Women's Short-Term Employment Trajectories Following Birth: Patterns, Determinants, and Variations by Race/Ethnicity and Nativity

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Abstract   Despite a large literature documenting the impact of childbearing on women's wages, less understanding exists of the actual employment trajectories that mothers take and the circumstances surrounding different paths. We use sequence analysis to chart the entire employment trajectory for a diverse sample of U.S. women by race/ethnicity and nativity in the first year following childbirth. Using data from the 1996–2008 panels of the Survey of Income and Program Participation and sample selection models, we find that women employed before childbirth show a high degree of labor market continuity. However, a notable share of them (24 %) took less stable paths by dropping out or scaling back work. In addition, mothers' attachment to the labor force is simultaneously supported by personal endowments and family resources yet constrained by economic hardship and job characteristics. Moreover, mothers' employment patterns differ by race/ethnicity and nativity. Nonwhite women (blacks, Hispanics, and Asians) who were employed before childbirth exhibited greater labor market continuation than white

women. For immigrant women, those with a shorter length of residence were more likely to curtail employment than native-born women, but those with longer duration of residence show greater labor force attachment. We discuss the implications of these findings for income inequality and public policy.

Introduction

The past four decades have witnessed a tremendous growth in U.S. women's labor force participation (Juhn and Potter 2006). The role shift of women from being predominately homemakers to active participants in the labor force is particularly pronounced among women with young children. By 2015, 61 % of women (compared with more than 90 % of men) with children under age 3 were in the labor force (U.S. Department of Labor 2015). Concomitant with mothers' greater labor force participation, however, is a persistent "motherhood penalty" in wages (Budig and England 2001; Waldfogel 1997), which is in sharp contrast with a "fatherhood premium" (Budig 2014; Killewald 2013). Among the most important sources of this penalty is changing employment behavior after childbirth that results in a cumulative loss of employment experience (Aisenbrey et al. 2009; Boushey 2006; Budig and England 2001; Gangl and Ziefle 2009; Klerman and Leibowitz 1999).

However, we know little about the processes of mothers' employment change and the complex conditions undergirding their varied employment paths. After family transitions, some mothers remain employed while others drop out of the labor force altogether, scale back from full- to part-time work, or shift to self-employment; and some of the latter groups of women may return to the work force or to full-time employment. These distinct processes reflect the diverse

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and dynamic nature of mothers' labor market decisions. They are best captured through a trajectory perspective, which takes into account the whole process (instead of isolated snapshots) and sheds light on both continuity and change in mothers' employment behavior.

The lack of an adequate understanding of mothers' employment trajectories is partially attributed to the conceptual and methodological focus on static employment status at a specific time point (using logistic regressions; see, e.g., Fagan and Norman 2012; Joesch 1997) or a specific one-time binary transition, such as labor market exit among employed mothers (using event-history analysis; see e.g., Budig 2003; Desai and Waite 1991; Wenk and Garrett 1992). These studies point to women's labor market experience, occupational position, and family status as key determinants. However, they obscure women's diverse labor force behavior composed of both continuity and transition. For example, study of static employment status does not reveal whether mothers employed at a specific time point comprise those who were stably employed or who dropped out and reentered the labor force. By focusing on a single transition (e.g., labor market withdrawal), we overlook other substantively important employment patterns (e.g., reentry, transition to different types of employment, and stable employment). Another body of research has adopted a trajectory perspective using latent class analysis (Hynes and Clarkberg 2005). This approach is an important step forward but is limited to dichotomized employment status. It does not fully reveal the diversity of mothers' employment patterns involving multiple types of transitions and varying degrees of labor force attachment, including withdrawal, scaling back work, and shifting to self-employment (Aisenbrey et al. 2009; Klerman and Leibowitz 1999).

This study contributes to the literature in two ways. First, our study captures the entire (short-term) employment trajectories of mothers shortly before and 12 months after childbirth,

which is a critical period when work-family conflict is especially intense and which is highly predictive mothers' longer-term labor market outcomes (Shapiro and Mott 1994). We ask two questions: (1) What are the typical employment trajectories that women take in the first year after childbirth?; and (2) How prevalent are those trajectories? We use sequence analysis, a useful tool for illustrating employment trajectories characterized by both stability and transitions between multiple employment status (full-time, part-time, self-employment, non-employment). If we find a more complicated employment pattern of mothers than previously conceived, we may need a more complex conceptualization and operationalization of motherhood employment.

Second, after identifying mothers' distinct employment trajectories, we study what factors shape these employment patterns. We examine a range of individual and familial factors—including women's education and labor market experience, job characteristics, family characteristics and arrangements, and family economic conditions—that theoretically might either promote or undermine women's attachment to the labor market (Stier 1996).

We specifically examine racial/ethnic and nativity variation in mothers' employment trajectories (non-Hispanic whites, non-Hispanic blacks,[1] Hispanics, and Asians, as well as both immigrant and native-born women), which has rarely been explicitly investigated (Hynes and Clarkberg 2005; Han et al. 2008). Much of the extant literature uses data that do not include all major racial/ethnic groups or include only small samples of ethnic minorities. As the U.S.

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[1] For parsimony, we use *white* and *black* hereafter to indicate non-Hispanic white and non-Hispanic black, respectively.

population becomes more ethnically diverse and the number of immigrants grows,[2] focusing on minority and immigrant women is crucial for a fuller understanding of women's labor market experience. Recent data have shown that native-born white women have generally had lower unemployment rates than minority women and immigrant women (Browne 2000; England et al. 2004; Read and Cohen 2007; U.S. Bureau of Labor Statistics 2014). An underinvestigated question is whether mothers' postbirth employment follows or diverges from this general pattern.

Our analyses use two decades of longitudinal data from the Survey of Income and Program Participation (SIPP; 1996–2008), which provides information on month-to-month employment for an ethnically diverse sample. We first use sequence analysis to map complex employment trajectories and identify typical employment patterns among women attached to the labor force before childbirth. We then examine the links between an array of factors and mothers' employment patterns while taking into account potential sample selection bias.

Employment Behaviors of Mothers

Existing literature has identified complex sets of factors that potentially shape the opportunities and constraints mothers perceive or face, and thus affect their employment behaviors after childbirth. Some of these factors can have competing impacts on employment.

First, individual endowments, such as education and employment experience, are associated with commitment to work and access to desired work-family arrangements (Gough and Noonan 2013). Greater education and experience increase earnings and workplace autonomy, which enables mothers to use high-quality childcare services or establish flexible

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[2] In 2010, 63.7 % of the U.S. population was non-Hispanic white, 12.2 % was non-Hispanic black, 16.3 % was Hispanic, and 4.7 % was Asian; the foreign-born comprised 12.9 % of the national population (U.S. Census Bureau 2010, 2011a).

work arrangements (e.g., flexible hours and working from home), both allowing women to stay in the labor force and to continue with full-time employment (Gerstel and Clawson 2014). A high level of education and experience also reflects and may further reinforce women's commitment to paid work given that they have invested substantially in preparation for careers. In this sense, women's employment tends to be responsive to their earning potential (Stier and Tienda 1992). In contrast, women with less education and experience are less able to afford high-quality childcare (Boushey and Wright 2004), rendering the costs of employment (e.g., childcare expenses) to outweigh its economic benefit. Those women also possess a weak position for negotiating flexible work arrangements or domestic division of labor, compelling them to take time out of the labor force or to choose part-time employment (Presser and Cox 1997).

Second, job characteristics can affect whether mothers stay in the labor force. "Family-friendly" jobs allow women to work from home or on flexible schedules (Desai and Waite 1991; Stier 1996). Such jobs are more prevalent in the public sector and in white-collar jobs—especially professional and managerial occupations—than in blue-collar and service jobs. The lack of adequate job protection and autonomy in the private sector and service jobs may prompt women to curtail employment in the face of substantial family demands. Public sector also offers more generous parental leave (Han et al. 2008), which facilitates mothers' labor force continuation.

Third, family characteristics and arrangements matter (Gough and Noonan 2013). Women who postpone motherhood accumulate greater human capital and work experience, which may allow them to continue with work after childbirth (Miller 2011). The reverse could also be true: older mothers may have greater resources to forgo employment or to work less. As for parity of birth, having a greater number of children entails higher demands on the family

front and potentially more difficulties in combining work with family (Waldfogel 1997), which may increase the likelihood of women leaving the labor force or choosing to work part-time.

