Gender, Household Composition, and Risk of Voluntary and Involuntary Job Loss

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(The last section of the paper is not yet completed and is in the form of bullet points)

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Abstract

In this paper, I use data from the Survey of Income and Program Participation and employ event history analysis to examine how male and female workers' risk of both voluntary and involuntary job loss differ by their household compositions, net of workers' characteristics. The results show that 1) the risk of both voluntary and involuntary job loss vary greatly across household compositions; 2) household members other than partners also affect job loss risks, albeit to a lesser extent; 3) there are significant interactions between household members (children, partners, others); 4) men are mostly unaffected by or even benefit from the presence of partners, children, and other members, women are often more at risk of job loss when living with children, working partners, and other members, which is not only true for voluntary job loss, but also for involuntary job loss, thus expanding the "motherhood penalty" literature beyond the hiring processes.

As dual-earner households and single-parent households became increasingly common in recent decades (Raley, Mattingly, and Bianchi 2006; U.S. Census Bureau 2016), a fast-growing literature has emerged on work-family conflict and its consequences. Because traditional gender roles and gender norms in both the family and the labor market still remain relatively strong in the American society, work-family conflicts disproportionally affect (or are presumed to affect[1]) female workers (Eby et al. 2005; Hochschild 1997; Hochschild and Machung 2012; Ridgeway 2011).

One important outcome of work-family conflict is the risk of job loss, both voluntary and involuntary, which has potentially profound consequences for the workers, their families, and their employers and therefore has received much scholarly attention. Voluntary job losses often have significant impacts on a worker's future labor market experience and career development, lifetime earnings, and, particularly for women, economic independence. Involuntary job losses also tend to cause unexpected economic insecurity and hardship (Western et al. 2012).

A key source of work-family conflict is the tension between the need to provide income and the need to provide care (or unpaid labor more generally) (Bellavia and Frone 2005; Bianchi and Milkie 2010; Grzywacz and Butler 2008), both of which are to affected by the composition and characteristics of the worker's household. The presence of some household members, such as a working partner, is likely to reduce the worker's need to provide income while other household members, such as young children, likely make the worker more needed at home. By shifting the

[1] Some employers or recruiters may perceive women as more susceptible to work-family conflicts or interferences regardless of their actual experience.

balance between the two competing needs, workers' household composition can influence both workers' voluntary decision to stop working (or exit the labor force altogether) and their performance (or perceived performance) at work and, in turn, their risk of involuntary job loss.

In this paper, I use longitudinal data from the 1996, 2001, 2004, and 2008 panels of the Survey of Income and Program Participation and event history analyses to examine the relationship between workers' household composition and the risk of both voluntary and involuntary job loss and how the associations are different for male and female workers.

Work-Family Conflict and Risk of Voluntary Job loss

One type of voluntary job loss (including voluntary labor force withdrawal) that has been the main focus of existing research is job loss caused by work-family conflict or incompatibility of work obligations with worker's family life and their ability to carry out family responsibilities (Bellavia and Frone 2005; Bianchi and Milkie 2010). When it is impossible to balance work and family and the needs of family members are not sufficiently met, workers are likely to reduce work hours or stop working to prioritize their role in the family. Scholars have been trying to identify the antecedents of these work-family conflicts (and, in turn, voluntary job losses). While work-family conflict can emerge from factors in the work sphere, such as stress, long hours, lack of flexibility and family friendly policies and resources, etc. (Byron 2005), sociologists and family scholars often examine the characteristics and dynamics of the worker's family that might lead to conflicts and voluntary job losses (Bianchi and Milkie 2010). It is well documented that having children,

especially young children, in the household is associated with higher levels of work-family conflict, especially for working mothers (Byron 2005). Having children in the household not only means elevated stress levels due to parental responsibilities and increased amount of household chores, but also leads to greater demands for flexibility at work to accommodate unexpected events such as a sick child. Partners may also affect the level of work-family conflict and the risk of voluntary job loss. While relationship tension can make it even more difficult to balance work and family (Grzywacz & Marks 2000), partners (especially non-working and female partners) often share responsibilities in the family, provide additional support, and moderate the effects of children on work-family conflict.

This existing literature on household composition and voluntary job loss has three limitations. First, most previous research on female labor force participation and exit focus on the rather narrow window around childbirth or female workers during their prime childbearing years (Hynes and Clarkberg 2005), and thus have potentially misrepresented the fluctuation and instability of the women's labor force participation over their entire work life. Second, the literature often fails to take into account the presence of household members other than the couple and their children. As multigenerational households (U.S. Census Bureau 2011; Dunifon 2013), doubled-up households (Mykyta and Macartney 2011), and "failure-to-launch" or "boomerang" households (where adult children continue to live with parents or move back in with parents) (Burn and Szoeke 2016) became increasingly common in the past few decades, coresidence with grandparents, adult children, and other relatives has potentially changed the

dynamics of both paid and unpaid labor in the household. It is therefore important to study how the presence these household members may shift the worker's work-life balance (and, in turn, likelihood of job loss) or moderate the effect of other household members on the worker's risk of job loss. The third limitation of the literature involves the distinction between voluntary and involuntary job loss. Previous studies often either do not conceptually distinguish the two or are not able to do that in their data. However, voluntary and involuntary job loss have distinct mechanisms and triggers, which will be discussed in the next section. In this study, I use SIPP data to identify five types of job loss based on the reason of job loss given by respondents, and group them into ones that are voluntary and ones that are involuntary (see the "Measures" section for more details).

