Job Changes, Employment Exits, and the Motherhood Wage Penalty

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Abstract

Although previous research has found that much of the motherhood wage penalty can be explained by differences between mothers and childless women in human capital acquisition, job experience, work hours, and unobserved characteristics, these reasons do not fully explain the penalty. The portion of the penalty that remains unexplained is often attributed to some combination of lower work effort among mothers and discrimination by employers. In this paper, I examine another possible mechanism: job mobility, or changing from one job to another. I use panel data from the National Longitudinal Survey of Youth, 1979 (NLSY79) and fixed effects models. I find that different patterns of family and non-family voluntary job changes and exits account for roughly one third of the remaining penalty. Moreover, job mobility patterns vary markedly depending upon motherhood timing, which may help explain why women who bear children in early adulthood face the largest penalties for motherhood.

Introduction

Women pay a price for bearing and raising children, as studies consistently find mothers earn lower wages than childless women (Budig and Hodges 2010; Budig and England 2001; Waldfogel 1997). Much of the motherhood wage penalty, as this phenomenon has come to be known, has been attributed to differences in work experience, part-time work, job characteristics and unobserved differences between mothers and childless women, such as "career ambition," that might influence wages. Yet even after considering an extensive list of potential differences between mothers and childless women, scholars continue to find that a portion of the motherhood wage penalty remains unexplained. This leads many to conclude that some combination of employer discrimination against mothers and lower productivity among mothers accounts for the remainder of the gap. It is likely however, that there are additional mechanisms contributing to the motherhood wage penalty that have yet to be explored. In this paper, I consider one such possible mechanism: I examine how *job mobility*, or changing from one employer to another,[1] shapes the impact of children on earnings.

[1] It is important to point out that the terms "job mobility" and "job changes" actually refer to "employer mobility" and "employer changes." The NLSY79, along with other surveys commonly used to study mobility, do not track changes across "jobs" per se, but

In previous work (Looze 2014b), I examined how motherhood shapes women's job changes and employment exits. I found that while motherhood, not surprisingly, increases the likelihood that women change jobs and exit the labor market for *family-related reasons*, pregnancy and school-age children actually *reduce* the likelihood of *non-family voluntary job changes*, and, at least among white women, preschoolers also reduce the likelihood of such a change. These non-family voluntary job changes are precisely the types of changes that economists and sociologists have found to be associated with wage gains (Fuller 2008; Keith and McWilliams 1999; Looze 2014a). If, indeed, mothers are more likely than childless women to be experiencing a sort of "job lock" in that they are unable or unwilling to change jobs in order to move to a (presumably) higher paying job, this may have adverse effects on their wage growth over time, ultimately contributing to the motherhood wage penalty.

The motherhood wage penalty is larger for women who bear children in their 20s compared to those who delay childbearing until at least their 30s (Amuedo-Dorantes and Kimmel 2005; Taniguchi 1999).[2] Differences in job change patterns among mothers and childless women might help to explain the higher wage penalties found among early child bearers. Wage increases associated with non-family voluntary job changes are highest for workers during their initial years in the labor market (Fuller 2008; Looze 2014a). Women who become mothers while in their 20s may be missing out on (or passing up) opportunities to change jobs that would likely increase their wages, while women who delay childbearing until later in adulthood might be able to engage in non-family voluntary job changes early on. Thus, by the time these women become mothers, their wages may have benefitted from job changes taking place prior to motherhood. At the same time, women who give birth during their early 20s have more time during which they may be making job changes and employment exits in response to their families. Thus, higher wage penalties among early child bearers may not be due only to missed opportunities for non-family voluntary job changes, but also to greater incidences of family-related job mobility.

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only across employers. As most scholars use the terms job mobility and job changes when talking about these transitions (Bernhardt et al. 2001; Fuller 2008; Kalleberg 2011; Keith and McWilliams 1999; Kronberg 2013; Light 2005), I follow this convention. Readers should be aware of this distinction however, as intrafirm mobility is not being examined here.

[2] Of note, Taniguchi (1999) finds no wage penalty for women who bear children as a teenager. She argues that these women were unlikely to have launched their work careers in any significant way, so the addition of a child likely had little effect on their wages. (See (Furstenberg 2003; Hotz, Williams, and Sanders 1997) for similar arguments).

In this paper, I examine the wage consequences of the different types of job changes women make (or don't make). I look specifically at how differences in job change and employment exit behavior among mothers and childless women contribute to the motherhood wage penalty and how the wage returns to job changes and employment exits vary for women who became mothers at different ages. I use panel data from the 1979-2010 waves of the National Longitudinal Survey of Youth, 1979 cohort (NLSY79) and fixed effects models to answer the following research questions: Do different patterns (i.e., frequencies and kinds) of job changes and employment exits among mothers and childless women contribute to the motherhood wage penalty? If so, how might differences in job mobility help explain why the wage penalty is greatest for women who become mothers in early adulthood compared to those who delay motherhood?

In what follows, I briefly review the motherhood wage penalty and the mechanisms known to contribute to it, focusing especially on what is known about the relationship between the motherhood wage penalty and the timing of women's first birth. I then outline why job changes and employment exits are important to consider in examining the motherhood wage penalty and discuss how scholars have treated these events in previous analyses of the wage penalty. I note the limitations of these approaches and point to the importance of a more careful consideration of job changes and employment exits as they contribute to mothers' disadvantage in the labor market.

Background

The Motherhood Wage Penalty and Birth Timing

Previous research that has considered why early child bearers pay the greatest penalty for motherhood has pointed to the importance of the accumulation of work experience *prior* to the birth of a child. Taniguchi (1999) finds work experience acquired before becoming a mother matters more for women's wage growth than work experience following childbirth. Related, Miller (2011) finds a flattening of women's wage profiles following motherhood. She argues this provides evidence of a "mommy track," characterized perhaps by reduced hours of employment as well as reduced opportunities for training and promotion following motherhood, as an explanation for higher wage penalties among early child bearers.

Timing of motherhood is often coupled with education, as many highly educated women delay childbearing until later in adulthood (Martin 2004). Thus, high wage penalties among early child bearers might also be due in large part to the opportunities afforded to women in the labor market vis-a-vis their education. Given their findings that mothers who are high school graduates or who have some college incur larger child penalties than either mothers who did not graduate high school or those who have a college degree, Anderson, Binder, and Krause (2003) suggest this may be due to the flexibility inherent to the types of jobs that women of different education levels are likely employed. They point out that high school graduates are more often employed in jobs that require women's presence during regular office hours, while college graduates are more often employed in jobs that allow greater flexibility, such as enabling women to work different hours or take work home.

Although arguments about the importance of work experience prior to motherhood and the flexibility women have in the workplace are plausible explanations for why young mothers (and those with high school degrees or some college) receive the highest wage penalties for motherhood, they likely are not the whole story. Although motherhood surely impacts, (and is impacted by), the opportunities afforded to women *within* workplace (in terms of putting women on a "mommy track," or affecting women's abilities to combine work and family in the face of rigid workplace expectations), motherhood also impacts women's movement *among* workplaces (Looze 2014b). Different patterns of movement among workplaces may contribute to the motherhood wage penalty, in so far as job changes are intricately linked with wage gains and losses.

I am not the first to raise this possibility. In light of their findings of a wage *bonus* among highly educated women who delay childbearing until their 30s, Amuedo-Dorantes and Kimmel (2005) suggest, "the wage boost experienced by college-educated mothers may be the result of their search for family-friendly work environments, which, in turn, yields job matches with more female-friendly firms offering greater opportunities for advancement," (p. 17). Although the authors make this suggestion, they do not include job changes in their models of the motherhood wage penalty. In fact, the ways in which different types of job changes might impact mothers' wages and contribute to the motherhood wage penalty has yet to be fully considered in any analysis of the motherhood wage penalty. In this paper, I undertake such an analysis.

Job Changes and Women's Wages

Workers change jobs for a variety of reasons, and the reasons workers change jobs matter for subsequent wages. Some job changes are *voluntary*, as individuals may choose to move to another job because it offers better pay, better working conditions, or greater opportunities. Some job changes are *involuntary*, as individuals may be displaced from their jobs by way of a layoff or being fired. Sometimes workers change jobs in response to the demands of family life. Though these "family-related" job changes are often considered "voluntary," as they are perceived (even among workers themselves) as being employee-initiated rather than employer-driven, they in fact highlight the difficulties many workers face in trying to combine caring for family with often inflexible employment arrangements (see for example, Stone (2007)). Thus, job changes motivated by family responsibilities constitute a unique place in analyses of job separations,[3] and notably, their wage consequences are much more akin to those of involuntary separations rather than voluntary separations. I discuss this further below.

Workers who change jobs for non-family voluntary reasons enjoy wage gains greater than those received by workers who stay with the same employer (Alon and Tienda 2005; Andersson, Holzer, and Lane 2005; Fuller 2008; Johnson and Corcoran 2003; Keith and McWilliams 1997; Topel and Ward 1992).[4] This is especially true during workers' initial years in the labor market. For example, using data from the NLSY79, Keith and McWilliams (1997) estimated that the young women in their sample who voluntarily changed employers for non-family voluntary reasons during their first three years in the labor market enjoyed an average annual wage increase of 8%, compared to 4% among those who remained with the same employer. Also using NLSY79 data, Fuller (2008) found women enjoy a wage increase of 3% for each voluntary job separation made during their first five years in the labor market (again, compared to staying with the

[3] It is also important to point out, that these changes are relatively infrequent, especially compared to non-family voluntary job changes and job changes following a layoff, which are much more common among workers.