Marital status and the spouse's labor force participation can have complicated effects. For example, spouses may share childcare responsibilities, thus freeing women's time for paid employment. Conversely, having a spouse could encourage traditional gender specialization, imposing more domestic responsibility on women and prompting them to make employment adjustments (Keene and Reynolds 2005). The employment status of the husband is likely to matter. Women whose husbands earn a stable income have the option to specialize in childrearing or to opt for part-time employment (Budig and Hodges 2010; Glauber 2007). Single mothers, in contrast, may feel more financial pressure to work than do their married counterparts, or they may face overwhelming childrearing demands and are forced to forgo or reduce employment. Extended family arrangements, with respect to the availability of grandparents and other relatives, can provide help with childcare and other domestic responsibilities that allows women to continue working (Duleep and Sanders 1993).

Fourth, family economic resources tend to influence a mother's workforce decisions. Families in poverty may face considerable financial pressure, which keeps women in the labor force after childbirth (Lleras 2008). However, poverty could also mean that families cannot afford childcare (Kimmel 1998; Schulman 2000), thereby forcing poor mothers to quit their jobs or choose part-time jobs to assume the caregiving role. In contrast, mothers in affluent households may forgo employment; the alternative could also happen, with these women better able to afford high-quality childcare and continue with their careers (Dowsett et al. 2008; Stone 2007).

Racial and Ethnic Variations

Racial and ethnic realities in the United States create systematically different resources and constraints at home and at work for women of different races/ethnicity that either foster or dampen their motivation and ability to continue working after becoming mothers.

Structural constraints endured by black and Hispanic women often depress their human capital and place them in less desirable jobs (Kalleberg et al. 2000), resulting in their higher unemployment rates than white women. In 2013, the unemployment rates were 6.2 % for white women and 4.8 % for Asian women compared with 9.5 % and 12.1 %, respectively, for Hispanic and black women (U.S. Bureau of Labor Statistics 2014). Moreover, black and Hispanic women are more likely to face difficult economic circumstances, including poverty and the absence of a spouse with a steady, well-paying job (England et al. 2004; Hirschl et al. 2003). The precarious U.S. labor market and economic conditions faced by these women may, on the one hand, push them out of the labor force after transitioning into motherhood. On the other hand, these conditions can heighten the economic necessity of women's employment, motivating them to continue working and hold onto full-time employment.

Asian women are often considered an advantaged minority group (Greenman 2011). They generally attain higher human capital, have higher rates of employment, and possess greater family resources than other groups of minority women (Xie and Goyette 2004).[3] They share a large degree of similarities with white women in terms of labor market and family

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[3] Considerable heterogeneity exists among Asian ethnicities. SIPP does not allow for disaggregating among Asians. But to the extent that SIPP is national representative, the majority of Asians in the sample are from advantaged groups.

conditions, and could thus be less vulnerable to the constraints faced by black and Hispanic women.

Employment behavior is influenced by cultural beliefs about the practical and symbolic meaning of work. Prior research has suggested that prevailing values about women's employment tend to vary by race/ethnicity (Kane 2000). A large proportion of black women historically raised children alone and lacked spouses with solid incomes, leading to their strong pro-employment views and behaviors (Blair-Loy and DeHart 2003; England et al. 2004). Working after childbirth may be seen as a normative part of motherhood among black women. For Hispanic and Asian women, factors embodied in their immigration experiences tend to foster pro-work attitudes given that many of them immigrated to the United States, alone or with their spouse, for employment opportunities (Greenman 2011; Stier and Tienda 1992; Xie and Goyette 2004). The strong work orientation of these women could translate into greater labor market continuity after childbirth.

Cultural practices embedded in family arrangements may further reinforce minority women's steady employment and buffer them from family transitions. Blacks, Hispanics, and Asians are more likely than whites to live with or close to extended families (Sarkisian et al. 2007; Xie and Goyette 2004). These family resources can provide childcare and other domestic assistance that enables mothers to carry on with their work.

In contrast, stronger gender-role specialization is more often found among white families (Greenman and Xie 2008). Although white women do combine employment and childcare, white families express weaker support for men and women's shared economic responsibility than minority families (Taylor et al. 1999). Further evidence indicates that white female labor force participation is more influenced by their husbands' earnings than other groups (Greenman and

Xie 2008). In this respect, white women may be more likely to make postbirth career adjustments than non-white women.

Nativity Variation

Immigrants, especially low-skilled and minority immigrants, tend to face lower employment rates and precarious labor market conditions than native-born population in the United States (England et al. 2004; Read and Cohen 2007; Schoeni 1998; U.S. Bureau of Labor Statistics 2014). The immigrant-native employment gap arises from a multitude of factors, including the lack of educational credentials, language skills, U.S. job experience, and local social capital, as well as restrictive policies toward immigrants. Even if employed, immigrant women often occupy less family-friendly jobs than native-born women (Hondagneu-Sotelo 1997). Consequently, immigrant women have fewer resources to achieve a work-family balance and can be pushed out of the labor force after family transitions. This process may be compounded by more traditional gender attitudes among certain immigrant groups from countries characterized by greater gender inequality (Chuang and Tamis-LeMonda 2013). Adherence to these norms may also depress immigrant mothers' employment.

These processes are presumably more pronounced for immigrants who have lived in the United States for a short time (Read and Cohen 2007). Over time, immigrant women acquire more resources to navigate the labor market and attain better positions. Immigrants exhibit strong work commitment after they overcome barriers to employment (Bean and Stevens 2003). Longer length of residence is also associated with cultural assimilation, which can promote gender equality and women's labor force participation (Read and Cohen 2007). Both processes can enhance the ability and incentives for immigrant women to combine work and family.

Immigrant women's earnings are sometimes seen as an essential part of the family's economic security and integration into the host society, especially when immigrant men's employment is precarious (Duleep and Sanders 1993; Stier 1991). This strong employment orientation is often reinforced by extended family arrangements (Van Hook and Glick 2007). In this respect, one may expect more stable employment patterns among immigrant mothers, especially those with longer duration of stay, than native-born mothers.

Data and Sample

We use nationally representative longitudinal data of the noninstitutionalized population in the United States from the 1996, 2001, 2004, and 2008 panels of SIPP, which cover the period 1996–2013. Each SIPP panel contains three to five years.[4] In each panel, households were interviewed every four months (a wave), resulting in a total of 9 to 15 waves. In each wave, respondents were asked core questions, including labor market characteristics, for the interview month as well as the three preceding months. Hence, information on employment is available monthly.

SIPP is well suited for examining short-term maternal employment trajectories. First, SIPP has a large sample size overall as well as with respect to different racial/ethnic and nativity groups. Our sample is thus more diverse than that of previous studies. Second, SIPP panels cover a more recent period and multiple birth cohorts, whereas other longitudinal surveys are often confined to a single birth cohort. SIPP data thus show women's experiences across a wider time range and multiple cohorts. Third, SIPP provides detailed monthly (vs. annual) labor market

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[4] The 1996 panel has four years and began with a nationally representative sample of 36,730 households. The 2001, 2004, and 2008 panels have, respectively, three, four, and five years, with an initial sample of 35,100, 43,500, and 42,000 households.

information, which enables us to more fully discern the stability or volatility in mothers'

employment that could be missed when using annual data.

The sample is restricted to women aged 20 to 45 at the time of the first interview (90,208,

or 48 % of all surveyed women) who gave birth at least once during the panel (dropping 76,426

women). We did not include women with adopted or stepchildren (less than 4 %). We identify all

births to these women that occurred during the panel (89.5 % of mothers gave birth to one child

during the panel, 10 % of mothers gave birth to two children, and 0.5 % gave birth to three

children) and further restrict the sample to births for which there is employment information at

least once in the three months prior to childbirth and at least once in the 12 months after the birth

(dropping 6,005 births). This procedure provides at least two data points for missing data

imputation. Then we restrict the sample to mothers who were employed at least one month

during the three months prior to childbirth (dropping 4,404 births) and who were not in school

for more than three months in total during the study period (dropping 94 births). The age and

education restrictions were applied to eliminate women who had not entered or had passed their

primary childbearing years and whose main status was a student. Pooling four panels of SIPP

data, 6,467 births (born to 5,833 women) meet these inclusion criteria.

We study the employment trajectories of women who were employed (and not self-

employed) at least part of the three months before childbirth. Mothers who were not working

during this period are excluded because they tend to be unattached to the labor force and were

likely to remain unemployed post childbirth (U.S. Census Bureau 2011b). We exclude women

self-employed before childbirth because their employment patterns may differ considerably from

salaried workers. However, we kept women who became self-employed in the 12 months after

childbirth because transitioning from wage jobs to self-employment reflects an important labor force adjustment.