Work-Family Conflict and Risk of Involuntary Job loss

The conceptual model in Figure 1 shows three ways household composition can affect involuntary job loss (firing, layoff) through either actual or perceived work-family conflict and work performance[2].

While voluntary job losses are often preceded by work-to-family conflicts, family obligations may also interfere with work (Gordon et al. 2008). Previous work has found that work-family conflict is associated with higher levels of absenteeism and lower levels of self-reported work performance (Anderson et al. 2002; MacEwen and Barling 1994). High

[2] This is only a conceptual model to illustrate potential pathways between household composition and involuntary job loss. This paper does not attempt to model or test these pathways.

demand for household labor and caregiving activities and the lack of other household members to share these obligations could make it difficult for some workers to be fully concentrated and dedicated at work. Unforeseeable events that require additional care and time such as sick children or snow day at school may further distract workers and pull them away from work. Long term work-family conflict may also take a toll on workers' physical and mental health and negatively impact their work performance (Greenhaus et al. 2006). Employers and supervisors may take notice of the drop in work time, work quality, and dedication, which leads to lower supervisory performance ratings (Keene and Reynolds 2005; Witt and Carlson 2006) and can eventually result in higher likelihood of firing or layoff. These above mechanisms are represented by the dashed arrows in Figure 1.

The risk of involuntary job loss is affected not only by a worker's actual work-family conflict and work performance, but also by employers' perception or belief about the worker's work-family conflict and work performance, which are not necessarily accurate or fair representation of their true productivity and often introduce systemic biases. While performance evaluation practices have been widely adopted to promote meritocracy and equality within organizations, substantial biases in terms of gender, race and ethnicity, and nationality still persist, as performance evaluations are often influenced by employers' prior biases and beliefs about employees' productivity, commitment, and career potential, and are therefore used, ironically, to legitimize and institutionalize differential treatment of employees based on non-performance related factors (Bartol 1999; Elviva and Town 2002; Roth, Huffcutt, and

Bobko 2003; Lyness and Heilman 2006; McKay and McDaniel 2006; Correll, Benard, and Paik 2007; Kmec 2011). Similarly, if employers believe that workers in certain households (e.g. single mothers with multiple dependents) are more likely to experience work-family conflict, they may, due to stereotypical thinking or statistical discrimination, perceive these workers to be less efficient, concentrated, or committed, and are therefore more likely to terminate their employment regardless of whether these workers actually experience work-family conflicts that negatively impact their performance[3].

Moreover, discrimination can still exist even when workers have identical qualifications or performance ratings. Even if there is no bias in the performance evaluation stage, bias can still influence the link between evaluations and career outcomes such as wages, promotions, and terminations[4] (Castilla 2008; Castilla and Benard 2010; Castilla 2012). Organizational practices that aim at meritocracy might in fact mask the inequality in the distribution of rewards and penalties (Reskin 2000; Elvira and Graham 2002). Even when there is indisputable evidence of mothers' work competence and commitment, they receive lower ratings in other areas such as interpersonal qualities as they are perceived as being less warm, less likable, and more hostile compared to otherwise similar fathers and non-parents, and are consequently penalized with respect to career outcomes (Correll and Benard 2010). One explanation for this type of motherhood penalty argues that mothers' competence and commitment at work may trigger normative discrimination that is based on prescriptive stereotypes about how working mothers

[3] This pathway is illustrated using the solid arrows in Figure 1.
[4] This is represented by the dotted arrow in Figure 1

should behave, prioritize, and balance their roles at work and in the family (Correll and Benard 2010). Due to incompatible or even contradicting expectations for the "ideal worker" and the "ideal mother", many working mothers would struggle between the norms surrounding the workplace and the norms regarding the family (Williams 2001), and may be penalized when they are believed to violate norms in either realm. Work-life conflict, therefore, is not just about conflict in terms of time or attention, but also about conflict of norms and roles.

However, this body of research has not adequately examined how the presence of other household members and their employment status moderate the effect of parenthood, therefore ignoring the family demographic context in which workers' work-family conflict and role conflict are embedded. Furthermore, the literature has mainly focused on labor market outcomes such as hiring, wages, and promotions, and has overlooked penalties in terms of job loss, which arguably is equally consequential for the household's economic wellbeing.

Household Composition, Work-Family Conflict, and Risk of Job Loss

Work and family obligations are more likely to interfere with each other when the need to provide unpaid labor is high (Bellavia and Frone 2005; Bianchi and Milkie 2010), which, as discussed in previous sections, may lead to a higher risk of job loss. The link between work-family conflict and job loss may be especially strong when the need to provide income is lower as workers are more likely to afford job losses in the presence of alternative earners in the household. The extent to which the worker is needed to provide income and/or unpaid household

labor vary across household compositions because different types of household members tend to have different levels of demand for income and unpaid labor from other household members while also differing in their ability to supply income and unpaid labor. The need for the worker to provide income tends to be higher when there is no alternative earner, and when there are more dependents (non-working members). The need for the worker to provide unpaid labor tends to be higher when there are children, especially young children, and when there are fewer other household members to provide care and household labor, holding constant economic resources (ability to purchase these services).

In this paper, I focus on three types of members in a worker's household[5]: partners, children (further divided into 3 age groups), and other members (grandparents, adult children, other relatives, etc.), and examine how the worker's risk of job loss is associated with the presence and working status of these members. I also distinguish the gender of the worker and the employment status of adult household members.

