and after a second birth differ partially. Factors that have similar impact on mothers' (re)entry to market work after the first and after a second birth are mother's wage, age at childbirth, marital status, and race. In contrast, the factors that differ in their impact are husband's income, education, fertility expectations, local unemployment rate,

employment during pregnancy, and Hispanic origin. Another way to summarize the differences is that, there is no factor that only predicts mothers' (re)entry after a second birth, and not also after the first birth. However, there are factors, such as Hispanic origin and husband's income that predict mothers' (re)entry after the first birth, but not after the second. Also, there are a few predictors that are common after both births, but differ in their importance. For example, being currently married has much smaller influence on mothers' (re)entry to market work after the second birth, while having worked during pregnancy has a much larger influence on the risk of (re)entering market work after the second birth.

Perhaps, the most notable difference between the first and a second birth is the impact of mother's education. I had hypothesized that education in this study is likely to proxy mothers' attitudes towards child rearing since I control for mothers' wage and preference for employment. Hence, I predicted that mothers' with higher education would (re)enter market work later than mothers with less education because mothers' with higher education presumably would place a stronger emphasis on the importance of caring for their infant themselves. However, the results show the opposite; mothers with less education (re)enter market work later than mothers' with higher education. An interesting difference between the two births is that while education matters for women with college degrees after the first birth, it does not after the second birth (this holds even when I exclude employment-during-pregnancy or mothers' earnings from the model). Following my own reasoning, this could mean that women's child rearing preferences change between the first and a second birth, which does not seem likely, although is possible. Before concluding too much about the effect of education on mother's

employment, I would like to see future research to replicate these findings and conceptualize the mechanism through which the effect of education is transmitted.

Mothers (re)entry to full time, high part time, and low part time employment

So far we have examined which factors slow down or hasten a mother's (re)entry to market work after the first and a second child birth. Because the (re)entry to full time and part time work may depend on different processes and determinants, I now turn to a competing risk analysis which produces separate models for full time, part time high, and part time low (re)entries. Simply by altering which transitions are considered as the key "events" and which ones are censored, the Cox models produce an event-specific hazard rate. For example, the full time models treat only the (re)entry to full time status as the key event and all other (re)entries are censored.

Column one in table 8 shows the event-specific hazards for (re)entering market work full time, column 2 shows event-specific hazards for (re)entering part time high (21-34 hours/week), and column 3 shows event-specific hazards for (re)entering part time low (1-20 hours/week) after the birth of a second child. 827 mothers (re)entered market work full time, 235 part time high, and 320 part time low. If we compare these models to the one predicting (re)entry to employment (regardless of hours) (model 1 in table 7), we see that the model predicting full time employment tells a similar story, but with a few exceptions. Whereas husband's income did not predict unspecified (re)entries, it has a small, negative impact on the hazard of (re)entering market work full time. The effect remains only marginally significant even when the model excludes

Table 8. Competing risk model predicting the risk of (re)entering market work full time, high part time, and low part time after the birth of a second child (n=1667)

<i>Variables</i>	<i>Return status</i>					
	<i>Full time</i>		<i>Part time high</i>		<i>Part time low</i>	
	<i>h ratio</i>		<i>h ratio</i>		<i>h ratio</i>	
<u>Background</u>						
<i>Race/ethnicity</i>						
Black	0.358***	1.431	-0.139	0.87	-0.153	0.858
	(0.100)		(0.203)		(0.192)	
Hispanic	0.155	1.168	-0.652**	0.521	-0.267	0.766
	(0.100)		(0.201)		(0.166)	
(White)#						
<i>Health</i>						
Health problem limits employment	0.178	1.195	0.234	1.264	0.078	1.081
	(0.158)		(0.288)		(0.267)	
<i>Region</i>						
Resides in North Central	.258*	1.295	-0.204	0.816	-0.390*	0.677
	(0.124)		0.209		(0.165)	
South	.271*	1.311	-0.147	0.863	-.607***	0.545
	(0.112)		(0.197)		(0.166)	
West	0.159	1.173	0.139	1.150	-0.241	0.786
	(0.132)		(0.217)		(0.176)	
(North East)#						
<u>husbands' characteristics</u>						
Income (log)	-.020+	0.980	-0.017	0.983	0.013	1.013
	(0.011)		(0.020)		(0.017)	
<u>mothers' characteristics</u>						
hourly pay (log)	.049*	1.051	0.056	1.058	-0.025	0.975
	(0.022)		0.037		0.027	
<i>Education</i>						
Less than high school	-.627***	0.534	-0.132	0.876	-.733**	0.481
	(0.136)		(0.227)		(0.223)	
(High school diploma)#						
Some college	-0.010	0.990	0.087	1.091	-0.111	0.895
	(0.092)		(0.172)		(0.147)	
Bachelor degree	0.061	1.062	0.175	1.192	-0.042	0.959
	(0.131)		(0.234)		(0.200)	
More than Bachelor's degree	.362*	1.437	0.048	1.049	-0.203	0.816
	(0.164)		(0.355)		(0.293)	
<i>Employment vs. Family preference</i>						
Family preference	0.145	1.156	-0.492	0.612	0.105	1.111

	(0.138)		(0.316)		(0.194)	
No preference	-0.050	0.952	0.188	1.207	0.239+	1.270
(Work preference)#	(0.097)		(0.170)		(0.141)	
<u>Family Life Course</u>						
Age at childbirth	-.220***	0.803	-0.228***	0.796	-.190***	0.827
	(0.014)		(0.025)		(0.021)	
<u>Marital status</u>						
Married, husband present	1.073***	2.925	1.191***	3.290	1.319***	3.741
	(0.116)		(0.232)		(0.211)	
Separated/divorced/widowed	.585***	1.796	1.048***	2.851	.871**	2.390
	(0.148)		(0.277)		(0.271)	
(Never married)#						
<u>Fertility expectations</u>						
Expects more children	-.724***	0.485	-.650***	0.522	-.829***	0.436
	(0.084)		(0.158)		(0.136)	
(Doesn't expect more) #						
Months between 1st & 2nd birth	0.000	1.000	-0.003	0.997	-.005*	0.995
	(0.001)		(0.003)		(0.002)	
<u>Structural factors:</u>						
Unemployment rate	-.132**	0.876	-0.055	0.946	-0.078	0.925
	(0.041)		(0.074)		(0.062)	
<u>Employment during pregnancy</u>						
Employed during pregnancy	1.261***	3.529	1.092***	2.981	.664***	1.942
	(0.118)		(0.200)		(0.160)	
<u>(Re)entry status after 1st birth</u>						
Full time hours	.810***	2.249				
	(0.082)					
PT high hours			.685***	1.984		
			(0.152)			
PT low hours					.767***	2.153
					(0.125)	
Nr who returned to the status	827		235		320	
-2 Log likelihood	9493****		2821***		3816***	
Df	22		22		22	