[4] Research shows that tenure also matters for workers' wages (Altonji and Williams 2005), as many workers are able to enjoy upward mobility within the same organization over time. However, the prevalence of such internal labor markets has declined in recent decades (DiPrete, Goux, and Maurin 2002), leaving many workers without a way to move up within organizations. Thus, some scholars have made the argument that moving from one job to another is a particularly effective means of achieving wage growth in the current labor market (Arthur and Rousseau 2001). Of course, job changing is effective only to a point, as those who change jobs excessively are likely to have lower wages than either workers who change jobs moderately or stay with the same employer (Light 2005). This is in part because highly mobile workers also tend to spend greater periods of time away from the labor market (Light 2005). Related, this is why job changing is believed to be most effective for young workers, as changing employers among young workers is seen as normative behavior, part of finding a good job match, rather than what may be perceived as chronic job movement (signifying perhaps a lack of commitment) among older workers.

same employer).[5] Job changes motivated by family-related reasons, layoffs, or firings often result in wage penalties, however. These studies estimate losses of approximately 3% for family-related job changes, 3% for firings and 1% for layoffs, again compared to workers who remain with the same employer (Fuller 2008; Keith and McWilliams 1997). Clearly, job changes, especially those made during the early years in the labor market, have important consequences for workers' wages, and these wage outcomes vary by the reason for the change.

Previous Research on the Contributions of Job Changes to the Motherhood Wage Penalty

Despite what is known about the wage consequences of different types of job changes, only a handful of scholars have considered the role job changes might play in creating the motherhood wage penalty. These scholars have taken one of two approaches: the first approach is to examine only those changes surrounding the birth of a child and the second approach is to examine cumulative job changes regardless of the reasons. Scholars who have taken the first approach, examining the role of job changes surrounding the birth of a child, have often framed such changes as negative events, at least as far as wages are concerned. For example, Gangl and Ziefle (2009) remark, "job changes may imply loss of firm-, occupation-, or industry-specific human capital and will then similarly result in wage losses," (p.344). Indeed, these authors, as well as Baum (2002), find returning to the same employer following childbirth lessens the motherhood wage penalty, suggesting that part of the wage penalty for motherhood may be due to women changing jobs following the birth of a child. It may be, as these authors imply, that many job changes made shortly after the birth of a child are motivated by family demands – the types of job changes that often result in a loss of wages.

At the same time however, some women may plan a post-birth job change in advance of the event. Women might remain at a job throughout pregnancy and childbirth in order to have access to accumulated sick time and other paid time off, as well as continuity of health care benefits, with a plan to change to a better job (i.e., higher pay)

[5] It is also important to point out that with regards to the wage gains for non-family voluntary job changes, these may be conservative estimates, as one might search for a job while currently employed and use a subsequent job offer to bargain for higher wages with a current employer (increasing the effect of tenure on one's wages). Such wage gains associated with job tenure may result in conservative estimates of the job change variables. On the other hand, in order to be enticed to change jobs, the wages offered by the new job must be greater than a workers' reservation wages, so that the worker is willing to change jobs. In this case, the returns to non-family voluntary job changes in particular might be biased upward. Both of these propositions are beyond the scope of this study, but should nevertheless be pointed out. Regardless of these cautions however, ample economic and sociological evidence finds wage benefits associated with non-family voluntary job changes while controlling for job tenure. The precise estimates of these returns may be unclear however because of these confounding factors.

following the birth. For some women then, job changes following the birth of a child may result in wage gains. Budig and Hodges (2010) found some evidence of this. In their analysis of the motherhood wage penalty across the earnings distribution, they include an interaction term between number of children and a variable indicating a job change to determine whether changing jobs in the same year as giving birth impacts the size of the penalty. They found the interaction was non-significant for most women, but for women at the .50 and .75 quantiles of the earnings distribution the interaction was significant and positive, suggesting that for these women, changing jobs around the time of birth was beneficial to their wages. Estes and Glass (1996) also found evidence that changing jobs following childbirth has positive effects on mothers' wages. In their longitudinal study of 324 women in the Midwest, women who changed jobs within 6 months to a year following childbirth increased their wages. In another study, although not focusing on the time immediately following birth, Glass (2004) found that the wage penalty mothers in professional and managerial jobs received for accessing family-friendly policies at one employer was completely negated when they changed to a different employer. Taken together, these studies suggest job changes among mothers may be *beneficial* to their wages.

The two sets of studies outlined above point to very different outcomes with regards to the wage penalties or premiums associated with job changes surrounding childbirth and during the early years of motherhood. These different outcomes can also be seen in a report issued by the U.S. Census Bureau that finds in the years 2005-2007, 28% of women who changed employers when returning to work following childbirth enjoyed increased wages, 42% had the same wages, and 31% lost wages (Laughlin 2011). What might explain these differences? It is likely that the wage outcomes of women's job changes are shaped in large part by the *reason* they changed jobs. Because none of the scholars who examined how job changes around the time of childbirth contribute to the motherhood wage penalty took into account the reason for a job change, it is difficult to discern the true effects of women's job changes on their wages, and moreover, on the motherhood wage penalty.

In addition to neglecting differences in the reasons mothers change jobs, there are two other limitations to simply examining the effects of job changes surrounding childbirth on the motherhood wage penalty. The first is that job changes at any single point in time provide very limited information about the effects of cumulative job mobility on wages (Fuller 2008; Keith and McWilliams 1995). Keith and McWilliams (1995) demonstrate that workers' wages are not

simply affected by single job changes, but rather cumulative mobility history is important in understanding workers' wage trajectories. Second, it is not only mothers who change jobs. Childless women change jobs as well. Thus, it is likely not only the job mobility behavior of mothers that is contributing to the motherhood wage penalty, but the job mobility behavior of childless women as well. Specifically, greater numbers of non-family voluntary job changes among childless women might be driving up their wages relative to mothers. Focusing on job changes made by mothers surrounding childbirth ignores this possibility entirely. Moreover, when thinking more specifically about wage penalties as they relate to birth timing, the years prior to women becoming mother (when they are still childless) are when women who delay child bearing are most likely engaging in the types of non-family voluntary job changes that may increase their wages. Thus, greater numbers of non-family voluntary changes among delayed child bearers before they become mothers may help explain their lower penalties (and perhaps even premiums, such as those Amuedo-Dorantes and Kimmel (2005) found).

A few scholars have extended their analysis of women's job changes beyond those made immediately following birth to examine cumulative job separations among both mothers and childless women. Glauber (2007) included a measure of the total number of jobs women have ever held and found small positive effects. Gangl and Ziefle (2009) also included measures for total jobs ever held, (excluding those job changes made following a child-related employment break), and also found positive effects. These findings suggest that job separations[6] are often wage enhancing mechanisms, though again, the true effects of these separations are difficult to discern, as the scholars do not distinguish among the reasons for these job separations. For example, the wage trajectory of a worker who has made four non-family voluntary job separations is likely very different from that of a worker who has been laid off four times, but cumulative measures of job separations mask these differences. Previous studies of job mobility make the problems inherent to including aggregate measures of job separations clear, as when measured in the aggregate, cumulative job separations have been found to result in no (Keith and McWilliams 1995) or even negative wage effects (Fuller 2008); yet when changes are disaggregated by reason, distinct patterns of wage returns emerge, rendering cumulative non-family voluntary separations positively associated with wages and layoffs, firings, and family-related separations

[6] Note the use of the term separations here, as these authors do not distinguish whether these we job changes or employment exits, only counting number of jobs.

negatively associated with wages (as discussed above). Thus, including aggregate measures of cumulative job separations in wage models likely tells us very little about how movement among workplaces shapes women's wages.

Moreover, the amount of time that lapses between jobs should also impact workers' subsequent wages, with job changes followed by lengthy periods of time in non-employment incurring steeper wage penalties compared to those followed relatively quickly by another job. Measuring the total number of jobs women have held without accounting for whether or not there were gaps in employment jobs likely does not capture the true effects of job mobility on women's wages. Finally, neither Glauber (2007) nor Gangl and Ziefl (2009) examine to what extent women's mobility histories actually contributed to the motherhood wage penalty. They included these measures simply as control variables, but no mention was made as to how their inclusion changed (or did not) the coefficients for children. Changes in the size of these coefficients would signify that differences in women's job mobility histories do in fact contribute to the motherhood wage penalty.

The Present Study

I build upon all of these previous studies to examine how job changes and employment exits (or the lack thereof) among both mothers and childless women may contribute to the motherhood wage penalty. I move beyond simply examining job changes mothers make following the birth of a child, or including aggregate measures of the number of jobs women have held. Instead, I consider how *different types* of job changes and employment exits made by *both mothers and childless women* throughout their time in the labor market might contribute to mothers' wage disadvantage, especially for women who bear children in early adulthood. In addition, I examine how the impact of job changes and employment exits on women's wages varies by parity, since recent research suggests the motherhood wage penalty is not shared by mothers equally, but instead is a penalty most keenly felt by mothers of higher parities (Kahn, Garcia-Manglano, and Bianchi 2014). Below I discuss more specifically how the different types of job changes and/or employment exits women make might contribute to the motherhood wage penalty, focusing on family-related job changes and employment exits as well as non-family related voluntary job changes, and how this might vary by timing of motherhood. I then lay out the hypotheses I test.

Family-related job changes and employment exits. Family-related job changes and employment exits are overwhelmingly experienced by mothers, rather than childless women (Looze 2014b). In other work, I have found that each additional preschool child increased the hazard of a family-related job change by 79%, and the hazard of a family-related employment exit by 81%. This is not to say that family-related job changes and employment exits do not occur among childless women. Indeed they do, as my descriptive statistics below will show. But the fact that they are so much more common among mothers suggests that if these types of job changes and employment exits are associated with wage losses, and these losses are primarily experienced by mothers, part of the motherhood wage penalty can be attributed to mothers changing jobs or leaving the labor market for family-related reasons.

While, as noted above, previous studies have examined how job changes surrounding the birth of a child (job changes that are likely considered "family-related")contribute to the motherhood wage penalty, family-related job separations as reported by women themselves (see discussion in the Method section below) occur at times other than immediately following childbirth. In fact, my calculations suggest that only one-third of reported family-related separations occurred in the same year women gave birth; the other two-thirds of these separations occurred at other times. Thus, focusing only on job changes made at birth potentially misses a large number of job changes and employment exits women make in response to their families. As mothers are more likely than childless women to be experiencing such events, I expect:

> H1: Different patterns of family-related job changes and employment exits among mothers and childless women (i.e., more of such changes and exits among mothers) contribute to the motherhood wage penalty, especially for mothers of higher parities. Greater numbers of these presumed wage decreasing events among mothers will lower mothers' wages relative to childless women's.