Workers that have working partners may have less need to provide income (especially for female workers since their partners often have higher wages) and can better afford to stop working. Meanwhile, the working partner may also share some family obligations, thus alleviating the worker's work-family conflict (compared to single workers), but female workers are less likely than male workers to benefit from having a working partner given the highly gendered division of household labor even when both of them are working. In terms of the risk

[5] See the data and methods section for a more detailed description of the household member categories.

of involuntary job loss, employers may perceive partnered male workers to be more committed to work and more reliable than single men since their partners will presumably take care of most non-work related tasks to allow them to focus more on work and fulfil their gender role as the breadwinner. However, such perceptions of employers will likely hurt women since employers may believe that female workers with working partners are less motivated and more likely to quit because they can rely on their male partners' earnings. The gender differences are expected to be larger when there are also children, especially young children, in the household, since the responsibility of child care in disproportionally on mothers, which increases the level of work-family conflict, as well as perceived conflict, for female workers.

Non-working partners do not provide earnings, but are more likely to be responsible for unpaid labor in the household. Compared to working partners, non-working partners may reduce workers' work-family conflict to a larger extent, and thus lower their risk of job loss. However, while male workers who have non-working partners may only participation in minimal household labor, female workers with non-working partners may still have to do a large share of the household labor. Again, these gender differences are expected to be even more pronounced when children are in the household.

Similar to partners, other adult household members can also serve as alternative sources of income and household labor. However, there are at least three differences. First, other members tend to generate less income than worker's partners even when they are working. Second, some of these members (e.g. grandparents with poor health) may not be able to provide

much household labor and may require additional care from workers and their partners (which may be the reason for coresidence in the first place). Third, employers are less likely to know about the presence and role of these non-partner, non-children members of the workers' households, and will likely either not take this into consideration when perceiving the worker's performance or have a hard time making sense of the dynamics within non-traditional household structures. Overall, the presence of other household members is expected to be associated with lower risks of job loss, but the magnitude may be smaller than that of partners.

Children are likely the most demanding type of household member, both in terms of economic resources and care, which creates more incentive and necessity for some workers to continue working while creating more work-family conflicts for other workers. Child bearing and child care is often the primary reasons female workers stop working (at least temporarily), but usually have little negative effects or even have positive effects on fathers' labor supply. These opposite effects for female and male workers are also documented in the motherhood penalty and fatherhood premium literature. However, other household members may be able to mitigate these effects by providing alternative sources of income and care.

The expected associations between different types of household members and worker's risk of job loss are summarized in Table 1.

DATA AND METHODS

Data

I use data from the 1996, 2001, 2004, and 2008 panels of the Survey of Income and Program Participation (SIPP). These four panels include 194,098 households and span 17 years. The most recent 2014 panel is not included because the SIPP went through major redesigns in 2014 and only the first wave is released so far. Panels prior to 1996 are not included because data from earlier panels have overly broad categories for the reason of job loss. This makes it difficult to distinguish between different types of job losses (such as voluntary and involuntary), which are the central focuses of this study[6]. Among the 194,098 households, 6.3% had no work spell during the panel period (thus were never at risk of job loss) and are excluded in the analyses. Below I explain the operationalization and measurement of important variables.

Measures

Job loss

In SIPP, every household member age 15 or above was interviewed every 4 months and asked about the previous 4 months. For employment status, weekly information was collected. If a worker was working in week t and stopped working in the following week t+1, the worker is considered to experience a job loss at t+1. Because most of SIPP data are at the person-month level, I transform the weekly job loss variables into a monthly one. If the week in which a job loss happens falls within a given month, the job loss is considered to occur during that month.

[6] See below for more information on the operationalization of voluntary and involuntary job loss.

Since the question for the main reason of job loss[7] is asked once every wave (4 months) rather than every month, only the first job loss is counted if multiple ones occur in the same wave. However, individuals are allowed to register multiple job losses during the panel as long as the job losses occur in different waves. As a result, the unit of analysis in the study is the employment spell rather than the individual-month or household-month. Employment spells can be left-censored or right censored or censored on both sides. There are a total of 433,628 employment spells and 10,626,814 spell-months.

Voluntary and involuntary job loss

The SIPP asks about the main reason of job losses. I recoded the 15 reasons into three categories: voluntary, involuntary, and other. If a worker experiences a job loss because of "childcare problems", "other family/personal obligations", or "unsatisfactory work arrangements such as hours", the job loss is considered voluntary. A job loss is considered involuntary if the worker is "laid off" or "discharged/fired". It's important to note that, in this paper, job losses due to reasons such as "school/training", "quit to take another job", and "quit for some other reason" are categorized as other rather than voluntary job losses because they are generally not directly related to the workers' work-family balance and household composition, which is the primary focus of this paper. Similarly, job losses that result from "own illness", "own injury", "employer bankrupt", "employer sold business", and "slack work or business conditions" are not considered

[7] This questions is used to determine whether the job loss is due to voluntary or involuntary or other reasons. See the next paragraph for details.

involuntary but included in the other category because these events and circumstances are external to the workers and are not affected by workers' household composition and their (perceived) job performance. Job losses that are considered as neither voluntary nor involuntary also include those because of "job was temporary and ended" and "retirement or old age".

Household composition

The SIPP has household rosters that identify each member's relationship to the reference person of the household. This information is used to categorize the composition of each worker's household. Workers are not limited to the reference persons in the households, and each household can include multiple workers. A worker's household composition is described using dummy variables indicating whether a specific type of household member is present in the household. There are 7 types of household members: worker's working partner[8], worker's non-working partner, children[9] aged 0 to 3, children aged 4 to 11, children aged 12 to 17, other working household members, and other non-working household members. The baseline household composition is a single-living household that only includes the worker. Various household members can be added to form different household compositions.