+ p < 1.0 * p < .05 ** p < .01 *** p < .001

Notes:

Omitted category in regressions

1. Standard errors in parentheses

employment during pregnancy (data not shown).¹² Another difference is that while post-graduate education did not impact the timing of mothers' (re)entry when employment hours were not specified, it significantly increases the risk of (re)entry to full time employment. Mothers with more than a Bachelor's degree are over 40 percent more likely to work full time after a second birth than mothers with high school degree. The third dissimilarity is that while mothers in various regions of the country do not appear to differ from each other with regard to the timing of their (re)entry to paid work when the (re)entry status is unspecified, mothers who reside in the South and in the North Central part of the United States have about a 30 percent higher risk of (re)entering market work full time than those living in North East.

Comparison of models within table 8 shows some similarities and some differences in the explanatory variables predicting full time and the two part time employment categories. Factors that have a similar impact on mothers' (re)entry, whether it is full time or either type of part time, are employment during pregnancy and factors related to the family life course, specifically age at second birth, marital status, and fertility expectations. In fact, there is little difference in the effect of age at second childbirth and fertility expectations on mothers' employment hours at (re)entry. Marital status and employment during pregnancy also have similar effects on mothers' risk of (re)entering market work at all three levels, both having strong positive and significant influence. However, the magnitude of effects varies by the type of (re)entry. Currently

¹² I also examined the effect of husband's employment hours on mother's employment hours among married respondents. The results show that a husband's employment hours do not have a significant impact on mothers' employment hours. The only situation in which the effect of a husband's employment hours even approaches significance is when a husband is not employed: A mother whose husband is unemployed is less likely to (re)enter market work full time than other mothers ($p = .08$).

married mothers are almost four times more likely to (re)enter market work at low part time status, about three times more likely to (re)enter at high part time status, but less than three times more likely to (re)enter at full time status, compared to never married mothers. The differences between previously married and never married mothers follow the same pattern, but are smaller in magnitude. Compared to those who were not employed during pregnancy, mothers who worked during pregnancy are about three and a half times as likely to (re)enter at full time level, almost three times as likely to (re)enter at high part time level, and almost twice as likely to (re)enter at low part time level.

The level at which mothers (re)entered market work after the birth of the *first* child, closely corresponds to the level at which they begin paid work after the second child. This suggests that although women begin employment later after a second child than after the first child, they tend to (re)enter paid work at the same level after both births.

Race and ethnicity have differential impacts on the risk of mothers' (re)entry depending on the level of attachment (i.e. hours). Black mothers are 43 percent more likely to (re)enter employment full than white mothers, but no different in their likelihood of starting part time. Hispanic mothers are 52 percent *less* likely to (re)enter market work at high part time level after a second birth than white mothers. Mothers of different race or ethnicity do not appear to differ in their risk of (re)entering market work at the lowest attachment level.

Besides predictors that have already been discussed, there is another factor related to low part time hours that is worth mentioning. I had hypothesized that the longer the birth interval, the more likely a mother would be employed full time after a second child.

But while the length of a birth interval does not influence a mother's risk of (re)entering market work full time or high part time, it does lower a mother's risk of (re)entering market work at the lowest level. The birth interval is the only one of the predictors that has a significant impact on the (re)entry at low part time level only.

Most of my hypotheses related to the level of attachment at (re)entry did not receive strong empirical support. I had hypothesized that husband's income would be positively related to part time employment after a second birth because a husband's higher income would make it financially possible for a mother to work part time. However, a husband's income is not a significant predictor for part time employment. It does, though, marginally reduce the risk of (re)entering market work full time. I also reasoned that because well-educated mothers may place a greater emphasis on cultivating their child's social and intellectual development than mothers with less education, a mother's education would be positively related to part time (re)entry (particularly since I control for mothers' earnings and commitment to market work). However, the results show that the most educated mothers (i.e. those with more than Bachelor's degree) are more likely to (re)enter at full time level after a second birth compared to mothers with high school education. While education does not influence mothers' likelihood of (re)entering market work at high part time level, mothers with the least amount of education are less likely to (re)enter market work at the lowest level of attachment (i.e. 1-20 hours per week) than mothers with high school education.

I had also predicted that mothers with higher earnings would be more likely to (re)enter market work part time. The data show, though, that mothers with higher pay are more likely to (re)enter market work full time. Perhaps the higher opportunity cost of not working full time outweighs other factors. Also contrary to my hypothesis that

employment opportunities, as measured by the local unemployment rate, would not be related to the level at which mothers (re)enter market work, the findings suggest the higher the unemployment rate, the less likely a mother is to (re)enter market work full time. In hind sight, it makes sense that full time employment is affected by the unemployment rate because during economic downturns full time jobs are more likely to be cut than part time jobs since employers can avoid paying benefits (or pay less) for employees working less than full time and hence save money (Kalleberg, Reskin and Hudson 2000).

In sum, the four explanatory variables whose effects are approximately the same for the three types of (re)entries are age at childbirth, marital status, fertility expectations, and employment while pregnant with the second child. But the rest differ in their impact depending on the level at which a mother is (re)entering market work. The following five covariates have a significant impact on full-time (re)entries, but not on others: husband's income, being African-American, local unemployment rate, mother's education, and earnings. Being of Hispanic origin is the only factor significantly (negatively) related to the high part time (re)entry, and the length of time between the first and a second child is the only factor significantly (negative) related to low part time (re)entry.