Women who become mothers during their early 20s presumably spend more time as mothers throughout the life course compared to women who delay child bearing until later in adulthood. Thus, women who become mothers early have more time during which they are at a greater risk of engaging in family-related job mobility. Moreover, women who become mothers during their early 20s are more likely than women who delay child bearing to change jobs and exit the labor market in response to their families during their initial years in the labor market, when such changes may be especially detrimental to their wages. Given that early child bearers are more likely than delayed child bearers to

be making family-related job changes and employment exits, especially during their initial years in the labor market, these differences may help explain why the motherhood wage penalty is highest for early child bearers. Thus, I expect:

> H2: Family-related job changes and employment exits will be more penalizing to women who become mothers in their early twenties compared to those who delay childbearing until later in adulthood.

Non-family-related job changes. By contrast, non-family voluntary job changes[7] are experienced by childless women more often than mothers. In previous work, I found that school-age children reduce the likelihood of such a job change by 14% and preschoolers reduce these job changes by 9%. In subsequent analyses, that stratified women by race-ethnicity, I found the effect of preschoolers was only significant among white women, reducing the likelihood of job changes for these women by 16%. The stabilizing effects of children suggests a sort of "job lock" among mothers, especially white mothers, who are more likely than childless women to stay with an employer. Thus, I expect:

> H3: Different patterns of non-family-related job changes among mothers and childless women (i.e., more of such changes among childless women) contribute to the motherhood wage penalty, especially for mothers of higher parities. Fewer of these presumed wage-enhancing events among mothers will raise childless women's wages relative to mothers'.

Differences in job mobility patterns among mothers and childless women might also help to explain smaller wage penalties for motherhood experienced by women who delay childbearing until later in adulthood. Spending more years in the labor market childless enables these women more time to engage in the types of non-family voluntary changes that are associated with wage growth. Moreover, as the wage returns to these types of job changes are greater for childless women compared to mothers (Fuller 2008; Looze 2014a), delayed child bearers are likely gaining more for the non-family voluntary job changes they are making prior to becoming mothers compared to women who bear children earlier and make non-family voluntary job changes as mothers. Thus, I expect:

> H4: Women who delay childbearing until later in adulthood will benefit more from non-family-related job changes compared to women who bear children early in adulthood.

Additional Covariates of Women's Wage, Job Changes, and Employment Exits

[7] I focus here only on job changes, not employment exits, as non-family voluntary employment exits (as demonstrated in my models below) are associated with wage losses rather than gains.

As outlined above, previous research suggests the need to control for several mechanisms known to influence women's wages and contribute to the motherhood wage penalty. These include family structure and other resources, human capital, work effort, job characteristics, and unobserved heterogeneity.

Family structure and other resources include marital status, spouse's income, coresidence with kin, and receipt of public assistance. Although marriage is associated with higher wages among women, married and previously married women incur larger wage penalties for motherhood than never married women (Budig and England 2001; Glauber 2007). The relationship between kin coresidence and wages is unclear. Living with kin may provide additional resources (such as child care and transportation) that may increase women's abilities to engage in the labor force. Living with kin might inhibit women's labor market participation however, if coresiding kin are themselves in need of care (Sarkisian and Gerstel 2012). Receipt of public assistance may lower wages if these benefits provide women with an alternative source of income, or if women must remain under a certain earnings threshold to continue receiving benefits. Budig and Hodges (2010) do not find evidence of this tradeoff occurring however.

Human capital differences include work experience, tenure, and education. As noted above, reduced work experience among mothers accounts for much of the motherhood wage penalty (Budig and England 2001; Gangl and Ziefle 2009), particularly among more highly educated workers (Budig and Hodges 2010). Wages increase with employer tenure (Altonji and Williams 2005). Higher education is expected to be associated with higher earnings among workers.

Work effort includes annual weeks, weekly hours, and school enrollment. Differences in annual weeks and weekly hours employed between mothers and childless women contribute to the wage penalty, especially for workers at the median and lower end of the income distribution (Budig and Hodges 2010). As previously mentioned, part-time work contributes to the motherhood wage penalty (Budig and England 2001). School enrollment likely lowers wages in the short-term if women reduce their efforts in the labor market for a time to pursue more education, though additional credentials gained through schooling likely increase workers' wages over the long-term.[8]

[8] Previous analyses have often considered school enrollment human capital. While additional credentials gained through schooling may increase workers' wages over the long-term, school enrollment itself likely lowers the time women have to devote to work in

Job characteristics have been found to contribute little to the motherhood wage penalty, suggesting that compensating differentials are not a significant factor in mothers' lower wages (Budig and England 2001; Estes and Glass 1996; Gangl and Ziefle 2009). Self-employment has been found to be associated with lower wages, however, especially among women in non-professional self-employment (Budig 2006). Arguably, job characteristics may be endogenous to wages, and thus problematic to include in the models, yet many previous analyses of the penalty have included job characteristics (Budig and Hodges 2010; Budig and England 2001; Gangl and Ziefle 2009).

Another important factor influencing women's wages is unobserved differences among women that may be associated with wages, job mobility, and birth timing. For example, an unobserved characteristic such as "career ambition" might increase a woman's propensity to work in a more lucrative job *and* encourage her to delay childrearing until later in her career (or forego childrearing altogether). In an effort to reduce unmeasured heterogeneity and in the tradition of much of the literature on the motherhood wage penalty, I use within-person fixed effects regression models. In these models all time-invariant (fixed) characteristics of each individual drop out of the regression equation. Fixed characteristics include both unmeasured time-invariant characteristics, such as "career ambition,"[9] as well as measured time-invariant characteristics, such as race-ethnicity and socio-economic background. Within-person fixed effects models rely on within-person changes in the independent variables to predict changes in the dependent variable. The model compares each woman's year-specific wage to her mean wage over the entire observation period.

Data

I use panel data from the 1979-2010 waves of the National Longitudinal Survey of Youth (NLSY79), a national probability sample of 12,686 individuals ages 14-22 in 1979. Respondents were interviewed annually between 1979 and 1994, and biennually thereafter. The NLSY79 is an ideal dataset for the examination of women's employment histories, as each survey collects information on the start and stop dates of all jobs a respondent has held since the previous survey, the reason a respondent left each employer (when applicable), the reason women are not employed in a given

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the short-term. Thus, the highest grade completed variable will account for increased credentials, while the coefficient for enrollment should be negative, capturing these short-term losses.

[9] Note however, that career ambition might not be fixed, but may be shaped in part by conditions in the labor market and aspects of women's particular workplaces. See the discussion below about the limitations of fixed effects models.

week, along with a variety of job characteristics. In addition, the NLSY79 consistently asks questions about respondents' individual and family characteristics, including education, school enrollment, marital status, fertility, spouse's income and weekly hours worked, and the presence of additional household members.

The NLSY79 provides an event history calendar that details, on a week-by-week basis, respondents' labor market status: whether they are employed, unemployed, or out of the labor market. If a respondent is employed in a given week, that week is assigned a unique employer ID. This makes tracking changes from one employer to another relatively easy. In addition, at each interview, respondents are asked the reason they left any employers they are no longer working for. Information is collected on up to five job separations since the last interview. By linking the information on the reason for leaving one's job to the employment history calendar, I am able to identify the weeks in which particular types of job separations occurred as well as the length of time that passes between jobs.

With regards to the reasons for leaving an employer, respondents are provided with a list of possible reasons and asked to choose one. Some survey years collected more detailed information on the reasons for leaving a particular employer than others, but in order to capture cumulative changes and exits over time, I had to create categories that remained constant over time. I follow others who have used the NLSY79 to examine job separations (Fuller 2008; Keith and McWilliams 1999) in defining four types of job changes: (1) family-related; (2) non-family voluntary; (3) layoffs; and (4) firings. See Tables A.1 and A.2 in the Appendix for details of the response categories provided to respondents, how these changed over the survey years, and how I recoded these various responses for the current analysis.

Sample

My sample is drawn from the 5,827 women interviewed in 1979 who were not part of the military subsample.[10] I define labor market entry as the year a woman leaves full-time school and holds at least one job, provided she remains unenrolled (full-time) through the following year. This definition of labor market entry is consistent with previous

[10] I exclude 456 women who were part of the military subsample because the early career patterns of these women likely differ in important ways from those of the civilian population. In addition, women in this subsample were only interviewed through 1984, so the observation period is relatively small.

studies of job mobility (Fuller 2008; Light and Ureta 1992). Because within-person fixed effects measure changes in the dependent variable based on changes in the independent variables, the model requires valid observations for the dependent variable (wages) from at least two survey years. Thus, only those person-year observations where women report being employed at least one week are included (81,619). Of these, observations missing wage data were excluded (3,085 person-years), as were those women for whom only one wage observation is available following all other exclusions (75 person-years). I excluded 462 person-years during which respondents reported living outside of the U.S., because labor market structures vary widely in other countries. I also excluded 289 person-years where respondents reported working for a family-business, as both job mobility and wage growth likely vary from that of women in other types of employment arrangements. My final sample is made up of 5,545 women averaging 14.0 person-years each (range = 2-24), for a total of 77,703 person-years.

Dependent Variables

The dependent variable is the natural logarithm of the hourly wage of the respondent's current or most recent job. I use the natural logarithm rather than the dollar amount since wages cannot be negative and so that results can be interpreted as percentages. Following other analyses of the motherhood wage penalty (Budig and Hodges 2010), I bottom and top-code wages at $1 and $200 to minimize the effects of outliers without changing the distribution.[11] Unstandardized wages were used in my analyses, as year dummies were included in the models.