Controls

The regression analyses in this paper (see the next section for details) include a set of

[8] Including full-time and part-time.
[9] Children include anyone in the household below the age of 18 and are not necessarily the worker's own children.

control variables. *Female* is a dummy variable indicating whether a worker is female. *Age* is included as the worker's age in years. Workers are grouped into 4 racial and ethnic categories: non-Hispanic white, non-Hispanic black, non-Hispanic other races, and Hispanics. Workers are also divided into 4 educational groups based on their highest degree received: less than high school, high school, some college, and four-year college degree or higher. *Earnings* is the worker's total monthly earnings[10]. *Year* dummies are also included to control for unobserved heterogeneities at the year level.

Methods

Since the outcomes of interest in this study are job losses that end employment spells, which are a form of state transition in longitudinal data, event history analysis is the appropriate method. This study uses Cox proportional hazards models to estimate the risk of job loss as a function of household composition and worker characteristics. Respondents who are already working when they appear in the panel enter the risk set immediately. Respondents may also enter the risk set later when they start to work.

Time is measured as months since the beginning of the employment spells[11], and employment spells are censored 1) when respondents drop out of the SIPP, 2) at the end of the panel, and 3) when employment spells end due to reasons other than the ones being examined[12].

[10] Since the unit of analysis is the employment spell, I use the worker's personal earnings rather than household income.
[11] Or since the beginning of the panel for those already working at the beginning.
[12] For example, when conducting event history analysis on voluntary job losses, employment spells that end due to involuntary or other reasons will be censored because potential future involuntary job losses are unobservable because the employment spells

As mentioned in the previous section, respondents can contribute more than one job losses and robust standard errors are used to adjust for multiple job losses within the same worker.

The proportional hazards models are specified using the following equation:

$$h_i(t) = h_0(t) \exp(BX_i) \quad (1)$$

where $h_0(t)$ denotes the baseline hazard that varies over time but not across observations, and X denotes a vector of independent variables.

Three sets of event history analyses are conducted for both voluntary job loss and involuntary job loss. The first set of analyses explores the association between the presence of various household members and the risk of job loss. Model 1 (for voluntary job loss) and Model 3 (for involuntary job loss) include the 7 dummy variables that describe the worker's household composition, control variables (worker's gender, age, race and ethnicity, and education), and dummy variables for year. In these regression analyses, the coefficients for the household composition dummy variables will indicate the change in the likelihood of job loss, compared to the baseline (single-living), associated with the addition of each type of household members. The second set of analyses explore how the effects of household members on job loss are affected by the presence of other household members. Therefore, Model 2 and Model 4 add interactions between household member dummies. In the last set of analyses, the models interact worker's gender and all the household member dummies (two-way interaction) and their interaction terms

are already terminated by other types of job losses. This is similar to cases where censoring happens when employment spells are terminated due to attritions or the end of the panel.

(three-way interaction) to examine how the effects of household composition on job loss differ for male and female workers.

RESULTS

Descriptive Statistics for Worker Characteristics and Household Compositions

Table 2 shows the worker demographic characteristics and household compositions of three mutually exclusive types of employment spells: spells that did not end in job losses (45.4% of all spells), spells that ended with voluntary job losses due to childcare problems, other family/personal obligations, or unsatisfactory work arrangements such as work hours (9.6% of all spells), and spells that ended with involuntary job losses due to layoffs or discharge/firing[13] (11.6% of all spells).

Workers associated with these three types of employment spells differ from each other with respect to several demographic characteristics. Of those who did not experience any job loss, 46.4% are women, compared to 46.6% among all who ever worked. In comparison, those who experienced a voluntary job loss are 68.4% and those who experienced an involuntary job loss are 44.2% women. Both voluntary and involuntary job loss are more likely to occur to younger workers. In terms of racial and ethnic composition of the three groups, blacks and Hispanics are overrepresented among those who lost jobs, either voluntarily or involuntarily. Job losses also tend to happen to less educated workers.

[13] For simplicity, the fourth type of employment spells, which ended with job losses due to other reasons, are not included in Table 2.

The three groups tend to differ in household compositions as well. 10.1% of workers that did not lose their jobs and 11% of those lost jobs involuntarily lived alone, but this is less common for workers that experienced a voluntary job loss (6.3%) as workers who lived alone were less likely to stop working due to family obligations. It was most common for those who voluntarily stopped working (40.8%) to have working partners, followed by those continuously working (34.5%) and those lost jobs involuntarily (33.8%). However, workers who did not experience job losses (25.4%) were more likely to have non-working partners at home than those who had a voluntary job loss (19.5%) or an involuntary job loss (20.1%). In total, 53.9% of workers who involuntarily lost jobs were partnered, compared to about 60% for the rest of the workers. With respect to other adult household members, they were present in about 10% of households across the three groups, with those experiencing voluntary job losses slightly more likely to have other working members and those experiencing involuntary job losses more likely to live with other non-working members. The most notable difference between the household composition of workers who did not lose jobs and those that lost jobs is the presence of children, especially young ones. Only 5.9% of those without job loss had children under 4 in their household at the beginning of the observation and 16.3% had children aged 4 to 11. In contrast, 21.8% of workers who experienced voluntary job loss had children under 4 at the time of job loss and 33.9% had 4- to 11-year olds, with those experiencing involuntary job losses having slightly smaller percentages (17.2% and 28.1% respectively).

Table 2 suggests preliminary evidence that the risk of voluntary and involuntary job

losses vary by gender and other demographic characteristics as well as the composition of the worker's household. In the following sections I will use survival models to examine whether voluntary and involuntary job loss risks are associated with household compositions after holding worker's characteristics constant, and how the presence of different household members interact with each other and with worker's gender in predicting job losses.