CHAPTER VI
LEVEL OF ATTACHMENT DURING THE FIRST FIVE YEARS AFTER A SECOND
CHILDBIRTH

What is mothers' employment like once they (re)enter market work after the birth of a second child? Will they stay employed during the first five years of a second child's life? How many of them will find it too difficult to combine care work and market work and drop out of the labor force? Do mothers tend to remain at the same level of attachment that they started with or do they increase or decrease their employment hours as their children grow older? I address these kinds of questions with the detailed work history data in the NLSY and present the results with the visual help of bar charts.

First, I calculate the number and the percentage of mothers employed 1) full time (35+ hours/week) 2) high part time (21-34 hours/week) 3) low part time (1-20 hours/week) and 4) the percentage not employed *at the time* of their second child's first, second, third, fourth, and fifth birthday, and present this information as a graph of five stacked bars (one bar for each year). This first figure shows mothers' level of attachment to the labor market each year, and whether the proportion of mothers who are employed in a specific status (e.g. full time) increases or decreases as the second child ages.

Next, in order to find out whether there are distinct groups of employed mothers, as some have suggested (Klerman and Leibowitz 1999), I separate mothers into three different groups based on their (re)entry status (i.e. full time, high part time, and low part time). A fourth group includes women who did not (re)enter market work within the first year. Then I examine the attachment patterns over time separately for each group. These charts are similar to the first one except that the calculations are provided separately for

the four different groups of mothers and presented in four separate figures. For example, in figure 5, which includes only those who first worked full time after the birth of a second child, the first bar indicates these mothers' level of attachment (i.e. employment hours) when their second child turns one. The second bar shows what percentage of the mothers who first worked full time are employed full time, high part time, low part time, or have dropped out of the labor force at the time of the second birthday. Similarly, the third bar shows the percentages at the time the second child turns three years, and the fourth and the fifth bars show the situation when the child reaches four and five years of age. All together, there will be five figures (one for everyone who (re)entered within a year regardless of a level, and one for each (re)entry status (i.e. full time, high part time, and low part time) each with five bars.

Since this part of the analysis addresses how mothers with *two* children balance paid work *and* care work, it includes only those mothers who (re)entered market work within a year, thereby attempting to combine the two types of work during the first five years of the second child's life. In order to compare mothers' employment hours over the five-year period when they are raising two children, I must ensure that changes in mothers' employment hours are not caused by changes in the sample size or due to a birth of a third child. Hence, to keep the sample size from changing from year to year, I include only those who have information for employment hours during the entire five year period. A mother would have missing values in some years only if her second child was born less than five years prior to the ending of the study (i.e. if a second child was born in 1996, a mother would have information for her employment hours only for the first three years, up to 1998). Furthermore, since I examine how mothers balance paid work and raising of *two* children, I restrict the sample to those who did not have a third

child during the first five years after the second child. Of the 2131 women who had two births, 33 percent (703) were excluded because they had a third child within five years after the second birth. 17 percent (362) of the 2131 women were excluded because they did not have employment hours for all the five years due to the reasons explained above. Since there is some overlapping between these two groups, the number of women who had no missing cases and did not have a third birth equals 1118. Of these women, 719 returned to employment within a year after the second birth.¹³

Figure 4 includes all the 719 women who entered market work within a year. It is interesting that already by the time a second child celebrates her or his first birthday, 17 percent of these mothers have dropped out. In general, the percentage of mothers employed full or high part time remains rather stable over the five-year period; approximately a half of the mothers are employed full time, and about 12 percent high part time. Employment at the low part time status, on the other hand, declines over the years from 16 to 10 percent as many of the women who started at this level drop out of the labor force.

Figure 5 tracks employment hours for the mothers who returned to employment full time. Stability and continuity describe their employment trajectory. More women in this than any other group remain at their (re)entry status over the years. 81 percent

¹³ If I include the women who had a third birth within five years after the second birth, the results change only slightly: In general, the percentage of mothers who are employed full time is about 2 to 4 percentage points lower each year, and the percentage of mothers not employed is higher almost about the same magnitude. The difference between the two groups is smallest among those mothers who (re)entered low part time, and the biggest among the women who (re)entered high part time.

Figure 4. Level of Attachment among Mothers who began employment within a year (n=719)