We restrict the sample to women employed at least part of the three months before birth because a large share of working women in the United States are employed during most of their pregnancy, including the last trimester (U.S. Census Bureau 2011b).[5] We impose the restrictions of three months (before childbirth) and 12 months (after childbirth) to achieve balance between having adequate employment information and having sufficient sample size. If we were to restrict the sample to an earlier time before childbirth or a later time after childbirth (i.e., 12 months before or 24 months after childbirth), the sample size would be reduced by, respectively, 40 % and 25 %, which would make the sample size of minority and immigrant women too small.

Variables

The key variable—employment status—is categorized into four states: (1) not employed, (2) employed and worked for 35 or more hours per week (hereafter, full-time), (3) employed and worked for less than 35 hours per week or only worked part of the month (hereafter, part-time), and (4) self-employed. This variable is constructed from employment status, usual hours worked per week, and business ownership variables. Self-employment is defined as owning a business in a given month and working more hours in the business than on a paid job (if she also held a paid job).[6] We focus on employment status rather than working status (i.e., whether the woman actually worked in a month) because interruptions in employment reflect a more salient

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[5] This pattern is also supported by the SIPP data: more than 85 % of mothers remained employed in the three months before childbirth.

[6] Self-employment in SIPP includes different scales of business, from large-scale business to freelance work.

reduction in accumulated labor market experience than working from a career perspective (Beblo and Wolf 2002).

We do not distinguish leave-taking (i.e., maternity leave) as a separate category for two reasons. First, SIPP identifies only unpaid maternity leave. At best, we would only capture a fraction of all leave. Second, including leave-taking as a separate status is unlikely to substantially change the results because few mothers take unpaid leave, and even fewer take paid leave (Council of Economic Advisers 2014). In SIPP, 14 % of all mothers took unpaid leave within the first year after childbirth. Previous research has shown that 39 % of U.S. women had access to paid family leave; among them, only 28 % reported taking paid leave (U.S. Department of Labor 2015). We conducted a sensitivity analysis, treating unpaid leave-taking as a separate employment status; the findings were consistent with those reported in this article.

We include a range of individual and family factors that could shape mothers' employment behaviors, all measured between one and three months before childbirth (the earliest month within the three for which the information is available) to establish a clear timeline of events.

Individual Endowments

We include education (high school or less, some college, and bachelor degree or more), years of job tenure (firm-specific seniority), years of overall labor market experience, and hourly wage (log transformed and adjusted for inflation to January 2013 dollars).

Job Characteristics

We include women's occupation in their primary jobs, grouped into one of four categories (based on the 1990 and 2000 census classifications): (1) managerial and professional; (2) service; (3) clerical and sales; and (4) production, farming, and construction (aggregated because of small

sample size and relative similarity comparing with other categories). We also construct a dichotomous variable of whether the woman worked in the public sector.

Family Characteristics and Arrangements

We include the woman's age at birth, parity (first birth vs. higher-order birth), and marital status, as well as spouse's work status (unmarried, having a working spouse, and having a nonworking spouse). In addition, we construct a measure of extended family arrangements, taking into account two scenarios: (1) whether any relative lived in the household in the three months before childbirth, which can factor into women's postbirth employment decisions; and (2) whether any nonresident relative was available for childcare. The latter scenario was ascertained using the childcare module, which asked whether the mother used relative care for their children under age 15 during the panel.

Family Economic Conditions

We include whether the household was in poverty, defined as below 100 % of the federal poverty level, and a measure indicating family income other than women's earnings (other family income). This variable was constructed by subtracting the mother's earned income from total family monthly income (log transformed, and adjusted for inflation to January 2013 dollars). We include homeownership as a measure of wealth.

As key demographic characteristics, we include race/ethnicity and nativity. We distinguish non-Hispanic white, non-Hispanic black, Hispanic, and Asian. A small percentage (4 %) of women in the "other" category were deleted from the analysis (mostly American Indians and other unidentified groups). For nativity status, we distinguish natives and foreign-born of varying duration of residence (0–5 years, 6–10 years, and more than 10 years).

We also control for dummy variables indicating the SIPP panel and two geographical variables to account for potentially varied employment opportunities and ethnic concentrations across region. The first is a dichotomous variable indicating whether the woman lived in a metropolitan area. The second distinguishes four census regions: Northeast, Midwest, South, and West. We conducted sensitivity analyses replacing the region fixed effects with state fixed effects and obtained consistent results. For sample size considerations, we use region dummy variables in the main analysis.

Methods

Missing Data Imputation

We impute missing data using a combination of sequence imputation (Halpin 2012) and multiple imputations (Little and Rubin 2014). A detailed discussion is in Online Resource 1 (Section 1).

After imputation, we obtain the entire trajectory for each birth with 14 months of observations: one month before childbirth, the month of childbirth, and 12 months after childbirth. We keep one month of observation (of the three months) before childbirth because of our focus on postbirth trajectories. A woman is considered employed full-time before childbirth if she indicated full-time employment in any of the three months. If she was employed part-time (never full-time) in the three months, she is coded as part-time before childbirth. The final sample includes 6,467 births (to 5,833 women) and 90,538 person-month observations. For 10 imputed data sets, the sample size is 64,670.[7]

Sequence Analysis

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[7] The number of births in each panel is 1,782 (1996); 1,099 (2001); 1,649 (2004); and 1,937 (2008).

We conduct sequence analysis (Abbott and Forrest 1986; Aisenbrey and Fasang 2010; Brzinsky-Fay and Kohler 2006) to examine the entire (short-term) employment trajectories surrounding childbirth. The sequence analysis proceeds in three steps. First, we array data with each birth as the unit of analysis and construct an employment trajectory (sequence) for each birth. Second, we calculate dissimilarities between sequences using the optimal matching algorithm (MacIndoe and Abbott 2004; Needleman and Wunsch 1970). The similarity between two sequences is systematically determined by calculating the total "costs" of turning one sequence into another (Brzinsky-Fay and Kohler 2010). We use transition rates (probability) between two states as the transformation (substitution) costs (Halpin 2014), yielding a dissimilarity matrix for every two pairs of sequences in the data. In the third step, we reduce the large number of sequences into a finite number of substantively distinct clusters, using the dissimilarity matrix obtained in the second step. We apply this matrix to cluster analysis based on Ward's hierarchical fusion algorithm (Hennig and Liao 2010; Kaufman and Rousseeuw 2005; Milligan and Cooper 1985). The purpose is to identify an optimal number of distinctive patterns from the data so that each sequence follows one of the patterns as closely as possible. Based on several cluster cutoff criteria that maximize within-cluster homogeneity and between-cluster heterogeneity, we reach a four-cluster solution and classify each woman's employment trajectory into one of four clusters. The four-cluster solution also provides analytically meaningful prototypes and a sufficient number of cases in each cluster. We conduct the sequence and cluster analysis using the TraMineR package in R (Gabadinho et al. 2011; Studer 2013). A more detailed description of sequence analysis is presented in Online Resource 1, Section 2.

Regressions and Selection Models

We use employment clusters identified in sequence analysis as the dependent variable to examine factors associated with different maternal employment patterns. We first estimate multinomial logistic regressions using imputed data sets. We use the full-time employment cluster as the reference category because it is the largest cluster and represents most stable employment. Standard errors were adjusted for clustering of multiple births of the same mother.[8]

Second, we run selection models to address potential bias due to sample selection. Our sample consists of mothers who were employed sometime in the three months before childbirth. Women tend to self-select into employment and continuation into pregnancy. If this selection process is correlated with outcomes (postbirth employment), estimates that do not take selection into account are likely biased.

We use a variant of the Heckman selection models to account for potential sample selection bias. The conventional Heckman selection model requires identifying a valid instrumental variable that affects selection but not the outcome (Heckman 1979). This requirement presents a challenge in our study because factors associated with prebirth employment (selection) and postbirth employment (outcome) are closely linked. Sartori (2003) developed an alternative that allows for using the same set of factors in both the selection equation and the outcome equation. Identification is based on the assumption of identical error terms in both equations. This assumption tends to hold when the selection and outcome processes are similar and have the same causes, and the two processes are close in time (Sartori 2003). These conditions are largely met in our study given that the factors governing

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[8] We do not weight the analysis because the selection models do not allow for weights. As a sensitivity analysis, we estimated weighted multinomial regressions. The substantive results remain with or without weights.

employment decisions shortly before and after childbirth tend to be similar. The selection model

derives a maximum likelihood estimator for the coefficient of the explanatory variables, by

defining three random variables:

$$Y_{i0} = \left\{ \begin{array}{l} 1 \text{ if } E = 0 \\ 0 \text{ otherwise} \end{array} \right\}$$

$$Y_{i1} = \left\{ \begin{array}{l} 1 \text{ if } E = 1 \text{ and } C_x = 0 \\ 0 \text{ otherwise} \end{array} \right\}$$

$$Y_{i2} = \left\{ \begin{array}{l} 1 \text{ if } E = 1 \text{ and } C_x = 1 \\ 0 \text{ otherwise} \end{array} \right\}.$$

Y_{i0} equals 1 if the woman was not employed before childbirth ($E = 0$; not selected into the

sample); Y_{i1} equals 1 if the woman was employed before childbirth ($E = 1$; in the sample) and did

not belong to a specific employment cluster x (C_x); and Y_{i2} equals 1 if the woman was employed

before childbirth (in the sample) and followed the employment cluster x. The likelihood function

is as follows:

$$L^* \equiv \ln L \propto \sum_{i=1}^{n} \sum_{j=0}^{2} Y_{ij} \ln P_{ij}, \text{ where } P_{ij} \equiv \text{prob}(Y_{ij} = 1).$$

The selection model does not adjust the standard errors for multiple imputed data sets. We thus

randomly select one imputed data set to run the selection models. Also, the model requires

binary dependent variables. To be consistent with the multinomial regressions, we estimate three

sample selection models with the full-time employment cluster as the reference group and one of

the other three employment clusters as the comparison group.