Workers' Household Compositions and Risk of Job Loss

Table 3 presents the results from Cox proportional hazards models of job losses. Model 1 and Model 2 predict voluntary job losses, and Model 3 and 4 predict involuntary job losses. Model 1 and 3 include dummy variables for the presence of each of the 7 types of household members, controls for worker characteristics, and year dummies (not shown in the table). Model 2 and 4 also include interaction terms between household composition dummy variables.

Voluntary Job Loss

Results from Model 1 in Table 3 shows the association between household composition and voluntary job loss risks after controlling for workers' characteristics. Workers with working partners are on average 20.5% more likely than those without partners to experience voluntary job losses, while having a non-working partner is associated with a 11.1% decrease in voluntary job loss hazards. Similarly, workers in households with other working members have 9.6% higher risks of voluntary job loss and those living with other non-working members have a 5.7%

reduction in risks. The strongest household composition predictor of voluntary job losses is the presence of children, young children in particular. Workers that have children aged under 4 years in the household have 65.2% higher risks. The effect is reduced to 21.1% if the children are between 4 and 11 years old. However, children aged 12 to 17 years are associated with a 2.3% reduction in risks.

Model 2 examines whether the effects of each type of household member on voluntary job loss depend on the presence of other types of household members. The effect of working partners depends on the presence and age of children in the household. In households with no children, the effects of having working and non-working partners and other working members are in the same direction as those from Model 1, but are smaller in magnitude, but the effect of having other non-working members is now positive (increasing job loss risks). When the household has toddlers (0-3 years), working partners increases the worker's voluntary job loss risks by 31.4% (1.082*1.214-1), while having working partners in households with school-age children (4-11 years) corresponds to a 26.5% increase in risks. However, working partners only slightly increases risks if the households have older children (12-17 years). The effect of non-working partners on reducing voluntary job loss risks is the strongest in households with toddlers (-14.9%), compared to the effect in households with school-age children (-13.9%) and households with older children (-10.2%). The presence of working members increases risks only in households with no children (by 8.3%) and households with toddlers (by 12.5%), while having non-working members has relatively small effects on voluntary job loss and the effects are only

observed for households without children (4.4%) and households with toddlers (-3.8%). The main effects of children aged under 12 remain positive and strong in Model 2, while the main effect of older children becomes positive. More specifically, this means that in households where the worker is the only adult, the presence of toddlers, school-age children, and older children increase the worker's chances of voluntary job loss by 53.1%, 21.8%, and 11.2%, respectively. The effect of children under age 4 is further increased to 85.9% when the worker has a working partner, and to 59.1% if the worker's household includes other working members, but is reduced to 35.6% when the worker has non-working partners and to 41.0% when there are other non-working members. Similarly, the effect of school-age children is higher (42.9%) when working partners are present and is lower (9.3%) when the worker has a non-working partner, but the effect in households with other members is not significantly different from that in households with no partners or other members. While in households where the worker is the only adult, older children increase job loss risks by 11.2%, they only increase the risk by 6.5% if a working partner is present and even reduce the risk by 2.1% if the worker has a non-working partner.

In summary, results from Model 1 and 2 show four important patterns. First, the presence of various household members is associated with worker's risks of voluntary job loss, even after controlling for worker characteristics. Second, in general, children, especially young children, have the largest effects, and are followed by workers' partners, with other household members having relatively small but still significant effects on voluntary job loss. Third, the effects of

partners and members on worker's voluntary job loss are contingent on the presence and age of children in the household and are often more pronounced when the households include young children. Fourth, the effect of children on worker's voluntary job loss is be heightened by the presence of workers' working partners and, to a lesser extent, other working members, and mitigated by the presence of non-working partners and, to a lesser extent, other non-working members.

Involuntary Job Loss

Results from Model 3 in Table 3 show the association between household composition and involuntary job loss risks after workers' characteristics are controlled. Compared to single-living workers, workers that have working partners are 4.3% less likely to be fired or laid off, and workers living with non-working partners are 5.1% less likely to lose their job due to discharge or layoffs. Workers living with other household members have similar risks of involuntary job loss as those who do not have other household members. Having children under age 4 is associated with a 25% increase in risks and having children aged between 4 and 11 is associated with a 10.9% increase. The presence of older children does not affect chances of involuntary job losses.

Model 4 explores whether the effects of each type of household member on involuntary job loss depend on the presence of other household members. The main effects of working partners, non-working partners, children aged 0-3 and children aged 4-11 remain in the same

direction and are still significant. Having a working partner is associated with lower involuntary job loss risks (-7.3%) when there are toddlers in the households, and having a non-working partner lowers the risks by 9.3% if there are toddlers or 9.1% if there are school-age children in the household. The effects of children on worker's involuntary job loss risks are mitigated by other members in the households. If the worker is the only adult in the household, having toddlers increases the worker's job loss risks by 29.8% and having school-age children increases the risk by 15.5%. However, if a working partner is also in the household, the effect of toddlers drops to 24.3%. If a non-working partner is in the household, the effects of toddlers and school-age children are lowered to 22.8% and 9.5% respectively.

Gender, Household Compositions and Risk of Job Loss

I hypothesized that the effects of household compositions on job loss risks are different for male and female workers. To test these hypotheses, I interacted gender dummy variables with all the household composition variables as well as their interactions in Model 2 and Model 4. The results are presented in Figure 2 and Figure 3. Each horizontal bar in the figures represents the 95% confidence interval of the marginal effect of a specific household composition on hazards of voluntary/involuntary job loss, and should be interpreted as the proportional difference in job loss hazards compared to the baseline household composition, i.e. single-living. Blue bars correspond to male workers and red bars correspond to female workers.