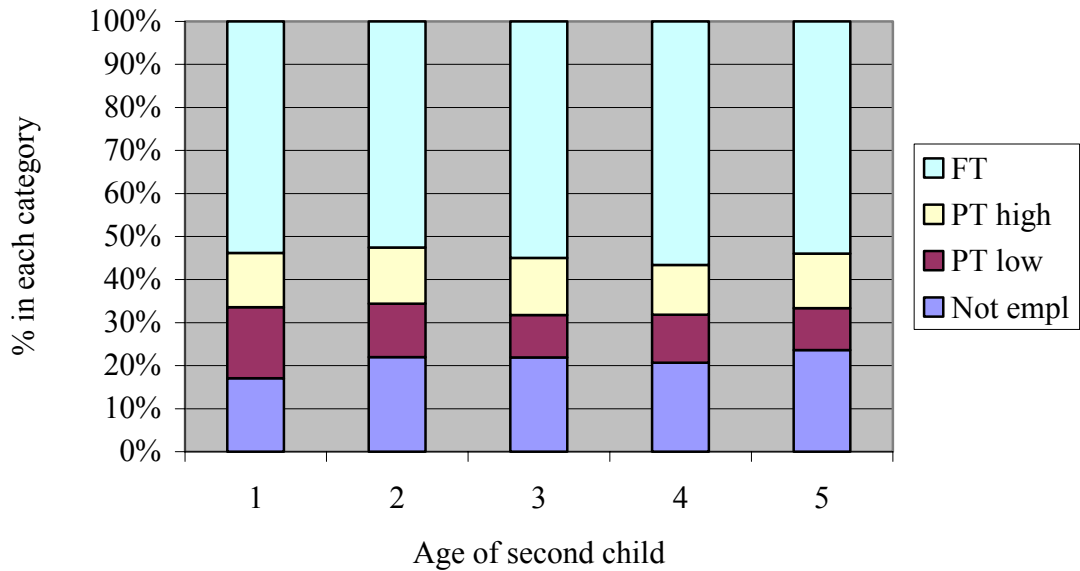
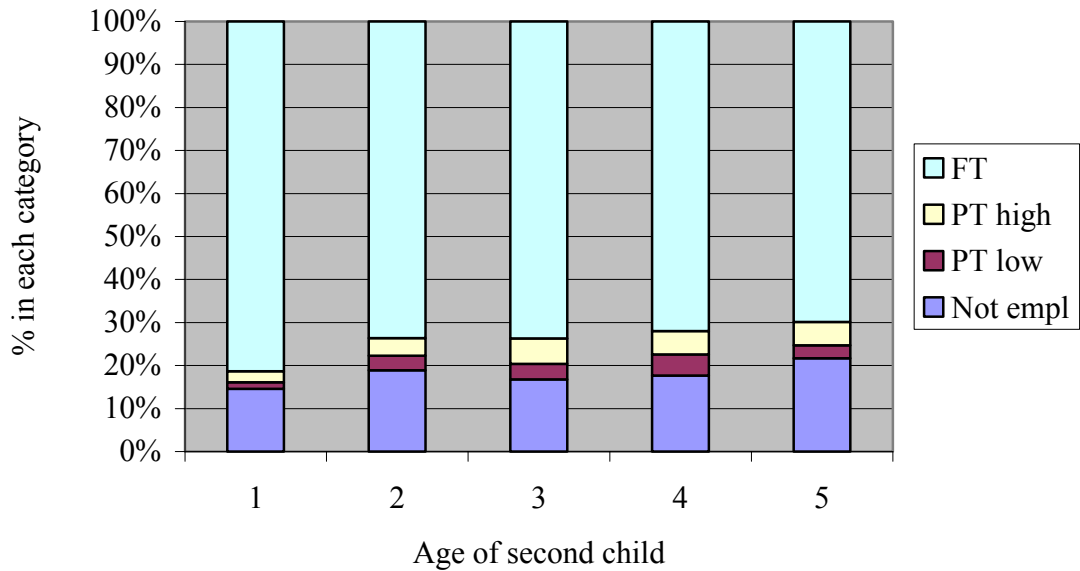


Figure 5. Level of attachment among mothers who began employment within a year at a full time status (n=478)



of mothers are employed full time when their child turns one, and while the percentage employed full time declines each year, four years later, 70 percent are still employed at

that level. This group of women differs from the others also in how few of them are employed part time. No more than 10 percent of these women reduce their hours to either part time level. Rather, if these women are not employed full time, they drop out of the labor force all together. In fact, even among this highly “attached” group of women, 15 percent have dropped out of the labor force during the first year, and the percentage increases every year so that by the time the second child is five years of age, one fifth of the mothers are no longer employed. And this is not due to their having an additional birth since those women have been excluded. Instead, these are women who have decided to stay home to raise their two children.

The stability and continuity in the level of employment that characterizes full time workers does not apply to part-timers. Instead, change and fluctuation depict the employment patterns of the mothers who began employment at either high or low part time level (figures 6 and 7). Almost a half of high part-timers already changed their hours by the time their child reached age one. One-fifth of them were no longer employed, and about 12-13 percent had switched to either full time or to low part time status. As their second child grows older, most of these women increase their hours so that by the end of the five-year period, about a third of them are employed full time and a third is employed high part time. This is also the group that has the lowest percentage of mothers (17) out of the labor force by the end of the five year period.

Figure 6. Level of attachment among mothers who began employment within a year at a high part time status (n=98)

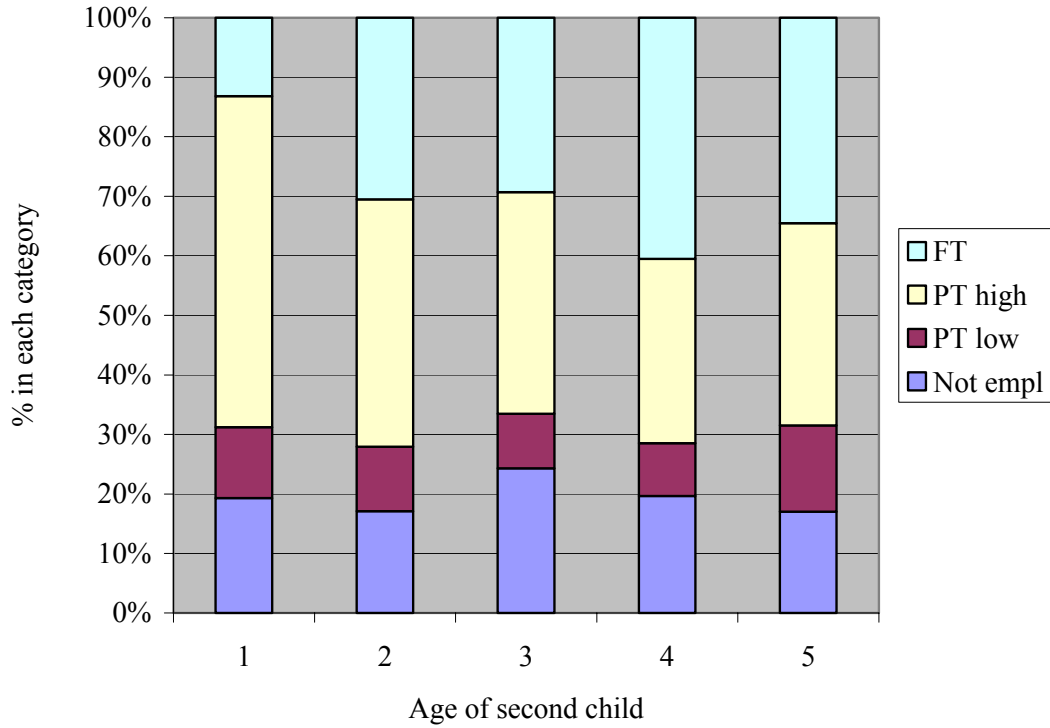
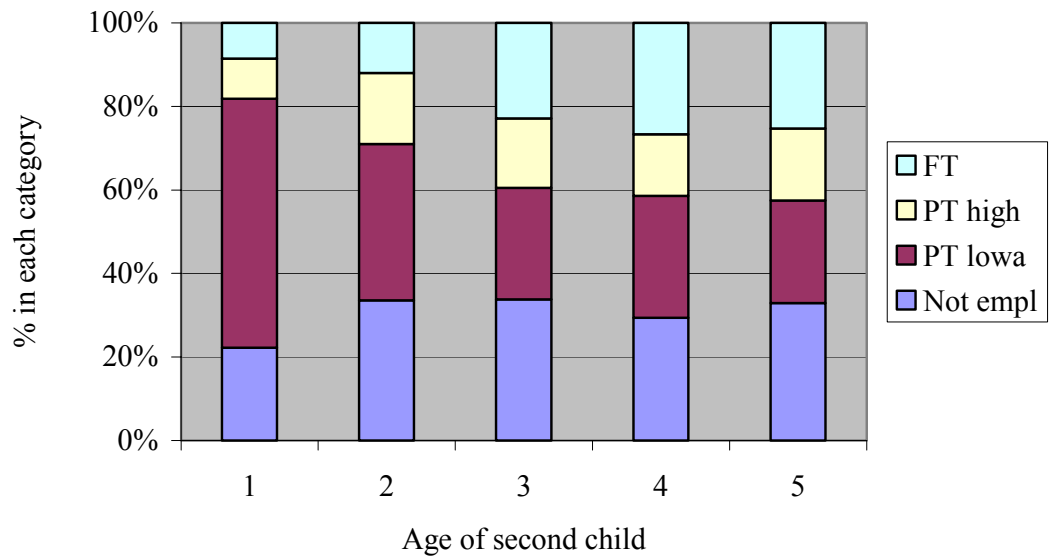