Independent Variables

The key independent variable in any analysis of the motherhood wage penalty is a measure of the number of children women have. As much work on the motherhood wage penalty suggests that the relationship between number of children and women's labor market outcomes is not strictly linear, and women of higher parities incur especially large wage penalties (Budig and England 2001; Glauber 2007; Kahn, Garcia-Manglano, and Bianchi 2014), I measure number of children by a series of dummy variables indicating whether women have 0 (the reference), 1, 2, or 3 or more children.

[11] I also tried an alternative specification, bottom-coding at $0.50 rather than $1.00, and results were robust.

Other key independent variables in my analysis included measures for the number of different types of job changes and employment exits women have made. I define a job change as a change in employers with no more than one month of non-employment in between, and an employment exit a job separation followed by more than one month of non-employment. As detailed above, I distinguish among four different reasons women may report leaving their jobs: (1) family-related reasons, (2) non-family voluntary reasons, (3) layoffs, (4) firings. In initial models, I included measures for cumulative numbers of changes/exits for each of these reasons, resulting in eight different measures (i.e., family-related changes, family-related exits). However, these models revealed wage penalties similar in magnitude for layoffs and firings regardless of time away, and consistently yielded non-significant results for job changes induced by layoffs and firings (likely due to the small number of such events), so in the final models presented here, I combined layoff changes and exits into a single category and firings changes and exits into a single category. This gave me six categories: (1) family-related job changes, (2) family related employment exits, (3) non-family voluntary changes, (4) non-family voluntary exits, (5) layoffs, and (6) firings. I top-code cumulative measures at the 99th percentile to reduce the distorting effects of outliers.

To examine variation by motherhood timing, I created a categorical variable noting the timing of first birth. I followed the age cutoffs applied by the Centers for Disease Control (CDC) in assessing national trends in childbearing (Martin et al. 2013). These categories include: (1) 15-19 years,[12] (2) 20-24 years, (3) 25-29 years, (4) 30 and over.[13][14] Childless women were the reference category. It is important to point out that because timing of first birth is a time-invariant variable it cannot be included in the fixed effects model directly. (It is a "fixed" effect that will be netted out of the model.) It can however, be interacted with other variables, which is what I do in this analysis.

Control Variables

[12] My sample includes a few women who had their first child younger than 15; 462 person-years (0.70% of my sample) had their first child when they were 13 or 14.

[13] The CDC further distinguishes among women who give birth between the ages of 30-34, 35-39, and 40-44, but breaking the 30 and over category up in this way yielded categories too small to provide meaningful results.

[14] The NLSY79 provides information on when women first gave birth, but does not provide information on the years in which women adopted children or became a step-mother. In cases where women did not have biological children, but did have either adopted or step-children, I used the household roster to determine the first year in which these children were living in the woman's household, and then considered her age during that year to be the time at which she became a mother.

Family Structure and Other Resources. Controls for family structure and other resources include marital status, spousal income, kin coresidence, and welfare receipt. Marital status is measured by a series of dummy variables indicating whether a woman is married, cohabiting, previously married (i.e., divorced, separated, widowed), or never married and not currently living with a partner (the reference category). Spouse's income is measured in $10,000 increments and is calculated only for married women. (Spouse's income among all non-married women is coded as 0; the inclusion of the marital status indicator controls for the potential distorting effect of these zeroes for unmarried women). Kin coresidence is measured by a dummy variable (1= living with kin). Receipt of public assistance is a dichotomous variable indicating whether a woman received either AFDC or TANF (dependent upon the program in effect) during the survey year (1 = received public assistance).

Human Capital. Controls for human capital include work experience and experience squared, job tenure, and education. Work experience is measured in years and indicates the amount of time a woman has spent in the labor market through the year prior to the survey. Work experience squared is also included, as the relationship between experience and wages is not expected to be strictly linear. Job tenure is measured in years and indicates the length of time a woman has been working/worked for her current/most recent employer. Education is a continuous variable indicating the number of years of schooling a woman has completed.

Work Effort. Controls for work effort include part-time employment, annual weeks employed, and school enrollment. Part-time employment is indicated by a dummy variable indicating whether a woman is employed less than 35 hours per week in her current/most recent job. Annual weeks employed is a continuous variable indicating the number of weeks worked during the previous year (range 1-52). School enrollment is a dichotomous variable indicating whether a woman was enrolled in college (most often part-time) during the survey year (enrolled =1).

Job Characteristics. Job characteristics include class of worker, union status, percent female in an occupation, irregular shift, industry, and health care benefits. All job characteristics refer to a woman's current/most recent job. Class of worker is an indicator variable distinguishing among public sector employment, private sector employment, and self-employment. If a respondent reports being covered by a union contract in their job they are coded as 1. Percent

female in an occupation is coded using the Dictionary of Occupational Titles (U.S. Bureau of the Census 1993). Nonstandard shift is a dummy variable indicating whether the job requires a shift other than 9am-5pm (1=nonstandard). Industry is indicated by a series of dummy variables indicating whether women are employed in: (1) agriculture, forestry, fishing, hunting, and mining; utilities; (2) construction; (3) manufacturing; (4) wholesale and retail trade; (5) transportation and warehousing; (6) information; (7) finance, insurance, real estate, rental and leasing; (8) professional, scientific, and technical services; (9) management, administrative, and waste management services; (10) educational services; (11) health care and social assistance; (12) arts, entertainment and recreation; (13) accommodations and food services; (14) public administration; and (15) other services. Health insurance coverage is indicated by a dummy variable (1=health insurance coverage).

Statistical Model

I use within-person fixed effects regression models to analyze pooled time-series cross-sectional data. Within-person fixed effects models rely on within-person changes in the independent variables to predict changes in the dependent variable. The model compares each woman's year-specific wage to her mean wage over the entire observation period. Because I examine multiple observations of the same individuals over a period of time, person-years are my unit of analysis. The model is:

$$Y_{it} = b_0 + \sum b_k X_{kit} + e_{it}$$

where

$$e_{it} = u_i + v_t + w_{it}$$

Y is the dependent variable for the i^{th} individual at time t, b_0 is the intercept, b are the coefficients of k time-varying independent variables (Xs), and e is the error term, which represents purely random variation at each point in

time for each individual. The error term includes the individual component of error (u), the timewise component of error (v) and the purely random component of error (w).

As previously noted, fixed effects regression models are used to reduce unmeasured heterogeneity. Time-varying observed characteristics are controlled for in fixed models just as in conventional OLS models. Any time-invariant characteristics (either observed or unobserved), are controlled for in the structure of the fixed effects model. Indicator variables for each year are included to control for period effects such as recessions.

An important limitation of fixed effects models is that they do not control for time-varying unobserved characteristics. If for example, a woman's career ambition changes upon the birth of a child and this in turn affects her wages, the regression estimates will still be biased. Another limitation of fixed effects is that because they include only those person-years that women are employed, they are vulnerable to sample selection bias if women's exits from the labor market are not random. This means that only those women more highly committed to the labor market will be included in the model, and wage penalties for family-related quits, for example, may be underestimated. This is likely not a serious problem, as previous studies of the motherhood wage penalty that have employed Heckman selection models to address this bias have found estimates from the selection models to be largely similar to those of the nonselection models (Glauber 2007).

In spite of these limitations, fixed effects models are one of the best methods currently available for controlling for unobserved heterogeneity (Allison 2009). Random effects models are another popular method for analyzing panel data, but unlike fixed effects, which allow for correlations of any form between unobserved and observed variables, random effects require that these correlations be completely random. If this assumption is not met, random effects models are subject to bias. To assess the appropriateness of fixed effects in my analysis, I conducted the Hausman test on all of my models. The Hausman test uses chi-square tests to compare the coefficients obtained in fixed effects models to those of random effects models. In all cases the p-values were significant ($p<.001$), indicating that fixed effects is the more appropriate model.

Analytic Strategy

I first calculated the means and proportions of the variables used in my fixed effects models separately for mothers and childless women and run two-group comparison tests to determine if they are significantly different. I then ran simple analysis of variance tests (ANOVAs) with pairwise comparisons to compare means of different types of job changes and employment exits across categories of birth timing and by motherhood status. For these comparisons, I first calculated and compare means across the entire observation period and then calculated and compared means during women's first five years in the labor market. This allowed me to examine aggregate measures over time and to look more closely at what happens during women's initial years in the labor market.

Following these bivariate analyses, I ran a series of fixed effects regression models to examine how job changes and employment exits contribute to the motherhood wage penalty. The first model includes the standard variables used in previous analyses of the penalty (i.e., family structure, human capital, work effort). Subsequent models add controls for job changes and employment exits to determine how these change the children coefficients. I then ran a series of fixed effects models interacting birth timing with types of job changes and employment exits to examine how the wage returns to these different types of changes and exits vary by birth timing. In some models I include three-way interactions among changes/exits, birth timing, and labor market timing, to further examine how the wage effects of job mobility among women who become mothers at different times are shaped by mobility timing.

Results

Descriptive Results

Table 1 lists the unadjusted means and standard deviations, as well as proportions where appropriate, of the variables used in the fixed effects regression models. Descriptive statistics were calculated separately for mothers and childless women. Two-group tests were then conducted to determine whether the means and proportions were significantly different between mothers and childless women. Note that because of the person-year structure of the data, the same woman may have contributed observations as both a childless woman and as a mother. Unadjusted

means and proportions should be interpreted with caution, as mothers' person-years were often contributed when women are older and have more work experience. For example, these results show mothers' unadjusted average hourly earnings were higher than those of childless women ($10.64 per hour vs. $8.99 per hour; p<.001), and mothers average significantly more cumulative job changes and exits (because they are older, so have accumulated more changes over time).

[INSERT TABLE 1 ABOUT HERE]

The consequences of using person-year data are also apparent when looking at the mean birth timing. The majority of mothers in the sample gave birth as teenagers. This does not mean that the majority of the women in my sample are teenage mothers, but rather that those who gave birth as teenagers contributed most (if not all) of their person-years as mothers, while women who delayed child bearing contributed many person-years as childless women. Thus, again, these unadjusted means and proportions should be interpreted with caution.