Voluntary Job Loss

Figure 2 shows how the association between household compositions and voluntary job loss vary by worker's gender. In childless households, having a working partner is associated with a 12.1% increase in the risk of voluntary job loss for women and a 3.2% increase for men. In contrast, having a non-working partner decreases the risk for men by 13.2%, but not for women. Female workers who live with other working household members are 6.8% more likely to stop working voluntarily. Non-working members have opposite effects on male and female workers, as men who live with non-working members have lower risks of voluntary job loss (-3.4%) while women who live with non-working members are more at risks (3.8%).

When children are in the household, all relevant household compositions are associated with opposite effects for male and female workers. While male workers in these types of households are between 3.8% and 9.1% less likely to voluntarily stop working, female workers in these households are between 11.3% and 36.1% more likely to do so. Female workers with working partners and children are most exposed to voluntary job losses as they may perceive less need to provide income (due to their working partner who is presumably male and likely has higher earnings) and more need to care (due to the presence of children). However, even when female workers' partners are not working, they are still more likely to voluntarily quit working as long as there are children in the household. This pattern is not observed for men or when there are no children in the household.

Overall, the effects of partners and other members voluntary job loss are slightly stronger

for female workers in childless households, but the gender gaps are wider when children are in the households. On the one hand, whereas working partners and working members increases men's risks of voluntary job loss, their presence reduces men's risks when children are in the household. On the other hand, the presence of children greatly increases women's risks of voluntary job loss across all household compositions. Mothers that live with partners or other members in the households are even more likely to voluntarily stop working than single mothers.

Involuntary Job Loss

Figure 3 shows how the association between household compositions and involuntary job loss vary by worker's gender. In childless households, male workers who have working partners are 2.6% less likely to be laid off or fired while female workers that live with working partners are 3.4% more likely to stop working involuntarily. Non-working partners reduce the risk of involuntary job loss for both men (-8.9%) and women (-4.7%). Having other working members are not associated with changes in job loss risks, but non-working members have opposite effects on men and women, reducing men's risk of involuntary job loss by 3.1% and increasing women's risk by 3.0%.

Similar to the results for voluntary job loss, children generally reduce men's risks of losing job due to layoffs or discharge/firing but increases women's exposure to such risks. If the worker is the only adult in the household, children (which most likely means single parenthood) increases female workers' risk of involuntary job loss by 21.4% but has no effect on male

workers' job security. Male workers who have children in the household are between 4.2% and 9.2% less likely to be laid off or fired while female workers living with children are between 15.8% and 26.6% more likely to lose their jobs. Female workers that have both children and working partners tend to be the most heavily penalized group, but the presence of non-working partners and other household members seem to slightly mitigate the effect of children on women's involuntary job loss.

Summary of Findings

The risk of both voluntary and involuntary job loss vary greatly across household compositions.

Household members other than partners (mostly ones who are working) also affect job loss risks, but to a lesser extent compared to partners.

The effect of children depends on the presence of partners and other members; the effect of partners and other members change when there are children in the household.

Huge gender differences are observed. In general, men are mostly unaffected by or even benefit from the presence of partners, children, and other members, women are often more at risks of job loss when living with children, (working) partners, and other members. This is not only true for voluntary job loss, but also for involuntary job loss, indicating that employers not only penalize female workers and working mothers when hiring, but also when they make

decisions about employment terminations.

Figure 1. Conceptual model of how household composition affects involuntary job loss

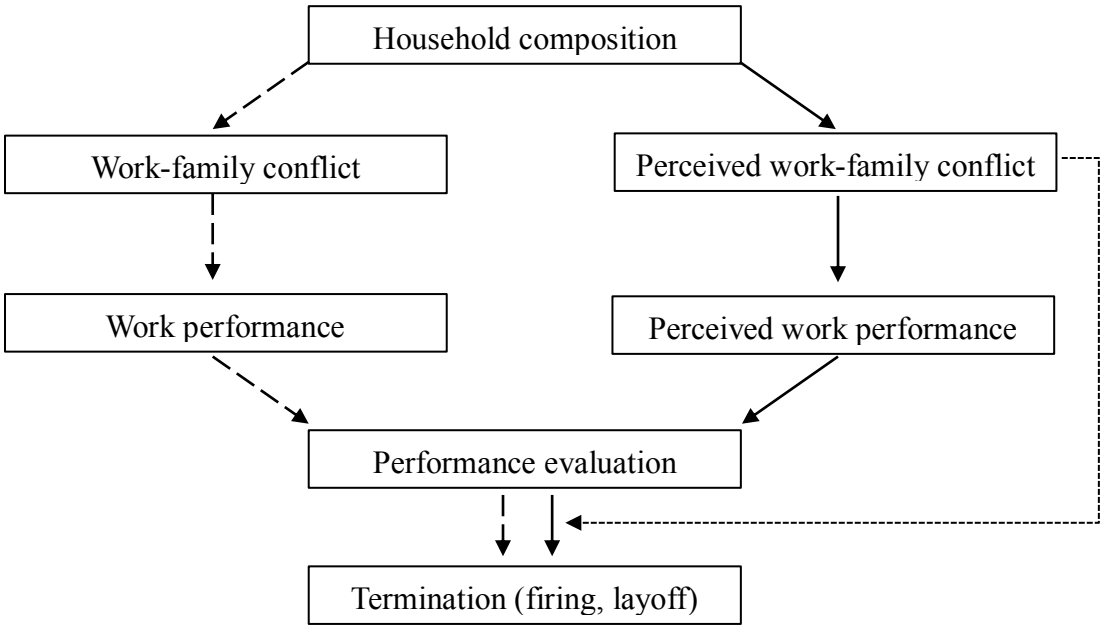


Table 1. Expected association between household members and worker's risk of job loss, by worker's gender