Describing Employment Patterns

Figure 1 displays the four employment trajectories identified from sequence analysis (sequence

index plots). These plots show individual sequences over time. Individuals are arrayed along the

y-axis, with each horizontal line representing one individual sequence. The *x*-axis is time: in our

case, from one month before childbirth (−1) to 12 months after childbirth (12) (0 indicates birth

month). We use colors to indicate different employment states. Several features are apparent.

First, a large share of women (56.6 %) who were employed before childbirth continued with full-time employment throughout the first year (cluster 1), although some had brief spells of part-time employment or non-employment. A second cluster of women (19.7 %) was employed primarily part-time before and after childbirth. A small proportion of these women had a period of self-employment. The women in the third cluster withdrew over time from the labor force (15.1 %), most remaining non-employed 12 months after birth. A fourth cluster of women (8.6 %) gradually transitioned from full- to part-time employment. Some of these women underwent multiple transitions, either dropping out or returning to full-time employment by the end of the first year. This cluster shows the most instability. For ease of interpretations, we name the four clusters, respectively, as full-time employment, part-time employment, labor force withdrawal, and transition into part-time.

[Figure 1 about here]

The accuracy of the sequence index plots decreases with sample size because multiple objects are plotted atop each other (oveplotting) (Fasang and Liao 2014). One way to overcome this issue is to use the state distribution plots (Billari and Piccarreta 2005). These graphs (in Fig. 2) show the distribution of each employment state at each time point. They demonstrate a similar pattern as the sequence index plots. The first cluster, *full-time*, is characterized by substantial periods of full-time employment. The second cluster, *part-time*, represents women employed mostly part-time with occasional full-time employment, non-employment, or self-employment. In the third cluster, *withdrawal*, the percentage of women not employed increases over time, especially in the first several months after childbirth. Employment seems to pick up starting from month 9. However, by 12 months, very few of these women had reentered the labor force: 6.5 %

became employed part-time, and 5.3 % became employed full-time, suggesting that neither

withdrawal nor reentry is as common as expected. The fourth cluster, *transition into part-time*, is

characterized by decreasing full-time and increasing part-time employment. Among these

women, approximately 29 % returned to full-time employment by 12 month.[9]

[Figure 2 about here]

Factors Associated With Mothers' Employment Patterns

Table 1 shows descriptive statistics of the covariates. Table 2 presents multinomial regression

results. To conserve space, we discuss them in, respectively, Online Resource 1, Sections 4 and

5. We focus on results from sample selection models, which provide more accurate estimates. In

general, the substantive results are similar to those in multinomial regressions. We discuss a few

main differences later. Section 6 of Online Resource 1 presents and discusses results from the

first-stage selection equation, which underscores a number of factors contributing to selection

into prebirth employment.

[Table 1 and Table 2 about here]

Results from the outcome equation of sample selection models are displayed in Table 3.[10]

Minority women, especially Hispanic and Asian women, exhibited stronger labor force

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[9] Section 3 of Online Resource 1 presents the state distribution plots by including unpaid leave as

a separate employment state.

[10] The sample size in the selection models includes mothers who did not work before birth ($N =$

4,522), mothers in the base category (full-time employment; $N = 3,659$), and mothers in one of

the three comparison categories. Take the first column (Model 1), for example: the total sample

size is $4,522 + 3,659 + 1,277$ (mothers who worked mostly part-time) $= 9,458$.

attachment and continuity after childbirth than white women: they were more likely to remain employed full-time while less likely to withdraw, scale back work, or rely primarily on part-time employment than white women. This is also true for black women, particularly in terms of their lower likelihood of choosing part-time employment and transitioning into part-time employment. In terms of labor force withdrawal, racial/ethnic differences largely remain but are slightly less salient than in multinomial regressions that do not adjust for sample selection. This difference could be partly explained by the selection of black and Hispanic women into the sample: these women were more likely than white women to be employed prior to childbirth, after socioeconomic status and family characteristics are accounted for (Online Resource 1, Section 6).

[Table 3 about here]

The immigrant-native difference is most evident in the withdrawal cluster: more recent arrivals (10 years or less) were more likely to drop out following childbirth than native-born women. Immigrant women in the United States for less than five years also had a higher rate of moving to part-time employment than native-born women. This pattern is reversed for immigrant women with a longer duration of residence (i.e., more than 10 years), who exhibited greater labor market attachment: they were less likely to withdraw and to turn to part-time employment.[11]

Human capital and experience—as measured by education, job tenure, and employment experience—are generally protective of labor force continuation and full-time employment.

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[11] We test for interactions between race/ethnicity and nativity. The interaction terms are nonsignificant across different clusters. This provides some evidence that the variability by race/ethnicity holds for both natives and immigrants, and the native-immigrant difference applies to both minorities and whites.

After controlling for these factors, women's wages are not associated with withdrawal but are positively associated with part-time employment. Job characteristics play an important role in shaping women's postbirth employment decisions. Public sector jobs appear to be conducive to mothers' labor force continuity. The same is true for professional and managerial jobs. In contrast, women employed in service, sales, clerical, and production jobs all had a greater tendency to forgo or reduce employment, perhaps because of the inflexible schedules and limited autonomy these jobs entail (Gerstel and Clawson 2014).

With respect to family characteristics and arrangements, older mother are more likely to resort to part-time employment. Spouse working status is not significantly associated with women's postbirth employment decisions. However, the availability of relatives who can help with childcare significantly reduces the likelihood of dropping out of employment, although it also makes scaling back work more likely. These results suggest that relative care does not fully replace other sources of full-time childcare.[12]

The results regarding parity warrant attention. Women with higher-order births were less likely to retreat from the labor force or scale back work than first-time mothers (conditional on employment before birth) but were more likely to turn to part-time employment. An additional analysis using a linear parity variable was nonsignificant, suggesting that first-time motherhood

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[12] We test whether the independent variables differentiate between the withdrawal and transition into the part-time group. Results show that the difference in independent variables is statistically significant at the .05 level for education, job tenure, wage, extended family arrangement, and family income. These findings suggest that withdrawal and transition into part-time are distinct pathways for mothers and that the decisions are differentially influenced by a host of individual- and family-level factors.

tends to be the main watershed: major adjustments were likely made at first birth when work-family conflict first arises, and the marginal costs of additional births may be smaller. Thus, we do not find support for the common belief that women with more children are more susceptible of labor market discontinuity (Eggebeen 1988), which essentially reflects cumulative attrition over successive births. Instead, we examine the marginal probability of withdrawal and find the reverse.

Moreover, the relationship between family economic conditions and maternal employment is nonlinear, pointing to the responsiveness of women's labor supply to family economic resources.[13] Women living in poverty were consistently more likely to curtail employment and scale back work. However, greater family income is also associated with a higher likelihood of labor force withdrawal and part-time employment.[14] The calculation behind the decisions in the two scenarios is likely to be very different. In the first case, the lower labor

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[13] We conduct a sensitivity analysis that includes income as a categorical variable and omits the poverty variable (because it is collinear with the low-income category). The nonlinear relationship between income and employment trajectories is confirmed, with both low- and high-income categories associated with a greater likelihood of labor market discontinuation. For the main analysis, we include the linear income variable together with poverty status because the latter is an especially important indicator of mothers' employment and carries significant policy implications.