Figure 7. Level of Attachment among Mothers who began employment within a year at a low part time status (n=143)



The level of attachment of mothers who (re)entered market work cautiously at low part time level (figure 7) remains lower than that of other women over the five years. 22 percent of mothers in this group had dropped out the labor force by the time their second child turned one, which is more than in the other groups. In fact, every year more mothers in this low part-time group are out of the labor force than in the other groups. By the end of the five year period, more than a third of these mothers, who started working less than twenty hours a week, are no longer employed. Even if the percentage of mothers employed low part time declines dramatically from year one to year five (from 60 to 24 percent) and the percentage employed full time increases (from 9 to 25 percent), these women's level of attachment to market work remains quite low, almost 60 percent of them either working less than 20 hours a weeks or not at all.

The last figure (number 8) shows the level of attachment to market work among women who did *not* (re)enter market work within the first year. Many of these mothers do (re)enter market work in subsequent years, but clearly at a more gradual rate than other mothers. By the time their second child turns two, only about 10 percent are employed full time, and about 9 percent part time. After that, their level of employment increases at a faster pace, reaching almost the same full time employment level by the fifth year as the women's who began with low part time hours. However, even at the end of the five year period, almost 60 percent of these mothers are still at home, which is a much higher proportion than in any other group. Table 9 shows the percentages on which the bar charts are based on. All percentages are weighted.

Figure 8. Level of Attachment among Mothers who did not begin employment during the first year (n=399)

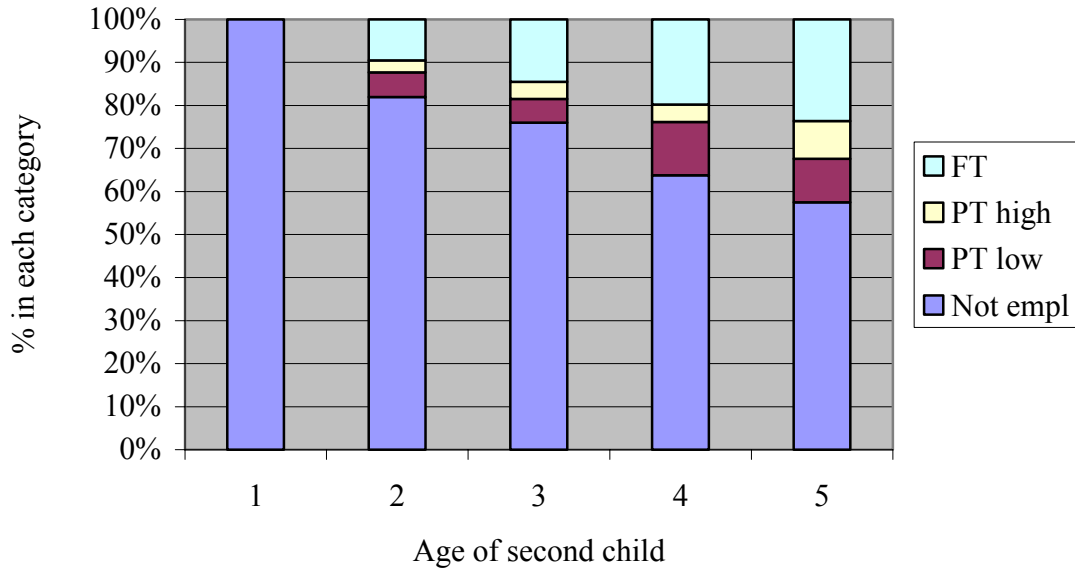


Table 9. Weighted employment hours during the first five years after the birth of a second child

1. All the 719 mothers who (re)entered market work within a year

	Age of the second child				
	1	2	3	4	5
not empl	17.1	22.0	21.9	20.7	23.6
PT low	16.5	12.4	9.8	11.1	9.8
PT high	12.6	13.0	13.3	11.6	12.7
FT	53.8	52.6	54.9	56.6	54.0