	Voluntary job loss		Involuntary job loss	
	Male	Female	Male	Female
Working partners	-	+	-	+
Non-working partners	-	/	-	/
Working other members	-	+	/	/
Non-working other members	-	/	-	/
Children	/	+	-	+

Notes: + represents a positive association between the presence of a given type of household members and the worker's risk of job loss, - represents a negative association, / represents no association or no clear expectation.

Table 2. Worker Characteristics and Household Composition

	No Job Loss	Voluntary Job Loss	Involuntary Job Loss [a]
Worker Characteristics			
Male	53.6%	31.6%	55.8%
Female	46.4%	68.4%	44.2%
Median age	42	39	38
Non-Hispanic white	75.2%	65.8%	62.9%
Non-Hispanic black	7.8%	13.4%	14.8%
Hispanic	10.2%	14.4%	15.1%
Non-Hispanic other races	6.8%	6.4%	7.2%
Less than high school	15.4%	25.4%	27.1%
High school	20.8%	26.6%	30.9%
Some college	35.9%	32.5%	28.9%
College degree or more	27.9%	15.5%	13.1%
Household Composition [b]			
Single-living	10.1%	6.3%	11.0%
Working partner	34.5%	40.8%	33.8%
Non-working partner	25.4%	19.5%	20.1%
Working members	4.5%	4.9%	4.3%
Non-working members [c]	8.1%	8.0%	8.4%
Children 0-3	5.9%	21.8%	17.2%
Children 4-11	16.3%	33.9%	28.1%
Children 12-17 [d]	15.1%	19.0%	18.9%
N of employment spells	196,671	41,419	50,275
N of employment-months	7,219,316	898,784	1,046,350
Average spell duration (months)	36.7	21.7	20.8

Notes:

a. Employment spells that ended with job losses due to other reasons are not included in this table since they are not the focus of this paper.

b. Categories below (except single-living) are not mutually exclusive. For example, a worker can simultaneously have a partner, children, and other members in the household.

c. A worker can have both working and non-working other members in the household.

d. A worker can have multiple children in different age groups in the household.

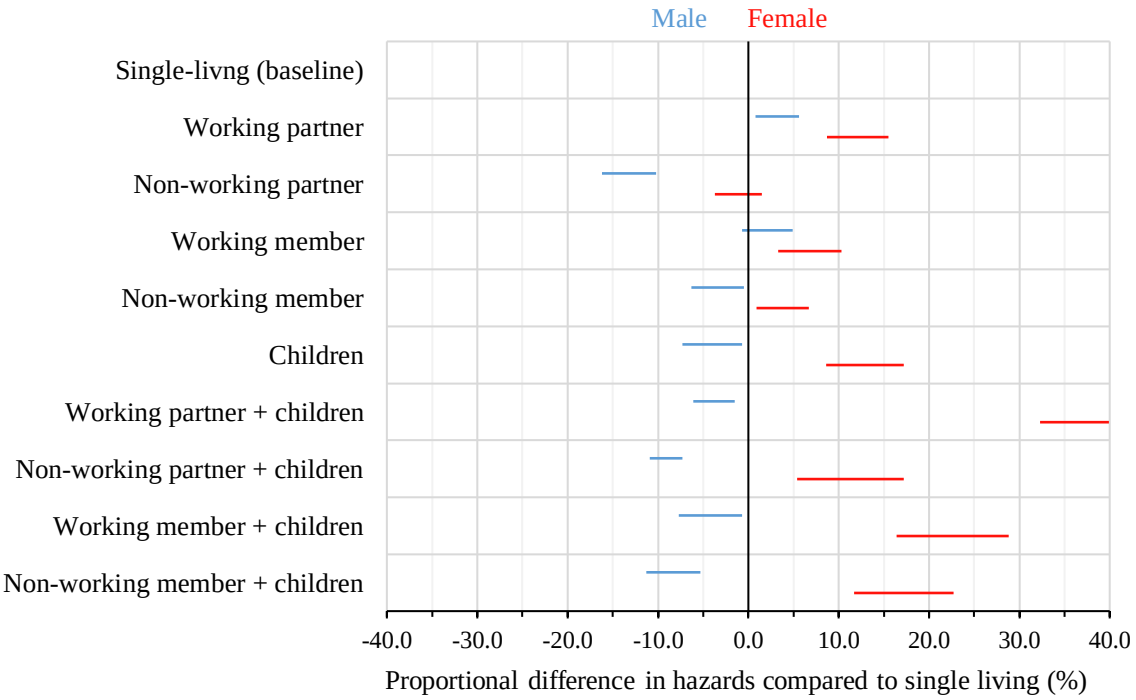
Table 3. Association of Household Composition and Job Loss Risks