[14] The interaction between race/ethnicity and family income is significant. White and Asian mothers are especially responsive to family income. Comparatively, family income is not significantly associated with black mothers' employment decisions. For Hispanic women, family income is not associated with the withdrawal decision but facilitates part-time employment.

market attachment of poor mothers may be due to a combination of their inability to negotiate family-friendly work arrangements and to afford paid childcare. In the second scenario, affluent mothers may be capable of curtailing employment to take care of their children without sacrificing the standard of living. Homeownership is related to a lower likelihood of withdrawing and a lower likelihood of part-time employment. This could be explained by the wide economic spectrum captured by this measure. For many middle-income households, employment helps pay for the home (Blaauboer 2010).

The regional differences in employment patterns are rather modest, with women in the South less likely to make employment adjustments after childbirth than their peers in the Northeast. Perhaps this is partly explained by the overrepresentation of farming jobs in the South (U.S. Census Bureau 2012), which are more flexible in terms of work hours and location of work (e.g., close to home) than many nonagricultural jobs. Variations over time are not clear, although some indications suggest that in the post-2000 period characterized by a series of recessions (compared with the mid- and late 1990s), women were more likely to make employment adjustments by dropping out (the 2001 and 2008 panel) and turning to part-time employment (2004 and 2008 panel). These results provide some preliminary evidence of how economic downturns may shape mothers' employment behaviors.

Conclusion and Discussion

This study contributes to our expanding knowledge of women's labor market experiences by analyzing their employment trajectories in the first year after childbirth. We complement the previous focus on women's labor market *outcomes* (e.g., wage) by examining the underlying *processes* that reflect women's dynamic and diverse employment decisions. Using longitudinal data and sequence analysis, we find both stability and change in U.S. women's employment

paths over a short but important period. Whereas women who were employed during pregnancy exhibited a high degree of labor market continuity after childbirth, a noteworthy share of them went through important shifts, either withdrawing from the labor force or scaling back work from full- to part-time employment. Among women who dropped out or scaled back work, relatively few reentered the labor force or returned to full-time employment by the end of the first year. These results contest our understanding drawn from previous research, which often presumes a general pattern of initial withdrawal and gradual return. We show that neither withdrawal nor reentry is as common as expected: the majority of women who were employed by the first year had never left the labor force.[15] Also, we find no evidence that self-employment was commonly adopted as a balancing strategy in the short term after birth, likely because self-employment, especially in the initial stage, requires considerable time and effort that may not integrate well with family demands.

Our results also demonstrate that individual and family characteristics, structural factors embodied in job characteristics, and economic hardship are crucial to mothers' labor force decisions. Women with higher education, greater experience, public sector jobs, and access to extended families show a high degree of labor market continuity after childbirth. In contrast, women in certain occupations (service, sales, clerical, and production), who live in poverty, or who enjoy abundant family economic resources tend to be pulled or pushed out of the labor force

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[15] This difference could also occur because our sample consists of more recent cohorts of women, whereas previous research focused on an older cohort of women with different employment behaviors. In addition, the difference could be explained by methods, with previous research including women unattached to the labor force before childbirth or focusing on a longer time frame.

and full-time employment. The nonlinear relationship between family economic conditions and postbirth employment patterns is noteworthy. In addition, contrary to conventional wisdom, women with higher-order births are less likely than first-time mothers to make employment adjustments (marginal probability). This underscores that the transition into motherhood (first birth) is crucial in shaping subsequent labor market behaviors.

The employment trajectories of mothers differ by race/ethnicity. Racial/ethnic minority women demonstrate greater labor market continuation and attachment than white women. This pattern holds for various minority groups (black, Hispanic, and Asian women). By contrast, white mothers are most likely than all other groups to drop out or turn to part-time employment. These differences reshape our understanding of racial/ethnic variation in women's labor supply in the United States. Despite minority women's generally higher overall unemployment rates, those already in the labor force manifest stronger attachment to employment after childbirth than white women.

The racial/ethnic differences in employment patterns are not explained away by a wide range of individual and family-level factors. With the data available, we lack sufficient information to determine all sources of the observed variation. The key lies in understanding the extent to which minority women prefer to, or are propelled to, continue employment as part of their cultural traditions or family pressures. Similarly for white women, does their greater propensity to withdrawal reflect preferences or constrained choices? For one, previous research points to a stronger economic role of women in minority families (Greenman 2011). This view is not simply rooted in minority women's cultural experience but also stems from their strenuous labor market conditions (e.g., job insecurities) and unstable family circumstances (e.g., unemployment of men, relationship fluidity) (Amott and Matthaei 1996; Blair-Loy and DeHart

2003; England et al. 2004). These conditions create a sense of insecurity, especially for black and Hispanic mothers, prompting them to stick to their jobs. It is quite striking that different racial/ethnic minority groups consistently demonstrate greater labor market attachment. In a way, this finding reveals something unique about their comparison: white women. The employment behaviors of white women seem consistent with the gender role specialization theory that increasingly emphasizes parental time and attention as the key to being a "good mother" (Blair-Loy 2003; Hays 1998). This situation is further complicated by the rising labor market pressures that create conflicting norms of ideal worker and ideal parent (Stone 2007). This split can impede the combination of worker and mother roles among white women. These explanations warrant further investigation.

Postbirth employment trajectories are also shaped by nativity and duration of residence. Immigrant mothers tend to follow different employment paths from native-born mothers. More recent immigrant women were especially likely to withdraw and scale back work compared with their native-born peers, presumably reflecting the tenuous labor market conditions that they face during the early period of settlement. For immigrant women who had been in the United States longer, the pattern was reversed, which reveals their pro-employment inclinations. This finding suggests that nativity characterizes important distinctions in social and structural conditions in the U.S. labor market.

Our findings further our understanding of income inequality. First, growing evidence suggests that white women bear a larger motherhood penalty than nonwhites (Budig and England 2001; Glauber 2007; Waldfogel 1997). Our results point to differential employment patterns after childbirth as a crucial explanation: white women are more likely than minority women to curtail employment. Second, a greater gender earnings gap is found among whites than among

minority groups (Greenmen and Xie 2008). Our results suggest that this difference in earnings gap may be related to the greater employment continuity of minority women than white women after family transitions.

Our study is limited to short-term employment trajectories. What are the long-term employment trajectories of mothers? What factors shape their longer-term employment patterns? We believe that the conceptual and analytic framework adopted in this study can be applied to investigating women's longer-term labor force patterns. A trajectory perspective may be even more beneficial over a longer timespan where work and family circumstances are subject to greater change.

This study has implications for ongoing policy debates regarding work and family. Our findings of distinct employment trajectories by sociodemographic backgrounds and labor market positions call for targeted attention. First, considering the strong labor market attachment of minority mothers, policies facilitating employment earlier in their lives may help improve these women's long-term labor market outcomes. Second, the greater propensity of recently arrived immigrant women to drop out of the labor force highlights the need to understand the obstacles they face. Third, expanding family-friendly work arrangements and benefits to a wider range of jobs is crucial so that women in relatively vulnerable positions (e.g., low-income women, recent immigrant women, or women in certain occupations and sectors) are better able to combine work and family responsibilities. Fourth, the first birth appears to be a critical time affecting subsequent employment behaviors; providing support to new mothers at this transitional stage would be especially helpful. Last, mothers most economically in need (i.e., in poverty) tend to leave the labor force in greater numbers than other groups. Although our study cannot discern the reason for their labor market withdrawal, childcare cost is likely a primary obstacle (Glynn

2012). For these women, a combination of policies promoting affordable, quality childcare and financial support (e.g., wide coverage of income-support programs to include working-poor families) could sustain their employment and improve their long-term economic well-being.

References

Abbott, A., & Forrest, J. (1986). Optimal matching methods for historical sequences. *Journal of Interdisciplinary History, 16,* 471–494.

Aisenbrey, S., Evertsson, M., & Grunow, D. (2009). Is there a career penalty for mothers' time out? A comparison of Germany, Sweden and the United States. *Social Forces, 88,* 573–605.

Aisenbrey, S., & Fasang, A. E. (2010). New life for old ideas: The "second wave" of sequence analysis bringing the "course" back into the life course. *Sociological Methods & Research, 38,* 420–462.

Amott, T. L., & Matthaei, J. A. (1996). *Race, gender, and work: A multi-cultural economic history of women in the United States*. Boston, MA: South End Press.

Bean, F. D., & Stevens, G. (2003). *America's newcomers and the dynamics of diversity*. New York, NY: Russell Sage Foundation.

Beblo, M., & Wolf, E. (2002). How much does a year off cost? Estimating the wage effects of employment breaks and part-time periods. *Brussels Economic Review, 45,* 191–217.

Billari, F. C., & Piccarreta, R. (2005). Analyzing demographic life courses through sequence analysis. *Mathematical Population Studies, 12,* 81–106.