To help make the comparisons between mothers and childless women clearer, I next ran simple analysis of variance tests (ANOVAs) to examine how timing of first birth (a time-invariant characteristic) is related to the number of different types of job changes and employment exits women make. Because childless women in this bivariate analysis are those women who remain childless throughout the survey, the average number of job changes and employment exits they experienced provides a clearer sense of the differences between mothers and childless women in terms of the number of job changes and employment exits experienced, and how these vary by timing of motherhood.

Bivariate Results

Table 2 shows the mean number of job changes and employment exits by type for each group, as well as the results from bonferroni post hoc tests for significance. The first column shows the average number of family-related job changes experienced by each group. Women who became mothers in their early twenties averaged the most at 0.058. Women who became mothers at age 30 or later averaged half this at 0.025. Childless women averaged the least of any group at just 0.012. Pairwise comparisons showed significant differences between all groups. The second column shows

the average number of family-related *employment exits* experienced by each group. Here a similar pattern emerges: women who became mothers in their early twenties averaged the most (0.422) and mothers who delayed child bearing until later in their 20s or until their 30s or later averaged substantially (and significantly) fewer (0.221 and 0.104 respectively). Notably, regardless of birth timing and motherhood status, average numbers of family-related employments exits are higher than average numbers of family-related job changes, suggesting that when women leave an employer for a family-related reason, they are more often spending more than a month away from the labor market rather than starting a different job right away.

[INSERT TABLE 2 ABOUT HERE]

That both family-related job changes and employment exits are most common among women who became mothers in their early twenties is noteworthy, as this is precisely the time when many young women (especially those who do not attend or complete college) are entering the labor market. Of note, among those women who became mothers between the ages of 20-24, 82% of my person-year sample was high school graduates or women with some college. (Nine percent were high school dropouts and the remaining 9% were college graduates.) This confirms what I suggested above: that education and birth timing are indeed related. Thus, the wage penalties found among early child bearers is likely to due a combination of women becoming mothers as they enter the labor market and the labor market constraints faced by women without a college degree (i.e., less flexibility as discussed above). With regards to family-related job separations at least, children seem to have the greatest effects on the labor market decisions of these women, suggesting these types of job changes and exits in particular may be contributing to the larger wage penalties these women receive.

Column 3 of Table 2 shows the breakdown of the average number of non-family voluntary changes. As anticipated, women who became mothers at younger ages experienced fewer non-family voluntary changes compared to those who delayed motherhood as well as to childless women. Women who became mothers between the ages of 20-24 averaged 0.902 such changes, compared to 1.016 among the 25-29 group, 1.235 among the 30 or older group, and 1.139 among childless women; mean differences between groups all significant at $p<.05$. Interestingly, women who

delayed childbearing until at least age 30 actually averaged the *most* changes, even more than childless women. That women who delayed motherhood until later in adulthood actually average the most non-family job changes suggests that these women may indeed use their time prior to becoming a mother to find a good "job match." By contrast, lower average non-family voluntary job changes among women who became mothers at younger ages speaks to the difficulties these women may have had in their abilities to change jobs.

Column 4 of Table 2 shows the average number of non-family voluntary exits. Women who became mothers when they were a teenager averaged the most (1.086), while women who delayed childbearing until age 30 or later averaged the fewest (0.966). This highlights the labor market instability of younger mothers. The last two columns of Table 1, which show the average number of layoffs and firings, also highlight this instability. Women who became mothers as teenagers averaged 1.453 layoffs and 0.377 firings, significantly more than any other group. Women who delay childbearing until at least age 30 have the greatest labor market stability in terms of averaging the fewest firings (0.174) and tying with women who gave birth in their mid-late 20s for the fewest layoffs (1.260 and 1.220 respectively; difference not significant).

Interestingly, childless women experience significantly more involuntary job separations than women who become mothers in their mid-twenties or later. The layoff category includes women working in temporary jobs (see appendix), so it may be that childless women are electing into more temporary employment arrangements compared to mothers (who need more stable income). More layoffs among childless women compared to early child bearers might also be explained in part by Kahn et al's (2014) observation regarding selection into childlessness however. As they argue, "Childless women in their 40s or 50s are an interesting combination of those who remained childless voluntarily (positively selected for having chosen a career or other pursuits instead of motherhood) and those who ended up childless against their own will (negatively selected either because of infertility, poor health, the inability to find a suitable partner, or family demands such as caring for aging or disabled relatives, all of which might also affect their market performance)," (pp. 69-70). This negative selection into childlessness may help explain the fact that these women experience more layoffs compared to delayed childbearers and fewer non-family-related voluntary changes.

The results from Tables 2 suggest that differences in job changes and employment exits by motherhood status and motherhood timing may, in fact, contribute to the motherhood wage penalty and help explain why this penalty is greatest for women who became mothers in their early 20s. Women who became mothers in their early 20s average the most family-related job changes and exits (events expected to result in wage losses) and the fewest non-family voluntary job changes (events expected to result in wage gains). By contrast, women who delay child bearing until at least age 30 average the fewest family-related job changes and employment exits of any group of mothers and the most non-family voluntary job changes.

To examine whether the differences in job changes and employment exits by motherhood status and birth timing help explain the motherhood wage penalty, I now turn to the results of my fixed effects models.

Multivariate Results

To examine how job changes and employment exits contribute to the motherhood wage penalty, I first ran models including the standard variables used in previous analyses of the penalty (i.e., family structure, human capital, work effort). I ran one such model excluding job characteristics, and then another including job characteristics.[15] After running these base models, I ran a series of models adding measures for job changes and employment exits one at a time to see whether and how the addition of these variables change the coefficients for children. The children coefficients from each of these models are presented in Table 3 (full results from base model are shown in Table A.3 in the Appendix). The first three columns display the coefficients from the models excluding job characteristics. The second three columns display the coefficients from the models including job characteristics. In the discussion below, I focus on the models excluding job characteristics, though I also briefly discuss the results from the models that include controls for job characteristics.

[INSERT TABLE 3 ABOUT HERE]

[15] As job characteristics are arguably endogenous to both wages and job changes, it may be problematic to include them in the wage models. However, as much previous literature on the motherhood wage penalty has included measures for job characteristics regardless of their potential for endogeneity, I chose to include them here in one set of models. This will ensure that job changes themselves are contributing to the wage penalty, beyond the characteristics of the jobs.

The first row of Table 3 shows the coefficients for 1, 2 and 3 or more children respectively, from the base model, which controls for family structure and resources, human capital, and work effort. Similar to estimates in previous analyses of the motherhood wage penalty (Budig and England 2001; Glauber 2007; Kahn, Garcia-Manglano, and Bianchi 2014), I found the penalty is greatest among women of higher parities. Women with only one child face a penalty of only 1.5% ($p<.05$), compared to a penalty of 5.7% ($p<.001$) among women with two children, and a penalty of 8.0% ($p<.001$) among women with three or more children.

In model 2, I added the cumulative number of job changes and employment exits women have experienced, regardless of reason. This is similar to previous approaches (Gangl and Ziefle 2009; Glauber 2007). Adding these aggregate measures made virtually no difference to the estimates of the child(ren) penalty. The penalty for two children is reduced from 5.7% to 5.3%, and the penalty for three or more children is reduced from 8.0% to 7.8%. It is clear that accounting for women's job changes and employment exits without distinguishing among the reasons for the changes explains very little of the motherhood wage penalty. What happens when job changes and exits are disaggregated by type however? In models 3-11, I take up this question.

I begin by adding measures for family-related job changes, family-related employment exits, and both. Adding family-related changes (model 3) reduced the penalty for one child by 7% ([1.5-1.4]/1.5), two children by 5% ([5.7-5.3]/5.7), and for three or more children by 5% ([8.0-7.6]/8.0). It appears that family-related job changes do not account for much of the motherhood wage penalty. Family-related *exits*, however, (model 4) were found to reduce the penalty by 20% for mothers with one child (and render the penalty no longer statistically significant), to reduce the penalty by 12% for mothers with two children and by 11% for women with three or more children. This suggests the time women take away from the labor market to care for their family contributes to a nontrivial portion of the motherhood wage penalty. Adding *both* family-related job changes and employment exits (model 5) reduces the penalty for one child by 27%, and reduces the penalty for two or more children by 16%.

The estimates from models 3-5 provide support for hypothesis one, as family-related job changes and exits help to explain between 16 and 27% of the unaccounted for wage penalty mothers face. This suggests family-related job

mobility, especially family-related exits, among mothers contributes to their reduced wages. It is important to remember here that it is not simply job changes surrounding the time of birth that are lowering mothers' wages. Recall that approximately two-thirds of women's family-related job separations come at times other than the year that women have a child. Thus, family-related changes and exits made at various times throughout women's careers are working to lower their wages. Moreover, the greatest effects are coming from family-related exits rather than job changes, suggesting the need to look beyond job changes to consider how family-related job mobility shapes women's wages.

What about *non-family* voluntary job changes? In hypothesis 3, I predicted that these types of changes also contribute to the motherhood wage penalty, as it is likely that childless women's (and delayed child bearers') greater ability to engage in these types of changes will be driving up their wages relative to (young) mothers. In model 6, I added non-family voluntary job changes to the base model and found these changes reduce the penalty for one child by only 7% (from 1.5% to 1.4%). For women two children, however, these job changes reduce the penalty by 12% from 5.7% to 5.0%, and for women with three or more children, these job changes reduce the penalty by 11%, from 8.0% to 7.1%. This suggests that indeed, lower rates of non-voluntary job changes among mothers (young mothers especially) contributes to the motherhood wage penalty. This appears to be especially true for mothers with two or more children. If mothers (with two or more children) and childless women were changing jobs for non-family voluntary reasons at similar rates, the motherhood wage penalty would be reduced by roughly 12%.