	Voluntary Job Loss		Involuntary Job Loss	
	Model 1	Model 2	Model 3	Model 4
Single-living	-	-	-	-
Working partner	1.205***	1.082**	.957*	.968*
Non-working partner	.889***	.960**	.949*	.959*
Working members	1.096*	1.083*	.986	.989
Non-working members	.943*	1.044*	1.088	1.027
Children 0-3	1.652***	1.531***	1.250**	1.298***
Children 4-11	1.211***	1.218***	1.109**	1.155**
Children 12-17	.977*	1.112***	1.042	1.024
Working partner * children 0-3		1.214***		.958*
Working partner * children 4-11		1.169***		.970
Working partner * children 12-17		.958**		.992
Non-working partner * children 0-3		.886***		.946*
Non-working partner * children 4-11		.897**		.948*
Non-working partner * children 12-17		.880**		.987
Working members * children 0-3		1.039*		.942*
Working members * children 4-11		1.002		.986
Working members * children 12-17		.981		1.051
Non-working members * children 0-3		.921*		.963
Non-working members * children 4-11		.969		1.030
Non-working members * children 12-17		.970		1.099
Female	1.353***	1.335***	.894***	.892***
Age	.991**	.993*	.989**	.993*
Monthly earnings (logged)	.869***	.873***	.922***	.932**
Less than high school	-	-	-	-
High school	.975*	.989	.889**	.892**
Some college	.988	1.011	.836***	.831***
College degree or more	.953**	.944*	.770***	.784***
Non-Hispanic white	-	-	-	-
Non-Hispanic black	.955*	.977	1.184**	1.178**
Hispanic	.928*	.926*	1.085*	1.092*
Non-Hispanic other races	1.075*	.990	1.060	1.032
Number of employment spells	433,628	433,628	433,628	433,628
Number of employment-months	10,626,814	10,626,814	10,626,814	10,626,814

Note: Results are from Cox proportional hazards models. Numbers in the table are hazard ratios, which equal to exp(β). Models also include dummy variables for year.

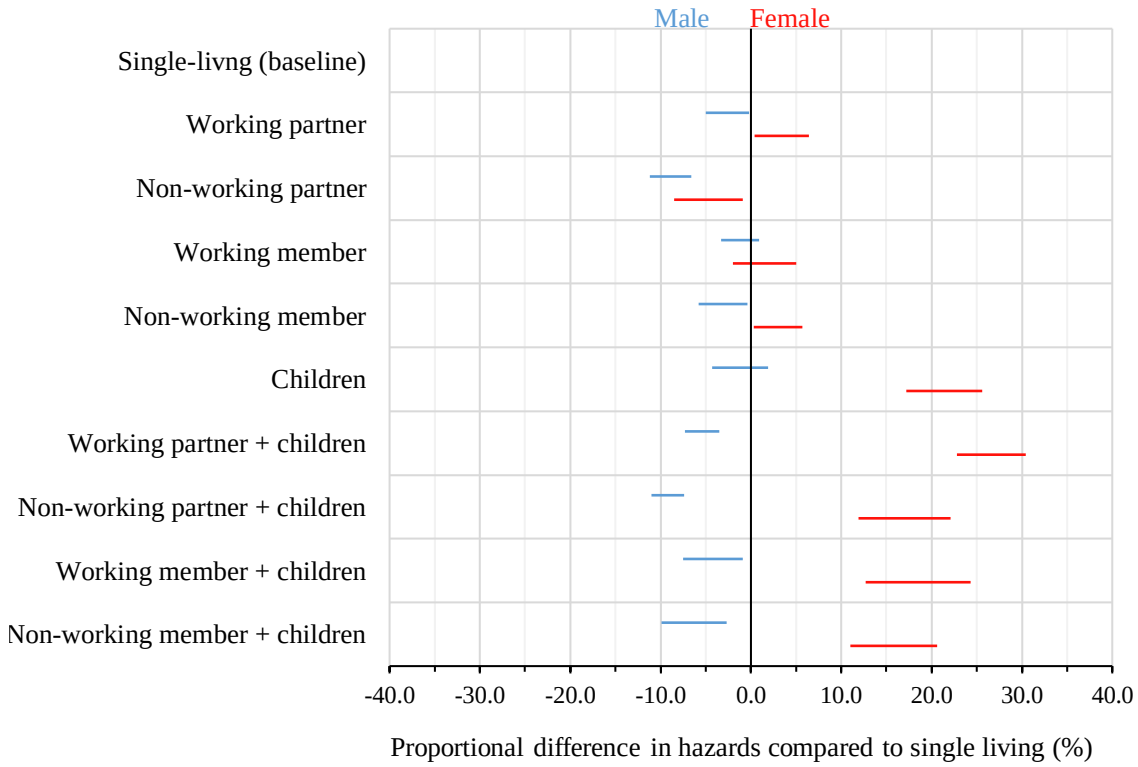
* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 2. Household Composition and Voluntary Job Loss Risks, by Worker's Gender



Notes: Numbers are calculated from the marginal effects of the household compositions on hazards of voluntary job loss, conditional on worker's gender. The marginal effects (expressed in hazard ratios) are subtracted by 1 and multiplied by 100% for easier interpretation. Compared to Model 2 in Table 3, the Cox proportional hazard model used in this analysis adds the interactions between the female dummy and the household composition variables and two-way interactions. The baseline (omitted) for household composition is single-living. 95% confidence intervals are shown.

Figure 3. Household Composition and Involuntary Job Loss Risks, by Worker's Gender



Notes: Numbers are calculated from the marginal effects of the household compositions on hazards of voluntary job loss, conditional on worker's gender. The marginal effects (expressed in hazard ratios) are subtracted by 1 and multiplied by 100% for easier interpretation. Compared to Model 4 in Table 3, the Cox proportional hazard model used in this analysis adds the interactions between the female dummy and the household composition variables and two-way interactions. The baseline (omitted) for household composition is single-living. 95% confidence intervals are shown.

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