Blaauboer, M. (2010). Family background, individual resources and the homeownership of couples and singles. *Housing Studies, 25,* 441–461.

Blair-Loy, M. (2003). *Competing devotions.* Cambridge, MA: Harvard.

Blair-Loy, M., & DeHart, G. (2003). Family and career trajectories among African American female attorneys. *Journal of Family Issues, 24,* 908–933.

Boushey, H. (2006). *Are mothers really leaving the workplace?* (Briefing paper). Austin, TX: Council on Contemporary Families.

Boushey, H., & Wright, J. (2004). *Working moms and child care* (Data Brief No. 3). Washington, DC: Center for Economic and Policy Research.

Browne, I. (Ed.). (2000). *Latinas and African American women at work: Race, gender, and economic inequality*. New York, NY: Russell Sage Foundation.

Brzinsky-Fay, C., & Kohler, U. (2006). Sequence analysis with Stata. *Stata Journal, 6,* 435–460.

Budig, M. J. (2003). Are women's employment and fertility histories interdependent? An examination of causal order using event history analysis. *Social Science Research, 32,* 376–401.

Budig, M. J. (2014). *The fatherhood bonus & the motherhood penalty: Parenthood and the gender gap in pay* (Report). Washington, DC: Third Way.

Budig, M. J., & England, P. (2001). The wage penalty for motherhood. *American Sociological Review, 62,* 204–225.

Budig, M. J., & Hodges, M. J. (2010). Differences in disadvantage variation in the motherhood penalty across white women's earnings distribution. *American Sociological Review, 75,* 705–728.

Chuang, S. S., & Tamis-LeMonda, C. S. (2013). *Gender roles in immigrant families*. New York, NY: Springer.

Council of Economic Advisers. (2014). *The economics of paid and unpaid leave*. Washington, DC: The Council of Economic Advisers. Retrieved from https://www.whitehouse.gov/sites/default/files/docs/leave_report_final.pdf

Desai, S., & Waite, L. J. (1991). Women's employment during pregnancy and after the first birth: Occupational characteristics and work commitment. *American Sociological Review, 56,* 551–566.

Dowsett, C. J., Huston, A. C., Imes, A. E., & Gennetian, L. (2008). Structural and process features in three types of child care for children from high and low income families. *Early Childhood Research Quarterly, 23,* 69–93.

Duleep, H. O., & Sanders, S. (1993). The decision to work by married immigrant women. *Industrial & Labor Relations Review, 46,* 677–690.

Eggebeen, D. J. (1988). Determinants of maternal employment for white preschool children: 1960–1980. *Journal of Marriage and Family, 50,* 149–159.

England, P., Garcia-Beaulieu, C., & Ross, M. (2004). Women's employment among blacks, whites, and three groups of Latinas: Do more privileged women have higher employment? *Gender & Society, 18,* 494–509.

Fagan, C., & Norman, H. (2012). Trends and social divisions in maternal employment patterns

    following maternity leave in the UK. *International Journal of Sociology and Social*

    Policy, 32, 544–560.

Fasang, A. E., & Liao, T. F. (2014). Visualizing sequences in the social sciences relative

    frequency sequence plots. *Sociological Methods & Research, 43,* 643–676.

Gabadinho, A., Ritschard, G., Mueller, N. S., & Studer, M. (2011). Analyzing and visualizing

    state sequences in R with TraMineR. *Journal of Statistical Software, 40*(4), 1–37.

Gangl, M., & Ziefle, A. (2009). Motherhood, labor force behavior, and women's careers: An

    empirical assessment of the wage penalty for motherhood in Britain, Germany, and the

    United States. *Demography, 46,* 341–369.

Gerstel, N., & Clawson, D. (2014). Class advantage and the gender divide: Flexibility on the job

    and at home. *American Journal of Sociology, 120,* 395–431.

Glauber, R. (2007). Marriage and the motherhood wage penalty among African Americans,

    Hispanics, and whites. *Journal of Marriage and Family, 69,* 951–961.

Glynn, S. J. (2012). *Child care: Families need more help to care for their children* (Fact sheet).

    Washington, DC: Center for American Progress. Retrieved from

    https://cdn.americanprogress.org/wp-content/uploads/2012/10/ChildCareFactsheet.pdf

Gough, M., & Noonan, M. (2013). A review of the motherhood wage penalty in the United

    States. *Sociology Compass, 7,* 328–342.

Greenman, E. (2011). Asian American–white differences in the effect of motherhood on career

    outcomes. *Work and Occupations, 38,* 37–67.

Greenman, E., & Xie, Y. (2008). Double jeopardy? The interaction of gender and race on

    earnings in the United States. *Social Forces, 86,* 1217–1244.

Halpin, B. (2012). *Multiple imputation for life-course sequence data* (Working Paper Series No. WP2012-01). Limerick, Ireland: University of Limerick, Department of Sociology.

Halpin, B. (2014). *SADI: Sequence analysis tools for Stata* (Working Paper WP2014-03). Limerick, Ireland: University of Limerick, Department of Sociology.

Han, W. J., Ruhm, C. J., Waldfogel, J., & Washbrook, E. (2008). The timing of mothers' employment after childbirth. *Monthly Labor Review, 131*(6), 15–27.

Hays, S. (1998). *The cultural contradictions of motherhood*. New Haven, CT: Yale University Press.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica, 47,* 153–161.

Hennig, C., & Liao, T. F. (2010). *Comparing latent class and dissimilarity based clustering for mixed type variables with application to social stratification* (Research Report No. 308). London, UK: Department of Statistical Science, University College London.

Hirschl, T. A., Altobelli, J., & Rank, M. R. (2003). Does marriage increase the odds of affluence? Exploring the life course probabilities. *Journal of Marriage and Family, 65,* 927–938.

Hondagneu-Sotelo, P. (1997). Working "without papers" in the United States: Toward the integration of legal status in frameworks of race, class, and gender. *Women and Work: Exploring Race, Ethnicity and Class, 6,* 101–126.

Hynes, K., & Clarkberg, M. (2005). Women's employment patterns during early parenthood: A group-based trajectory analysis. *Journal of Marriage and Family, 67,* 222–239.

Joesch, J. M. (1997). Paid leave and the timing of women's employment before and after birth. *Journal of Marriage and Family, 59,* 1008–1021.

Juhn, C., & Potter, S. (2006). Changes in labor force participation in the United States. *Journal of Economic Perspectives, 20*(3), 27–46.

Kalleberg, A. L., Reskin, B. F., & Hudson, K. (2000). Bad jobs in America: Standard and nonstandard employment relations and job quality in the United States. *American Sociological Review, 65,* 256–278.

Kane, E. W. (2000). Racial and ethnic variations in gender-related attitudes. *Annual Review of Sociology, 26,* 419–439.

Kaufman, L., & Rousseeuw, P. J. (2005). *Finding groups in data: An introduction to cluster analysis*. Hoboken, NJ: John Wiley & Sons.

Keene, J. R., & Reynolds, J. R. (2005). The job costs of family demands gender differences in negative family-to-work spillover. *Journal of Family Issues, 26,* 275–299.

Killewald, A. (2013). A reconsideration of the fatherhood premium: Marriage, coresidence, biology, and fathers' wages. *American Sociological Review, 78,* 96–116.

Kimmel, J. (1998). Child care costs as a barrier to employment for single and married mothers. *Review of Economics and Statistics, 80,* 287–299.

Klerman, J. A., & Leibowitz, A. (1999). Job continuity among new mothers. *Demography, 36,* 145–155.

Little, R. J., & Rubin, D. B. (2014). *Statistical analysis with missing data*. Hoboken, NJ: John Wiley & Sons.