Because family-related job changes and employment exits, and non-family voluntary job changes all reduced the coefficients for children when added separately to the base model, I also ran a model including all of these changes and exits to see how they might work in tandem. This model (model 7) yielded the greatest reduction in the size of the child(ren) coefficients compared to all other models I ran. The penalty for one child was reduced by 33% (and rendered no longer significant); the penalty for two children was reduced by 28% from 5.7% to 4.1%, and the penalty for three or more children was reduced by 29% from 8.0% to 5.7%. That family and non-family voluntary job changes and employment exits account for *roughly a third of the motherhood wage penalty* is striking, and suggests that if mobility patterns among mothers and childless women (and among early mothers and delayed mothers) were more similar, we would see much smaller motherhood wage penalties, especially among early child bearers.

Models 8-10 added measures for cumulative non-family voluntary exits, layoffs, and firings, respectively, to the models. None of these models changed markedly from the base model, although interestingly, each type of job separation entered here worked to increase the motherhood wage penalty slightly. This is likely because, motherhood, especially among women with schoolage children, reduces the hazard of each of these events occurring (Looze 2014b). Thus, the negative wages associated with these events are more often experienced by childless women, so including them in models of the motherhood wage penalty works to actually increase the penalty associated with children. The increases were very small, but this is nevertheless interesting to note.

Model 11 adds all types of job changes and employment exits, disaggregated by reason, to the model. While the penalty for children is reduced substantially from the first model, the reductions are not as great as those seen in the model including only the voluntary separations (both family and non-family). In this final model, the wage penalty for one child is reduced by 20% (and is rendered non-significant), and the penalties for two and three or more children are reduced by 19% from the base model.

In sum, these models show that aggregate measures of job changes and employment exits do little in the way of helping explain the motherhood wage penalty. When job changes and employment exits are broken down by reason however, it is clear family-related employment exits and non-family voluntary job changes are important drivers of the motherhood wage penalty. Family–related employment exits explain 20% of the wage penalty incurred by mothers with one child and 12-13% of the penalty incurred by mothers with two or more children. Non-family voluntary job changes account for roughly 12% of the penalty incurred by mothers with two or more children. Together, family-related job separations and non-family voluntary job changes account for roughly a third of the penalty incurred by mothers across parities. Non-family voluntary job exits, layoffs, and firings, all work to increase the penalty slightly, likely because childless women are more likely than mothers to experience these types of wage decreasing events, thus, mothers' wages are inflated slightly prior to accounting for these events in the wage models. Models that include controls for all different types of job changes and employment exits reduces the wage penalties associated with children by approximately 20%. Clearly a substantial portion of the motherhood wage penalty can be accounted for by differences

in the types of job changes and employment exits women and childless women make, as well as the rates at which they make such changes.

Turning briefly to the estimates from the models that includes controls for job characteristics, (the second set of columns in Table 3), the results are similar to the models that exclude job characteristics, though the penalties are slightly smaller in the model that includes job characteristics. (This is to be expected, as family-friendly job characteristics have been found to account for a small portion of the motherhood wage penalty.) The overall story remains the same however: the child penalty is reduced substantially when the disaggregated measures for job changes and employment exits are added. When measures for family-related job changes and exits are added (model 5), the penalty for two or more children is reduced by 17%; when non-family voluntary job changes are added to the model (model 6), the penalty for two or more children is reduced by 11-13%.

The models presented in Table 3 demonstrate that differences in the job change patterns of mothers and childless women are behind a substantial portion of the motherhood wage penalty. Mothers', especially young mothers', greater likelihood of engaging in family-related job changes and employment exits are lowering wages, as are their decreased likelihood of engaging in non-family voluntary job changes. Models that focus only on job changes surrounding the time of childbirth, or that include measures for job separations without considering the reason for the separation or the time until the next job have overlooked the true impact of job changes and employment exits to women's wages, and what this means for the motherhood wage penalty.

Table 3 showed how different types of job changes and employment exits either lessened or exacerbated the motherhood wage penalty by indicating how the coefficients for children changed when different types of job changes and employment exits were added to the model. I found that indeed, different patterns of job changes and employment exits help explain a substantial portion of the motherhood wage penalty, at least for women with two or more children. But how do these job changes and employment exits themselves impact women's wages, and how does this vary by birth timing? Table 4 shows the coefficients for the job change and employment exit variables. The first row contains the estimates from the full model presented in Table 3 (model 11), which included all types of job changes and exits. Family-

related changes are associated with the highest penalties, as women are estimated to incur a wage penalty of 7.4% for each such change they make (p<.001). Family-exits also predict penalties of 3.2% each (p<.001). Non-family voluntary job changes on the other hand, were associated with wage gains of just over 5% (p<.001). Non-family voluntary employment exits, layoffs and firings were all associated with wage penalties. The predicted effects of these different types of job changes/exits on women's wages are similar to those found in previous research (Fuller 2008; Keith and McWilliams 1999).

[INSERT TABLE 4 ABOUT HERE]

How do these penalties vary by birth timing? The remaining rows of Table 4 show the results from the models interacting each type of job change and employment exit with timing of motherhood. The regression was run repeatedly using each birth category as the base in order to determine whether the wage penalties/premiums for each birth category were significantly different from zero. Looking at the results from these interactions, it is clear that the benefits and detriments of different types of job changes and employment exits are far from uniform between mothers and childless women and across women who became mothers at different times.

One of the most striking findings is that childless women receive the largest penalties for family-related job changes and employment exits. Childless women are predicted to incur a wage loss of 23% for each family-related job change and a wage loss of 19.4% for each family-related employment exit. It is important to point out that these are women who remain childless throughout the survey period, so it is likely that the majority of these job changes/exits are not due to pregnancy.[16] Instead, these women are changing jobs and exiting the labor market for some other family-related reason. While family-related job mobility is experienced by childless women less often than mothers, it clearly is more penalizing to these women. Perhaps these women are relocating because of a spouse's job and are unable to find a job that pays as well. If this is the case, childless women might feel less pressure than mothers to find a high-paying job

[16] It is possible that some women who became pregnant and then miscarried left the labor market because of the pregnancy (a family-related reason). These women would be counted as childless women in my analysis as they never gave birth to a child. It is unlikely though that women leaving the labor market on account of a pregnancy, miscarrying, and then never having a live birth is very common, especially given that many miscarriages take place relatively early in pregnancy and most labor market exits occur in the later months of pregnancy (Laughlin 2011).

(or any job at all) since they may not have as many financial responsibilities. It might also be the case that these women are changing jobs or taking time away from the labor market to care for a sick spouse or an ailing parent. Perhaps this type of carework is even more penalizing to women's wages than that done by mothers. More research on family-related job mobility among childless women is needed to sort this out.

Family-related job changes are most penalizing to women who become mothers during their twenties. Women who become mothers between the ages of 20-24 are predicted to receive a wage penalty of 6.7% for each family-related job change ($p<.01$) those who become mothers between the ages of 25-29 are predicted to receive a wage penalty of 10.4% for each family-related job change ($p<.001$). Teenage mothers and women who delay child bearing until their 30s or later receive no significant penalty for family-related job changes. A slightly different pattern emerges when looking at family-related employment exits. Here we see the largest penalties among women who become mothers at later ages. Women who become mothers between the ages of 25-29 receive a wage penalty of 6.1% for each family-related exit ($p<.001$) and women who become mothers at age 30 or later are predicted to receive a wage penalty of 12.0% ($p<.001$) for each family-related exit.

Curiously, women who have their first child between the ages of 20-24 are predicted to enjoy small but significant *wage premiums* for family-related employment exits on the magnitude of a 2.0% increase for each such exit. Why might early child bearers see small wage premiums for such exits when every other group of women is predicted to incur significant penalties? To examine this further, in an additional analysis (not shown) I re-ran the regression models including three-way interactions among family-related employment exits, birth timing, and timing of the change (first five years in the labor market, years 6-10, 11-15, and year 16 or later) to examine whether timing of the employment exit mattered. These models revealed that family-related employment exits made during the first five years in the labor market yield the largest penalties for women who gave birth in their early 20s, with predicted penalties of -6.0% for each such employment exit ($p<.01$). The penalties declined markedly over time however, resulting in (non-significant) penalties of -1.7% and -0.4% in years 6-10 and 11-15 respectively, and in small (though also non-significant) wage premiums for family-related exits occurring when women have surpassed 15 years in the labor market. Thus, the wage effects of these later family-related exits appear to be driving the wage premium seen by the women who became

mothers between the ages of 20-24. Perhaps as these women's children grow they are beginning to think about paying for college tuition and so may seek out a higher paying job. This raises some important questions about the more specific reasons that women change jobs and leave the labor market for reportedly family-related reasons when their children are older, as likely these changes and exits are not motivated by child birth or child care responsibilities.

Results for non-family voluntary job changes are also interesting, as delayed child bearers are predicted to receive the largest benefits for such changes. Women who delay motherhood until at least age 30 are predicted to gain 6.4% for each such change ($p<.001$). Women who become mothers in their early and mid-late 20s are predicted to receive slightly smaller, but not significantly different, wage boosts of 6.1% and 5.5% respectively ($p<.001$ in both instances). The high wage returns to these job changes among mothers who bear children relatively early in their careers (during their early 20s) suggests that if these women were able to capitalize on making such changes during this time, their wages would increase and we would see a smaller motherhood wage penalty. As delayed child bearers are more often making these changes, their ability to enjoy these wage gains is driving up their wages relative to younger mothers.

Teenage mothers gain the least from non-family voluntary job changes, but nevertheless notably increase their wages when they do. Teenage mothers are predicted to enjoy a 3.7% wage increase for each non-family voluntary job change ($p<.001$). This echoes previous work that I have done (Looze 2014a) that finds women with less than a high school degree (which teenage mothers overwhelmingly are) gain the least from non-family voluntary job changes. Given this finding I argued this is especially problematic for these women, as voluntary job changing is a particularly important strategy for increasing wages among less educated workers (Alon and Tienda 2005; Andersson, Holzer, and Lane 2005; Johnson and Corcoran 2003). Thus, teenage mothers may have a tough time increasing their wages substantially even when changing jobs.