2. The 478 Mothers who (re)entered market work **full time**

	Age of the second child				
	1	2	3	4	5
not empl	14.6	18.9	16.8	17.7	21.7
PT low	1.5	3.4	3.6	4.9	3.0
PT high	2.6	4.1	5.9	5.4	5.4
FT	81.3	73.6	73.7	72.0	69.8

*3. The 98 mothers who (re)entered market work **high part time***

	Age of the second child				
	1	2	3	4	5
not empl	19.3	17.1	24.3	19.6	17.0
PT low	11.9	10.8	9.2	8.9	14.5
PT high	55.6	41.5	37.2	30.9	34.0
FT	13.2	30.5	29.3	40.5	34.5

*4. The 143 mothers who (re)entered market work **low part time***

	Age of the second child				
	1	2	3	4	5
not empl	22.2	33.6	33.8	29.4	32.9
PT low	59.6	37.4	26.7	29.2	24.5
PT high	9.6	17.0	16.6	14.8	17.2
FT	8.6	12.0	22.9	26.7	25.3

5. The 399 Mothers who did not (re)enter market work within a year

	Age of the second child				
	1	2	3	4	5
not empl	100.0	82.0	76.0	63.7	57.5
PT low	0.0	5.7	5.5	12.4	10.1
PT high	0.0	2.8	4.0	4.0	8.8
FT	0.0	9.5	14.5	19.8	23.6

Tables 1-4 include mothers who (re)entered market work within a year after the birth of a second child, who did not have a third child within the five year period, and who did not have any missing values. Table 5 includes only mothers who did NOT begin employment during the first, did not have a third child, and did not have any missing values for hours.

In sum, looking at the level of attachment among all the women, without distinguishing the level at which they (re)entered market work (figure 4), a picture of stability in employment hours across the years emerges. However, when one examines the employment patterns for full timers and part timers separately, the picture becomes more complex.

The mothers who (re)entered market work full time are most dissimilar from the others who (re)entered during the first year after a second birth. Far more women in this group than in the other groups are employed full time throughout the five-year period. This group also differs from the others by their low level of part time employment (no more than 11 percent work part time in any year). Instead of reducing their hours to part time, these mothers tend to drop out of the labor force if they do not work full time. In fact, the percentage of mothers dropping out of the labor force increases every year, reaching 22 percent by the time the second child turns five. In short, this group's employment is polarized between full time and no time. This polarization is in line with the past research that indicates that there is a group of mothers whose full time attachment to market work is continuous and little affected by child bearing (Klerman and Leibowitz 1999).

The women who (re)entered market work either at high part time or low part time level exhibit different employment patterns from those who (re)entered at full-time level, but also from each other. They differ from the full timers by experiencing more changes in their employment hours during the five-year period. Although their employment hours shift more between the different levels of attachment, far fewer part timers work full time any given time than full timers.

While the part timers' employment patterns appear similar in contrast to the full timers, the two groups are not really that alike. While it is true that both groups follow the outline of the more traditional pattern in which mothers of small children return to market work in two stages; starting part time and then increasing their employment hours as they children grow older, the group that (re)entered at high part time level proceeds much more vigorously. In general, the over all level of attachment is much

higher among those who (re)entered at high part time level compared to low part timers. In fact, those who (re)entered at high part time level may be the group most attached to market work of all the groups in the end of the five year period: 83 percent of them are employed in the end of the five year period, compared to 78 percent of full timers. And about a third are employed full time and high part time, while 15 percent puts in low part time hours. Their level of attachment appears especially strong in comparison to the low part timers, who even in the end of the five-year period only have a quarter working full time and 17 percent high part time.

CHAPTER VII

DISCUSSION

The impact of young children on women's employment has been studied extensively, particularly the effect of the first child. But even if the majority of married U.S. women have two children, much less is known about mothers' employment after the birth of a second child. The goal of this study has been to expand our understanding of mothers' economic activity by addressing specifically mothers' labor supply after a second birth. This study has done that by examining how soon mothers (re)enter market work after a second birth, what factors influence that transition, and whether the influence depends on the (re)entry level (i.e. how many hours a mother works once she begins employment). In order to better understand how mothers balance paid work and care work, this study looked at what mothers' employment hours are like during the preschool-age years of the second child and how they change as the second child grows older. While the main focus of this study is on the period of life after a second child, some comparisons were made between the first and the second births.

The first comparison between the first and a second birth was about the timing of (re)entry to market work and the factors that predict it. Based on the economic labor supply theory, it would be expected that mothers (re)enter employment later after a second child and work fewer hours than after the first one. That is not the case. Mothers do not (re)enter significantly later after the second birth than after the first birth. While having a second child increases the value of a mother's time at home, it does not appear to increase it so much that it would slow down mothers to return to employment. The lack of difference in the timing and type of return suggest that the decisions mothers and

their families make about how to combine paid work and family after the first birth carry over to after the second birth. The outcome is likely to be a combination of what the family wants to do and what their circumstances allow them to do. For example, since most mothers return to paid work rather quickly, they are likely to return to the same employer. They probably negotiated the number of weeks they will take off and whether they return at full time or part time basis before the second child was even born. The similarity in the amount of time they take off after both births may reflect the maximum time the employer allows for a maternity leave and/or the maximum amount of time family's budget enables a mother not to work for pay. And since the balancing of paid work with two children has not started at that point, there is no reason for a mother to doubt the way she handled the situation after the first birth would not work after the second.

According to the economic labor supply theory, the main factors which reduce a mother's employment are a husband's higher income and children, and the main factor that pulls a mother to market work is her own earnings. The results of this study confirm that after both births, a husband's income indeed slows down the timing and a mother's wage hastens the timing of mothers' (re)entry to market work, although after the second birth, the effect of a husband's income works through mothers' employment during pregnancy. While many of the factors that predict how soon a mother (re)enters market work are common after the first and after the second births, there are some differences as well. The most notable perhaps is the impact of education. It is frequently used to proxy the opportunity cost of paid work, and several studies have documented that more educated mothers are likely to return sooner to market work than less educated mothers.