Lleras, C. (2008). Employment, work conditions, and the home environment in single-mother families. *Journal of Family Issues, 29,* 1268–1297.
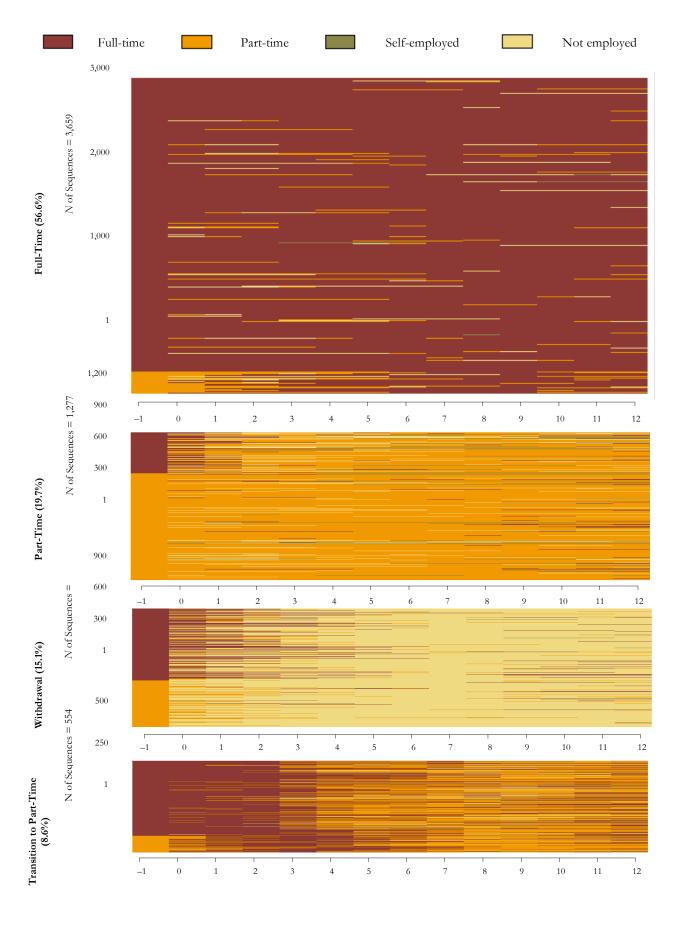
MacIndoe, H., & Abbott, A. (2004). Sequence analysis and optimal matching techniques for

social science data. In M. Hardy & A. Bryman (Eds.), *Handbook of data analysis* (pp.

387-406). London, UK: Sage Publications.

Miller, A. R. (2011). The effects of motherhood timing on career path. *Journal of Population

Economics, 24,* 1071–1100.

Milligan, G. W., & Cooper, M. C. (1985). An examination of procedures for determining the

number of clusters in a data set. *Psychometrika, 50,* 159–179.

Needleman, S. B., & Wunsch, C. D. (1970). A general method applicable to the search for

similarities in the amino acid sequence of two proteins. *Journal of Molecular Biology, 48,*

443–453.

Presser, H. B., & Cox, A. G. (1997). Work schedules of low-educated American women and

welfare reform. *Monthly Labor Review, 120*(4), 25–34.

Read, J. N. G., & Cohen, P. N. (2007). One size fits all? Explaining U.S.-born and immigrant

women's employment across 12 ethnic groups. *Social Forces, 85,* 1713–1734.

Sarkisian, N., Gerena, M., & Gerstel, N. (2007). Extended family integration among Euro and

Mexican Americans: Ethnicity, gender, and class. *Journal of Marriage and Family, 69,*

40–54.

Sartori, A. E. (2003). An estimator for some binary-outcome selection models without exclusion

restrictions. *Political Analysis, 11,* 111–138.

Schoeni, R. F. (1998). Labor market outcomes of immigrant women in the United States: 1970 to

1990. *International Migration Review, 32,* 57–77.

Schulman, K. (2000). *The high cost of child care puts quality care out of reach for many families*

(Issue brief). Washington, DC: Children's Defense Fund.

Shapiro, D., & Mott, F. L. (1994). Long-term employment and earnings of women in relation to employment behavior surrounding the first birth. *Journal of Human Resources, 29,* 248–275.

Stier, H. (1991). Immigrant women go to work: The labor supply of immigrant wives for six Asian groups. *Social Science Quarterly, 72,* 67–82

Stier, H. (1996). Continuity and change in women's occupations following first childbirth. *Social Science Quarterly, 77,* 60–75.

Stier, H., & Tienda, M. (1992). Family, work and women: The labor supply of Hispanic immigrant wives. *International Migration Review, 26,* 1291–1313.

Stone, P. (2007). *Opting out? Why women really quit careers and head home*. Berkeley: University of California Press.

Studer, M. (2013). *WeightedCluster library manual: A practical guide to creating typologies of trajectories in the social sciences with R* (LIVES Working Papers, No. 24). doi:http://dx.doi.org/10.12682/lives.2296-1658.2013.24

Taylor, P. L., Tucker, M. B., & Mitchell-Kernan, C. (1999). Ethnic variations in perceptions of men's provider role. *Psychology of Women Quarterly, 23,* 741–761.

Van Hook, J., & Glick, J. E. (2007). Immigration and living arrangements: Moving beyond economic need versus acculturation. *Demography, 44,* 225–249.

U.S. Bureau of Labor Statistics. (2014). *Women in the labor force: A databook* (BLS Reports, No. 1052). Washington, DC: Bureau of Labor Statistics. Retrieved from http://www.bls.gov/opub/reports/cps/women-in-the-labor-force-a-databook-2014.pdf

U.S. Census Bureau. (2010). *American fact finder – 2010 American Community Survey* [Data set]. Retrieved from

http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10

_1YR_S0501&prodType=table

U.S. Census Bureau. (2011a). *Overview of race and Hispanic origin: 2010* (2010 Census Briefs,

No. C2010BR-02). Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-

02.pdf

U.S. Census Bureau. (2011b). *Maternity leave and employment patterns of first-time mothers:*

1961–2008 (Current Population Reports, No P70-128). Retrieved from

https://www.census.gov/prod/2011pubs/p70-128.pdf

U.S. Census Bureau. (2012). *Statistical abstract of the United States: 2012* (Section 17:

Agriculture). Retrieved from https://www.census.gov/prod/2011pubs/12statab/agricult.pdf

U.S. Department of Labor. (2015). *DOL factsheet: Paid family and medical leave*. Retrieved

from http://www.dol.gov/wb/PaidLeave/pdf/PaidLeave.pdf

Van Hook, J., & Glick, J. E. (2007). Immigration and living arrangements: Moving beyond

economic need versus acculturation. *Demography, 44,* 225–249.

Waldfogel, J. (1997). The effect of children on women's wages. *American Sociological Review,*

62, 209–217.

Wenk, D., & Garrett, P. (1992). Having a baby: Some predictions of maternal employment

around childbirth. *Gender & Society, 6,* 49–65.

Xie, Y., & Goyette, K. A. (2004). *A demographic portrait of Asian Americans*. New York, NY:

Russell Sage Foundation.

Fig. 1 Sequence index plot of employment trajectory clusters, SIPP 1996–2013

Fig. 2 State distribution plot by employment trajectory clusters, SIPP 1996−2013
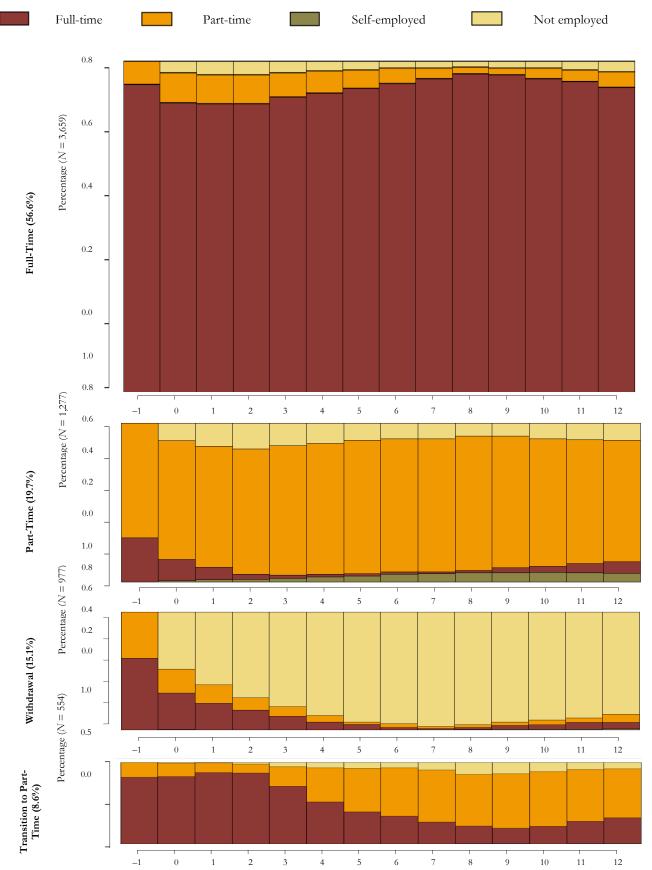
Full-time   Part-time   Self-employed   Not employed