Women who remained childless throughout the observation period were predicted to enjoy wage gains of 4.3% for each non-family voluntary job change ($p<.001$). Like the differences in job mobility patterns, the stark contrast in the size of the wage returns between delayed child bearers and childless women points to the possibility of negative

selection into childlessness driving these results. All of these findings point to the importance of examining the wage trajectories of women based on motherhood timing, rather than simply examining a mother/childless women dichotomy, as clearly it is women who delay child bearing rather than those who remain childless, who are engaging most often in the types of non-family voluntary job changes that increase their wages, and moreover, their wages benefit the most when they do.

Discussion

That motherhood, especially for women with two or more children, is associated with lower wages, even after differences in human capital, family structure, work effort, job characteristics, and unobserved differences between mothers (of various parities) and childless women have all been accounted for, has been of great interest to scholars in recent years. Most have attributed this motherhood wage penalty to some combination of discrimination against mothers on the part of employers and lower work effort on the part of mothers. This analysis has showed that another important mechanism is contributing to the motherhood wage penalty: differences in the types of job changes and employment exits mothers and childless women make.

Previous analyses of the motherhood wage penalty have paid surprisingly little attention to the role job changes might play, despite much sociological and economic literature that suggests job changes are key mechanisms shaping workers' wages. Analyses of the motherhood wage penalty that have considered the role of job changes have either focused on those changes following the birth of a child, ignoring the reason for these changes, as well as the job changes that childless women make, or they have included measures of cumulative job separations without considering the reason women leave their jobs or the length of time they spend away. In this analysis, I disaggregated the various reasons women report leaving their jobs (family-related, non-family related voluntary, layoffs, and firings) and distinguished between *job changes* (job separations followed soon by another job) and *employment exits* (job separations followed by a spell of non-employment). By making these distinctions, I was able to show more clearly how job mobility shapes women's wages, and how these different events contribute to the motherhood wage penalty.

My results showed that controlling for cumulative numbers of job separations (an approach others have taken) does little to explain the motherhood wage penalty. When considering the various types of job changes and employment exits women make however, it becomes clear that these events have important effects on women's wages. After controlling for other variables known to contribute to the motherhood wage penalty, including human capital, family structure, and work effort, adding measures for cumulative family-related job mobility (job changes and employment exits) reduced the remaining penalty by roughly 20%. Family-related employment exits accounted for much of this reduction, while family-related job changes did little to change the penalty, suggesting it may not be the job change itself that is lowering women's wages substantially, but rather the gap in employment between jobs.

While some might argue that these family-related job changes and employment exits are most likely taking place surrounding the time of birth, so are captured in analyses that consider job changes at this time, my calculations suggest *two-thirds* of women's family-related job separations took place in years other than those in which they gave birth to a child. Thus, it is not only job changes and employment exits immediately surrounding birth that are contributing to the motherhood wage penalty, but such events occurring at various times throughout women's careers that are likely lowering their wages.

The motherhood wage penalty is not simply due to women's (primarily mothers') family-related job changes and employment exits however. Differences in *non-family voluntary job changes* are also accounting for a notable portion of the penalty. Adding a measure for women's cumulative non-family voluntary job changes to the standard model of the motherhood wage penalty reduced the penalty for mothers with two or more children by approximately 12%. Motherhood reduces the likelihood that women will engage in these types of job changes (Looze 2014b). If mothers were able to engage in the same amount of non-family voluntary job changing that childless women are enjoying, we would see a smaller motherhood wage penalty.

Overall, differences between mothers and childless women in the number of family-related job changes and employment exits they make, as well as the number of non-family voluntary changes they experience account for *approximately one third* of the remaining wage penalty. This is a substantial portion of the motherhood wage penalty. It

appears then, that the motherhood wage penalty cannot be attributed simply to employer discrimination or lowered work effort among mothers. Instead, differences in the ways in which women move among employers accounts for much of this penalty. These differences have received little attention in previous analyses of the motherhood wage penalty, but clearly are important mechanisms contributing to the penalty.

In addition to demonstrating that job changes and employment exits play an important role in explaining the motherhood wage penalty, this analysis has also shown that different patterns of job changes and employment exits may also help explain the larger motherhood wage penalty found among early child bearers. Much previous work on the motherhood wage penalty has been framed in such a way that posits a mother/childless woman dichotomy, yet this may not be the most appropriate conceptualization of how this penalty plays out. Fixed effects models, which are often used in analyses of the motherhood wage penalty, do not actually compare the wages of childless women and mothers, but rather, they compare each woman's wages in the years before and after becoming a mother. As women become mothers at various points throughout adulthood, the timing of this shift is exceedingly important in understanding the wage penalty for motherhood.

My analysis demonstrates that women who become mothers as teenagers and in their early 20s experienced more family-related job changes and employment exits, and fewer non-family related voluntary job changes compared to women who delay child bearing until their late 20s and into their 30s and beyond. This is especially true during women's first five years in the labor market. As family-related job changes and employment exits are associated with wage losses (again, most especially during the initial years of labor market experience), this suggests that young mothers' wages are negatively impacted by such changes. At the same time, these same young mothers are missing out on the types of non-family voluntary changes that are likely to increase their wages. If young mothers were to have fewer family-related job changes and employment exits, and more non-family voluntary job changes, their wages would like look more similar to the wages of delayed child bearers and childless women.

Among women who delay child bearing until at least age 30, I find these women average more non-family related voluntary changes than any other group, even women who remain childless. This is especially true during

women's initial years in the labor market. Moreover, the wages of these women benefit the most for these changes. Delayed child bearers' enjoy a wage increase of 6.4% for each non-family voluntary job change they make, more than any other group (though only significantly different from teenage mothers and childless women). These finding lend support to Amuedo-Dorantes and Kimmel's (2005) suggestion that part of the benefits to delaying child bearing is women's abilities to find a good a job match *before* becoming a mother. It is important to point out that while Amuedo-Dorantes and Kimmel use the language of "family-friendly," (i.e., "the wage boost experienced by college-educated mothers may be the result of their search for family-friendly work environments, which, in turn, yields job matches with more female-friendly firms offering greater opportunities for advancement," (p. 17)), this should not be confused with women's motivation to change jobs prior to becoming a mother. Many of these delayed child bearers may be changing jobs to increase their wages and otherwise advance their careers as much as possible before having children. It is likely that when asked why they are changing jobs, these women do not report they are trying to find a "family-friendly" work environment prior to having children, but rather they are seeking out better opportunities for themselves. The presumed "family-friendliness" of such work environments is likely a by-product of the types of jobs that delayed child bearers (and more often highly educated) women are employed in (i.e., jobs that offer greater flexibility, etc.). More detailed examinations of the specific reasons women report leaving their jobs are necessary in order to map out a more comprehensive understanding of the relationship between job changing and women's wage trajectories.

What of childless women? My findings suggest that women who remain childless do not experience as many non-family job changes compared to women who delay motherhood, nor are they compensated as highly when they do. Moreover, women who remain childless also experience more layoffs than delayed child bearers. These findings support arguments about negative selection into childlessness, as perhaps the same women who do not fare so well in the labor market are also less likely to ever become mothers (i.e., whether because of poor health or other limiting factors). It is especially striking that although women who remain childless average fewer job changes and employment exits due to family-related reasons than mothers of any birth timing, childless women are penalized most harshly when they do. Future work is needed to understand the types of family-related job mobility that childless women engage in and why these events are so detrimental to their wages.

Overall, these findings have shown that differences in the types and amounts of job changes and employment exits women make helps explain the motherhood wage penalty and why this penalty is so large for young mothers. From an analytical perspective, this underscores the importance of looking beyond discrimination and work effort as explanations of the motherhood wage penalty, and instead examining other differences in women's labor market trajectories as shaped by both motherhood status and birth timing in explaining this penalty. From a policy perspective, my findings point to the need to find ways to make changing jobs easier for young mothers, by doing things such as ensuring women have access to quality and affordable child care at flexible locations so that they can more easily relocate jobs. It also means working to standardize benefits such as flexible work hours and telecommuting across workplaces to the extent possible, so that when women do have access to such benefits, they don't feel locked into a particular job, hesitant that they will not be able to secure such flexibility with another employer.

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Table 1. Means and Standard Deviations of Variables Used in Fixed Effects Regression Models; NLSY79 1979-2010

	Mothers		Childless Women		Significant Difference
Variable	**Mean**	**SD**	**Mean**	**SD**	
Hourly Wages	10.64	(11.30)	8.99	(10.64)	***
Number of Children					
0	---		---		
1	0.33		---		
2	0.40		---		
3+	0.27		---		
Birth Timing					
15-19	0.38				
20-24	0.35				
25-29	0.18				
30+	0.09				
Cumulative Job Separations					
Family-related changes	0.05	(0.24)	0.01	(0.10)	***
Family-related exits	0.39	(0.64)	0.04	(0.20)	***
Non-family voluntary changes	1.06	(1.38)	0.89	(1.26)	***
Non-family voluntary exits	1.14	(1.33)	0.82	(1.14)	***
Layoffs	1.50	(1.80)	1.06	(1.54)	***
Firings	0.31	(0.70)	0.20	(0.57)	***
Demographic Characteristics					
Race[17]					
Hispanic	0.19		0.14		***
Black	0.30		0.20		***
White (ref)	0.51		0.66		***
Urban	0.77		0.83		***
Region					
Northeast	0.14		0.21		***
Midwest	0.24		0.23		**
South	0.43		0.37		***
West	0.19		0.19		
Human Capital					
Work experience (years)	9.80	(7.19)	5.80	(6.10)	***
Job Tenure (years)	4.36	(5.13)	3.13	(3.97)	***

[17] Race is not included in the fixed effects models, as it is a "fixed effect" that is netted out of the models. It is listed here only as a descriptive statistic to provide a sense of the proportion of women in each racial-ethnic category in the sample.