The results of this study may qualify those findings: the positive relationship between a

mother's education, particularly at higher levels, and the timing of her (re)entry to market work may exist only after the first child, but not after a second child.

Not only do some predictors between the first and a second birth differ, the impact of some of them on the (re)entry after a second birth depends on a mother's (re)entry status (i.e. employment hours). For example, a mother's earnings and advanced college education increase the risk of (re)entering market work full time, but have no effect on either one of the part time statuses. These results from the competing risk analysis suggest that future studies should specify the type of (re)entry when they try to understand what affects mothers' return to employment because the factors that influence the timing of mothers' (re)entry to paid work may vary by the (re)entry status. This is particularly evident with regard to the effect of college education. Had I not distinguished between different types of (re)entries, I would have concluded that highly educated mothers have no higher risk of (re)entering market work after a second birth than mothers with high school education, when in fact they do if the (re)entry is to a full time job. Based on the Cox hazard model results, however, I do not believe it is necessary to examine separately mothers' (re)entry to high part-time work and low part time work.

In trying to understand how mothers' employment is affected by the birth of a second child, it is informative to relate the situation back to the experience after the first birth. By the time employed mothers have their second child, they already know a lot about balancing family and paid work. They have made many decisions about how to best juggle the demands of paid work and family. Judging from the results, mothers draw from that experience. The multivariate results indicate that, all else being equal, mothers who took longer to (re)enter market work after the first birth are likely to take longer

after a second birth as well. And, controlling for other factors, mothers tend to (re)enter market work at the same level of attachment after a second birth as after the first birth. These results point to the usefulness of considering the role past life experiences and decisions play in the present ones, as the life course theory posits. In addition to locating mothers' employment experiences along their personal life trajectories, the life course perspective also encourages an integration of individual level experiences into a larger, macro level context. The finding that the local unemployment rate matters to the timing of mothers' (re)entry to market work, particularly to full time employment, makes the point empirically.

In this study, the estimates for how long it takes for mothers to (re)enter market work are based on data that do not perfectly distinguish between those who are actually at work and those who are employed but on a leave if it lasts less than 90 days. Because of this ambiguity, I essentially gave all mothers a three-month maternity leave. But clumping together everyone who begins market work within the first three months clearly glosses over many nuances since almost 40 percent of mothers (re)enter market work during the first months after childbirth. This ambiguity is likely to be minimal for returns after three months, because very few mothers take longer than twelve weeks of leave (Klerman 1993; Klerman and Leibowitz 1994). To gain a better understanding of what happens during the first three months, more accurate data reflecting true employment are needed. In addition to demographers, this would surely be of great interest to employers and policy makers.

From the similarity of the return timing and (re)entry status after the two births one might get an impression that mothers and their families have figured out how to balance the demands of paid work and care work. This image, though, starts to unravel

when we examine what happens to mothers' labor supply after they have started working. 17 percent of the mothers who (re)entered market work during the first year stop working before their second child celebrated his or her first birthday. Mothers may have thought they could balance paid work and family the same way as they did with one child, but after starting employment after the second child realized that balancing market work with two children is harder than with one child. Particularly those who started paid work full time after the second child appear to have difficulties balancing if we assume that dropping out of the labor force indicates difficulties. And the situation does not appear to get better as the two children grow older. Rather than the percentage not working diminishing, it keeps increasing every year. And interestingly, very few of the women who began market work full time opt for part time hours. The fact that they either work full time or not at all may tell us something about the inflexibility of their jobs.

The changing employment hours during the five-year period suggest that reports about the percentage of mothers who (re)entered market work after a child birth may overestimate the extent to which mothers with small children are employed. As I mentioned above, 17 percent of mothers who had (re)entered market work within a year after a second birth, were no longer employed by the time the second child turned one. Four years later, that percentage had risen to 24. While the percentages not working vary by the (re)entry status, even among the most "attached" workers (i.e. those who (re)entered full time), the percentage dropping out of the labor force increases every year, reaching 22 percent by the fifth birthday of the second child. Singular focus on the labor force participation rate may not only overestimate the true level of involvement, but it also conceals the ups and downs in the level of mothers' employment hours over time.

To the extent that these fluctuations in the employment hours during the child's pre-school years indicate changes in mother's balancing strategies, they would remain mostly invisible in cross-sectional studies and/or those that only focus on labor force participation. Furthermore, differences in employment hours over time between those who (re)entered market work on a low part time basis and those who began on a high part time basis seem substantial enough to warrant distinguishing between them in future studies as well.

Fluctuations in the employment hours among all the women who (re)entered market work reflect the dynamic nature of the balancing act: the equilibrium keeps shifting and mothers, with their families, keep readjusting and chasing the optimal balance between care work and paid work. The reality is likely to be even more "dynamic" because the wording of the question collecting information about employment hours is likely to have caused some underreporting of short term changes in employment hours. While dropping out of the labor force or reducing employment hours when children are young benefits children and parents' sense of balance, it does not come without cost. Periods of unemployment and part time employment all contribute to the "wage penalty" women experience as they become parents. Reduced pay during the years when children are young leads to lower life time earnings which in turn lower women's pension income increasing their vulnerability in old age. And gender inequalities in earnings contribute to gender inequalities in other aspects of life. While mothers who continue to work full time without interruption—possibly due to economic necessity—do not experience economic loss to the same extent as mothers who reduce their labor supply, they are likely to be the ones who struggle the most in accomplishing

the numerous demands of each day and feel least successful in balancing paid work and family life.

The fluctuations in mothers' employment hours and the large number of mothers who drop out completely serve as a stark reminder that while women have made great strides in gaining economic independence, whether they ever achieve economic equality in the labor market is likely to depend on how well women are able to combine child rearing with market work. To large extent, the answer to the question lies in the society's willingness to share with mothers the cost of child rearing through policies that create an environment in which those who nurture the next generation are not penalized economically.