Table 1 Descriptive statistics, SIPP 1996–2013

	Mean (SD)
Race	
White (non-Hispanic)	0.73
Black (non-Hispanic)	0.11
Hispanic	0.12
Asian	0.04
Immigration Status	
Native-born	0.88
Immigrant 0–5 years	0.04
Immigrant 6–10 years	0.04
Immigrant 10+ years	0.04
Human Capital and Experience	
Education	
High school or less	0.25
Some college	0.34
Bachelor or above	0.41
Job tenure	3.43
	(3.72)
Employment experience	8.58
	(5.30)
Hourly wage (2013 dollars)	18.86
	(16.02)
Job Characteristics	
Occupation	
Management and professional	0.37
Service	0.18
Clerical and sales	0.32
Production, farming, and construction	0.13
Public sector	0.17
Family Characteristics and Arrangements	
Mother's age at birth	29.77
	(5.09)
Parity of birth	
First birth	0.43
Higher-order birth	0.57
Spouse working status	
Not working	0.04
Working	0.73
Not married	0.23
Extended family arrangements	0.46
Family Economic Conditions	
In poverty	0.07
Other family income (not including mother's earnings) (2013 dollars)	4,493.05
	(4,819.60)
Owned home	0.63
Panel	
1996 panel	0.28
2001 panel	0.17
2004 panel	0.25
2008 panel	0.30
Metropolitan Area	0.80
Region	
Northeast	0.19
Midwest	0.27
South	0.34
West	0.21
N	6,467

Table 2 Multinomial logit regression (reference cluster: full-time), SIPP 1996–2013

	Part-Time		Withdrawal		Transition Into Part-Time	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Race (ref. = non-Hispanic white)						
Black (non-Hispanic)	−0.595	(0.138)***	−0.349	(0.146)*	−0.375	(0.173)*
Hispanic	−0.653	(0.142)***	−0.357	(0.138)*	−0.585	(0.196)**
Asian	−0.962	(0.247)***	−0.873	(0.253)**	−0.619	(0.284)*
Immigration Status (ref. =native-born)						
0–5 years	−0.304	(0.236)	0.454	(0.201)*	0.219	(0.264)
6–10 years	−0.003	(0.237)	0.509	(0.226)*	0.059	(0.332)
10+ years	−0.423	(0.216)†	−0.162	(0.207)	−0.290	(0.296)
Human Capital and Experience						
Education (ref. = high school or less)						
Some college	−0.030	(0.104)	−0.339	(0.113)**	0.023	(0.149)
Bachelor or above	−0.214	(0.131)	−0.643	(0.144)***	−0.111	(0.188)
Job tenure	−0.051	(0.012)***	−0.073	(0.016)***	−0.012	(0.015)
Employment experience	−0.044	(0.013)***	−0.037	(0.015)*	−0.013	(0.020)
Log hourly wage	−0.370	(0.059)***	−0.415	(0.062)***	−0.189	(0.079)*
Job Characteristics						
Occupation (ref. = management and professional)						
Service	0.635	(0.119)***	0.346	(0.132)**	0.419	(0.150)**
Clerical and sales	0.122	(0.105)	0.234	(0.120)†	−0.058	(0.134)
Production, farming, and construction	−0.165	(0.144)	0.162	(0.148)	−0.307	(0.197)
Public sector (ref. = private)	−0.746	(0.117)***	−0.657	(0.133)***	−0.556	(0.149)***
Family Characteristics and Arrangements						
Mother's age at birth	0.045	(0.014)**	0.047	(0.016)**	0.008	(0.021)
Parity of birth (ref. = first birth)						
Higher-order birth	0.493	(0.078)***	−0.303	(0.087)***	−0.091	(0.105)
Spouse working status (ref. = not working)						
Working	0.183	(0.191)	−0.076	(0.208)	0.210	(0.272)
Not married	−0.256	(0.199)	−0.380	(0.215)†	−0.050	(0.273)
Extended family arrangements	−0.018	(0.087)	−0.602	(0.097)***	0.159	(0.104)
Family Economic Conditions						
In poverty (ref. = not in poverty)	1.353	(0.178)***	1.293	(0.198)***	0.973	(0.245)***
Log other family income	0.100	(0.023)***	0.128	(0.026)***	0.047	(0.029)
Owned home	0.042	(0.090)	−0.193	(0.098)†	0.037	(0.120)
Panel (ref. = 1996 panel)						
2001 panel	0.050	(0.111)	0.323	(0.119)**	0.232	(0.161)
2004 panel	−0.253	(0.103)*	−0.031	(0.117)	0.206	(0.144)
2008 panel	−0.169	(0.101)†	0.009	(0.114)	0.192	(0.141)
Metropolitan Area	0.132	(0.093)	0.058	(0.103)	0.028	(0.124)
Region (ref. = northeast)						
Midwest	−0.256	(0.108)*	−0.517	(0.129)***	−0.236	(0.145)
South	−0.652	(0.109)***	−0.375	(0.119)**	−0.430	(0.144)**
West	−0.051	(0.120)	0.098	(0.127)	−0.050	(0.161)
Constant	−1.560	(0.436)***	−0.983	(0.484)*	−1.805	(0.600)**
N	64,670					

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

Table 3 Sample selection regressions (outcome equation), SIPP 1996–2013

	Model 1: Mostly Part-Time (ref. = full-time)		Model 2: Withdrawal (ref. = full-time)		Model 3: Transition Into Part-Time (ref. = full-time)	
	Coefficient	SE	Coefficient	SE	Coefficient	SE
Race (ref. = non-Hispanic white)						
Black (non-Hispanic)	−0.255	(0.072)***	−0.096	(0.073)	−0.198	(0.091)*
Hispanic	−0.298	(0.071)***	−0.133	(0.070)†	−0.300	(0.096)**
Asian	−0.606	(0.121)***	−0.761	(0.122)***	−0.260	(0.125)*
Immigration Status (ref. = native-born)						
0–5 years	−0.238	(0.117)*	0.390	(0.094)***	0.295	(0.122)*
6–10 years	−0.066	(0.118)	0.333	(0.108)**	0.055	(0.138)
10+ years	−0.273	(0.102)**	−0.267	(0.113)*	−0.225	(0.145)
Human Capital and Experience						
Education (ref. = high school or less)						
Some college	0.026	(0.056)	−0.278	(0.059)***	0.110	(0.073)
Bachelor or above	−0.144	(0.066)	−0.365	(0.076)***	−0.009	(0.092)
Job tenure	−0.020	(0.006)**	−0.035	(0.007)***	0.003	(0.009)
Employment experience	−0.030	(0.007)***	−0.023	(0.007)**	0.003	(0.009)
Log hourly wage	0.120	(0.022)***	−0.003	(0.028)	0.386	(0.030)***
Job Characteristics						
Occupation (ref. = management and professional)						
Service	0.533	(0.058)***	0.169	(0.070)*	0.433	(0.073)***
Clerical and sales	0.361	(0.051)***	0.340	(0.058)***	0.152	(0.068)*
Production, farming, and construction	0.235	(0.071)**	0.222	(0.076)**	0.214	(0.090)*
Public sector (ref. = private)	−0.228	(0.058)***	−0.166	(0.066)*	−0.055	(0.071)
Family Characteristics and Arrangements						
Mother's age at birth	0.027	(0.007)***	0.012	(0.008)	−0.014	(0.010)
Parity of birth (ref. = first birth)						
Higher-order birth	0.243	(0.042)***	−0.237	(0.044)***	−0.095	(0.052)†
Spouse working status (ref. = not working)						
Working	0.195	(0.104)†	−0.054	(0.106)	0.072	(0.130)
Not married	0.004	(0.107)	−0.068	(0.109)	0.014	(0.131)
Extended family arrangements	0.058	(0.039)	−0.351	(0.043)***	0.129	(0.049)**
Family Economic Conditions						
In poverty (ref. = not in poverty)	0.684	(0.087)***	0.656	(0.090)***	0.365	(0.105)**
Log other family income (not including mother's earnings)	0.049	(0.012)***	0.072	(0.013)***	0.011	(0.014)
Owned home	−0.012	(0.046)	−0.111	(0.048)*	−0.123	(0.057)*
Panel (ref. = 1996 panel)						
2001 panel	0.058	(0.058)	0.278	(0.061)***	0.034	(0.079)
2004 panel	−0.026	(0.054)	0.019	(0.059)	0.186	(0.067)**
2008 panel	−0.051	(0.053)	0.111	(0.057)†	0.142	(0.067)*
Metropolitan Area	0.128	(0.048)**	−0.066	(0.053)	−0.059	(0.060)
Region (ref. = northeast)						
Midwest	−0.086	(0.056)	−0.252	(0.063)***	−0.072	(0.071)
South	−0.330	(0.056)***	−0.190	(0.060)**	−0.150	(0.068)*
West	−0.028	(0.061)	0.013	(0.065)	−0.052	(0.077)
Constant	−2.404	(0.220)***	−0.964	(0.250)***	−2.128	(0.283)***
N	9,458		9,158		8,735	

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