Highest Grade Completed	12.79	(2.24)	13.55	(2.27)	***
Family Structure & Other Resources					
Marital Status					
Married	0.62		0.31		***
Cohabiting	0.06		0.08		***
Never married	0.12		0.53		***
Divorced	0.20		0.08		***
Spouse income (10,000s) among married	3.25	(3.44)	2.59	(3.18)	***
Welfare receipt	0.07		0.00		***
Work Behaviors					
Part-time	0.27		0.18		***
Annual Weeks Employed	41.41	(16.46)	44.92	(13.05)	***
Enrolled in School	0.05		0.09		***
Job Characteristics					
Self-Employed	0.06		0.03		***
Public sector	0.17		0.15		***
Private sector	0.77		0.82		***
Union	0.17		0.16		***
Percent female in occupation	58.70	(29.59)	59.46	(29.16)	***
Irregular shift	0.14		0.15		***
Health care	0.71		0.77		***
Industry					
Agriculture, Forestry, Fishing, Hunting & Mining	0.01		0.01		***
Construction	0.01		0.01		
Manufacturing	0.14		0.13		*
Wholesale & Retail Trade	0.13		0.13		
Transportation, Warehousing & Utilities	0.04		0.03		**
Information	0.03		0.05		***
Finance, Insurance, Real Estate, Rental & Leasing	0.07		0.10		***
Professional, Scientific, & Technical Services	0.04		0.05		***
Management, Administrative, & Waste Management Services	0.03		0.02		***
Educational Services	0.10		0.09		*
Health Care and Social Assistance	0.16		0.15		***
Arts, Entertainment, and Recreation	0.02		0.02		***
Accommodations and Food Services	0.10		0.09		***
Public Administration	0.06		0.06		
Other Services (Except Public Administration)	0.05		0.05		
N of person-years	48,642		28,061		

*** p<.001; ** p<.01; p<.05; p-values based on results from two-group tests for means and proportions.

Table 2. Mean Number of Job Changes and Employment Exits by Timing of First Birth and Motherhood Status; NLSY79 1979-2010

	Family-Related		Non-Family Voluntary		Layoffs	Firings
	Changes	Exits	Changes	Exits		
Mothers, by age at first birth						
15-19	0.041[bcde]	0.359[bcde]	0.852[acde]	1.086[bcde]	1.453[bcde]	0.377[bcde]
20-24	0.058[acde]	0.422[acde]	0.902[acde]	1.025[acde]	1.332[acd]	0.275[acde]
25-29	0.033[abde]	0.221[abde]	1.016[abde]	0.966[abde]	1.220[abe]	0.200[abde]
30+	0.025[abce]	0.104[abce]	1.235[abce]	0.961[abce]	1.260[abe]	0.174[abce]
Childless Women	0.012[abcd]	0.038[abcd]	1.139[abcd]	1.003[abcd]	1.383[acd]	0.244[abcd]

[a] significantly different from under 15-19, (p<.05); [b] significantly different from 20-24, (p<.05); [c] significantly different from 25-29, (p<.05); [d] significantly different from 30+, (p<.05); [e] significantly different from childless women, (p<.05)

Table 3. Effect of Number of Children on Women's Log Hourly Wages from Fixed Effects Models: NLSY79 1979-2010

Model	Excluding Job Characteristics[a]						Including Job Characteristics[b]					
	Number of Children						Number of Children					
	1	% of penalty	2	% of penalty	3+	% of penalty	1	% of penalty	2	% of penalty	3+	% of penalty
1: Base Model[a]	-1.5*		-5.7***		-8.0***		-1.0		-4.7***		-6.5***	
2: Base Model + Any Job Changes and Exits	-1.5*	0%	-5.3***	7%	-7.8***	3%	-0.9	10%	-4.4***	6%	-6.4***	2%
3: Base Model + Family-Related Job Changes	-1.4*	7%	-5.4***	5%	-7.6***	5%	-0.9	10%	-4.5***	4%	-6.2***	5%
4: Base Model + Family-Related Employment Exits	-1.2	20%	-5.0***	12%	-7.0***	13%	-0.6	40%	-4.0***	15%	-5.6***	14%
5: Base Model + Family-Related Job Changes and Exits	-1.1	27%	-4.8***	16%	-6.7***	16%	-0.5	50%	-3.9***	17%	-5.4***	17%
6: Base Model + Non-family Voluntary Job Changes	-1.4*	7%	-5.0***	12%	-7.1***	11%	-0.8	20%	-4.1***	13%	-5.8***	11%
7: Base Model + Family and non-Family Voluntary Changes and Exits	-1.0	33%	-4.1***	28%	-5.7***	29%	-0.4	60%	-3.3***	30%	-4.5***	31%
8: Base Model + Non-Family Voluntary Exits	-1.6*	-7%	-5.8***	-2%	-8.3***	-4%	-1.0	0%	-4.9***	-4%	-6.9***	-6%
9: Base Model + Layoffs	-1.5*	0%	-5.8***	-2%	-8.2***	-3%	-0.9	10%	-4.8***	-2%	-6.8***	-5%
10: Base Model + Firings	-1.6*	-7%	-5.9***	-4%	-8.3***	-4%	-0.9	10%	-4.8***	-2%	-6.8***	-5%
11: Base Model + All Job Changes (Disaggregated By Type)	-1.2	20%	-4.6***	19%	-6.5***	19%	-0.6	40%	-3.8***	19%	-5.3***	18%

*** p<.001; ** p<.01; p<.05

[a] all models control for family structure and other resources, human capital, work effort, region and urban vs. rural residence and include N-1 year dummies

[b] all models control for family structure and other resources, human capital, work effort, job characteristics, region and urban vs. rural residence and include N-1 year dummies

Table 4. Returns to Job Changes and Employment Exits by Timing of First Birth and Motherhood Status; NLSY79 1979-2010

	Family-Related				Non-Family Voluntary				Layoffs		Firings	
	Changes		Exits		Changes		Exits					
All Women	-7.4***		-3.2***		5.1***		-1.1***		-0.01**		-2.4***	
Mothers, by age at first birth												
15-19	-2.5	ce	-3.2**	bcde	3.7***	bcd	-1.4**	ae	-0.5	bce	-3.7***	bc
20-24	-6.7**	e	2.0*	acde	6.1***	ae	1.2**	acde	1.3***	acde	0.2	ade
25-29	-10.4***	ae	-6.1***	abde	5.5***	a	-2.0***	b	-1.9***	ab	1.0	ade
30+	-5.7	e	-12.0***	abc	6.4***	ae	-1.4*	bd	-1.4**	b	-4.7**	bc
Childless Women	-23.0***	abd	-19.4***	abc	4.3***	bd	-3.1***	abd	-1.5***	ab	-4.2**	bc

[a] significantly different from under 15-19, (p<.05); [b] significantly different from 20-24, (p<.05); [c] significantly different from 25-29, (p<.05); [d] significantly different from 30+, (p<.05); [e] significantly different from childless women, (p<.05)

APPENDIX

Table A.1 shows the response categories for the 1980 survey and my subsequent coding scheme. In this year, respondents were asked: "Which of the reasons on this card best describes why you happened to leave this job? Options on the card included: (1) layoff, plant closed, or end of temporary or seasonal job; (2) discharged or fired; (3) program ended; (4) quit for pregnancy or family reasons; (5) quit for other reasons. As Table A.1 illustrates, I included those who reported a job ended because a government program ended with those who reported being laid off, as these workers likely had a sense that a job was going to be ending at a particular time (similar to a temporary job). Note however, that there are very few cases where respondents reported leaving a job because a program ended and the vast majority of these cases were among respondents still in school who had not yet entered the labor market (so were excluded from this analysis).

Table A.2 shows the response categories for the 2000 survey and my subsequent coding scheme. In this year, respondents were asked: "Which of the reasons on this card best describes why you happened to leave this job? Options on the card included: (1) layoff; (2) plant closed; (3) end of temporary or seasonal job; (4) discharged or fired; (5) program ended; (6) quit for pregnancy or family reasons; (7) quit to look for another job; (8) quit to take another job; (9) quit for other reasons. Options 7-9 were collapsed into the non-family voluntary category.

Table A.1. Reason for Leaving Job, 1980 Survey

Response Categories Provided in Survey	Coding for Current Analysis
layoff, plant closed, or end of temporary or seasonal job	layoff
discharged or fired	fired
program ended	layoff
quit for pregnancy or family reasons	family
quit for other reasons	non-family voluntary

Table A.2. Reason for Leaving Job, 2000 Survey

Response Categories Provided in Survey	Coding for Current Analysis
Layoff	layoff
plant closed	layoff
end of temporary or seasonal job	layoff
discharged or fired	fired
program ended	layoff
quit for pregnancy or family reasons	family
quit to look for another job	non-family voluntary
quit to take another job	non-family voluntary
quit for other reasons	non-family voluntary

Table A.3. Full Results from Fixed Effects Regression of Women's Wage (Ln), National Longitudinal Survey of Youth 1979: 1979-2010

Variable	Coef	SE
Number of Children		
0 (ref)	---	
1	-0.01	0.007
2	-0.05***	0.008
3+	-0.07***	0.011
Cumulative Job Separations		
Family-Related Changes	-0.07***	0.014
Family-Related Exits	-0.03***	0.006
Non-Family Voluntary Changes	0.05***	0.003
Non-Family Voluntary Exits	-0.01***	0.003

Layoff	-0.06**	0.002
Firings	-0.02***	0.005
Demographic Characteristics		
Urban	0.01	0.006
Region		
Northeast	0.08***	0.015
Midwest	-0.01	0.014
South (ref)		
West	0.10***	0.014
Family Structure & Other Resources		
Marital Status		
Married	-0.01	0.007
Cohabiting	0.01	0.009
Never married		
Divorced	0.04***	0.008
Spouse income (10,000s) among married	0.01***	0.001
Coresiding with kin	-0.03***	0.006
Welfare receipt	-0.07***	0.010
Human Capital		
Work experience (years)	0.03***	0.002
Work experience squared	-0.00***	0.000
Job Tenure (years)	0.01***	0.001
Highest Grade Completed	0.03***	0.003
Work Effort		
Part-time	-0.01**	0.004
Annual Weeks Employed	0.00***	0.000
Enrolled in School	-0.04***	0.007
Constant	0.71***	0.039