Appendix A. Imputation Guidelines

Marital status

a. If the last code for marital status before the missing value(s) and the first code after missing values were the same, then the intervening missing values were given that code.

b. I tried to use helpful information from other variables from the same year's interview (e.g. "Was there a change in marital status") to recode, but, excluding 4 observations, all the others did not have an interview for that year (instead they had a value for "reason for no interview"-variable, such as unable to locate).

In the end, there were 162 observations where it was not possible to recode marital status.

Region

a. If region79 was missing, copied it the value of region80.

b. If region98 was missing, copied it the value of region97.

c. If the same value before and after a missing value, it was recoded the same value.

d. If a missing value not surrounded by the same values, impute the most recent value.

e. After the above imputations, 32 observations left, each with multiple missing cases. If most of the non-missing observations had the same value, that value was imputed.

22 cases with missing values remain after imputations.

Health

a. I used the same rules as with region.

No missing values remain after imputations.

Expects more children

a. If one or more missing case is surrounded by the same value, impute that value.

b. Over 600 observations were imputed case by case using information about the year of first birth and the year of second birth (birth year was helpful in following situations: when several missing values were preceded with 1 (i.e. expects to have more children) and followed by 0 (i.e. does not expect more children) the missing values prior to the birth year were recoded 1 and 0 after the birth year. I followed these rules:

c. If one case missing, but surrounded by different value (i.e. 1 and 0), I copied the preceding value unless the birth years indicated differently.

d. If some of the first years were missing, they were recoded the first non-missing value.

e. In addition, I recoded observations that had multiple missing values based on the birth years and the general pattern which made quite obvious what the missing values were likely to be. If the pattern was not clear, I did not impute.

After imputation, 85 cases with missing values remain.

Spouse/partner total annual employment hours

Coded as total number of weeks worked * hours worked during those weeks for a spouse (1979-93) (1994-98 either spouse or partner).

a. If an observation had number of weeks, but no hours, I recoded sample mean hours for that year.

b. If not currently married, then missing spouse hrs recoded zero (1979-93 when question referred to spouse only). Same if no partner (1994-98).

c. If currently married, then missing spouse hrs coded the previous year's hours if had same marital status (1979-1998). Same if had a partner (1994-98).

After imputations, 92 cases still have missing values.

Spouse/partner income a year prior to a child's birth

Based on annual income of a spouse (1979-93) (1994-98 either spouse or partner)

a. For those who were *not* married (1979-94) and did *not* have a partner (1994-98), I recoded missing income zero.

b. For those who were married or had a partner but the spouse/partner employment hours < 1 , I recoded missing hours zero.

If employment hours > 0 , but income is missing, I imputed the previous year's income if the same marital status (1979-93).

c. If one missing value surrounded by zeros (i.e. previous and following year's income = 0), I recoded the missing income zero.

After the above imputations, I created spouse/partner income a year prior to birth. Then I printed out all the observations that had a missing income when they didn't have a missing value in marital status (since marital status cannot be imputed any further,

wanted to make sure that those cases with marital status had no missing income values because that would drop them from the analysis).

These missing cases were recoded one by one considering marital status, spouse/partner employment hours and income from the missing year and surrounding years.

- a. If not married or no spouse, I recoded missing income zero.
- b. If a mother was married or had a partner and his employment hours > 0 then imputed previous year's income (if that missing, then following year's) adjusting it to the correct employment hours.
- c. If employment hours = 0, then I recoded missing income zero.

After imputations, a father's income a year prior to the first birth is missing for 71 cases, and a year prior to a second birth, it is missing for 38 cases.

Mother's hourly rate of pay a year prior to a birth

- a. If annual hours = 0 and pay was missing, I recoded the missing value zero.
- b. If annual hours > 0 and pay was missing, then I created an hourly pay by dividing annual income by annual hours.
- c. If the hourly pay a year prior to birth still missing, copy the birth year's pay.
- d. At this point, I printed out missing cases for the observations that have a value for marital status (since marital status cannot be imputed any further, wanted to make sure that cases with marital status have no more pay information missing so that they will not be dropped from the regressions). Of the 16 cases I was able to recode one by one 7 cases with the following rule: if employment hours > 0 , then copied previous year's pay. If that was missing, I copied the following year's pay.

After imputations, a year prior to the first birth is missing for 23 cases, and a year prior to a second birth it is missing for 16 cases.

Education

- a. If one or more missing values is/are surrounded by the same values, impute that
- b. Impute a single miss values with the following rule: If a missing value is a gap between two values, fill in that value (e.g. 10 _ 12 → 10 11 12). If it is not a gap, assume that a respondent repeated a class (e.g. 14 _ 15 → fill in 14).
- c. If two values missing and no gap, first miss = preceding value and second miss = the subsequent value if a respondent had repeated grades in previous yrs (e.g. 14 _ _ 15 → 14 14 15 15). If a respondent had not repeated grades earlier, then imputed the higher value (e.g. 14 15 15 15). Same with if more than two values missing.
- d. The remaining 122 cases were imputed case by case based on the general pattern of the annual education values.

Since no 1998 value (i.e. last survey year) was missing, none of the above imputations can have a higher value than the 1998 value. Most of the imputations were done case by case because of the importance of education variable in the analysis.

After imputations, there were no missing values.

Work or Family Preference

- a. In addition to the 1979 question (which I use in the study), the same question was asked in 1980-1984. If 1979 value was missing, I used the next non-missing value (between 1980 and 1984) that occurred before a respondent became a mother.

28 missing observations remain because the first birth took place before or in 1984.

Local unemployment

a. If unemployment in 1979 was missing, I copied it the value of unemployment in 1980.

b. If unemployment in 1998 was missing, I copied it the value of unemployment in 1997.

c. If a missing value was preceded and followed by the same value, copied that.

d. If more than one missing value, or if a missing values was preceded and followed by different values, copies the latest one.

After imputations, 36 cases still have missing values.

All independent variables for non-interview years after 1994

Since NLSY data collection became biannual after 1994, I copied the 1994 values for the 1995 variables and the 1996 values for the 1997 variables. No duplication was needed in the weekly employment data that form the dependent variable because the 1995 and 1997 information had been collected retrospectively.

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