Career Antecedents of Female Entrepreneurship*

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ABSTRACT

Scholars and policy makers have widely acknowledged the broad impact of motherhood on women's careers. Yet research on how women respond to motherhood challenges has exclusively focused on work-family conflict, and a frequent finding shows that women often fall back on entrepreneurship to resolve such conflict. A concomitant challenge associated with motherhood, however, concerns diminishing career opportunities, which has not been explored in relationship to women's entrepreneurship. In this study, we develop a more complete theory of female entrepreneurship by explaining how diminishing opportunities for advancement and work-family conflict differentially affect women's transition from wage employment to entrepreneurship. Taking into account different types of entrepreneurship and the key distinction between self-employment and the founding of a new venture, we argue that, following transition into motherhood, women will disproportionately sort into self-employment when concerns about work-life conflict become more intense. By contrast, women will disproportionately found a new business when their chances for attainment diminish more dramatically in wage work. Analyses using matched employer-employee data from Sweden between 1990 and 2016 provide strong support for our predictions. Implications for research on entrepreneurship, career mobility, and work-family intersections are discussed.

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INTRODUCTION

The question of how organizations act as "greedy institutions" to affect individuals' careers and lives has emerged as a core contemporary concern among scholars and policy makers (Coser 1974, Jacobs and Gerson 2004, Williams 2001). Since the early 20th century, modern organizations have been institutionalized to fit the "organization man." For example, demanding work schedules, lack of flexibility, and career clocks without interruptions all assume workers are free of family obligations (Acker 1990, Edwards and Rothbard 2000, Kanter 1977). Today, even with the influx of women into organizations and the rising egalitarian cultural norms in most developed countries, this masculine ethic remains salient in most workplaces, demanding from workers their full commitment and disproportionately rewarding individuals who can engage in overwork (Cha and Weeden 2014, Goldin 2014, Kelly et al. 2014). Among various workers, women with children typically feel the strongest influence of modern organizations' greediness: their daily work interferes with their family responsibilities, and their gender roles and responsibilities often jeopardize their career opportunities (Correll et al. 2007, England 2010, Glass 2004, Stone 2007, Weisshaar 2018).

In examining how women respond to constraints imposed by the dual demands of motherhood and wage jobs, a growing body of research focuses on entrepreneurship as an important "alternative work arrangement" for women to mitigate the challenges they face in wage employment (Budig 2006a, 2006b, Burton et al. 2019, Carr 1996, Loscocco 1997, Thébaud 2015). A frequent finding is that women tend to change their employment behaviors when they have children. For example, to accommodate childcare responsibilities, women often turn away from paid employment in favor of entrepreneurship (Budig and England 2001). Such transitions are fairly common: about 10-20 percent of women accumulate entrepreneurial experience by

their mid-40s (Ferber and Waldfogel 1998, Guzman and Kacperczyk 2019). Entrepreneurship is thus seen as a "Plan B" that women fall back on to resolve work-family conflict when they fail to reconcile competing work and family demands through wage jobs (Budig 2006a, 2006b, Carr 1996, Thébaud 2015). By equating entrepreneurship with flexible work arrangements, scholars have treated work-family conflict as the main driver of women's entry into entrepreneurship.

Despite this past work, however, we still lack a complete understanding of the relationship between the challenges women face in wage employment and their transition into entrepreneurship. Most scholars exclusively focus on women's concerns with work-family conflict and have neglected women's concomitant concerns with their career prospects. Yet evidence abounds that motherhood dramatically reduces women's attainment chances, leading to a stark motherhood earnings penalty, even when women continue to value attainment and exert equal effort at work in hope of future rewards (Blair-Loy 2003, Budig and England 2001, England et al. 2016, Weisshaar 2018). Such evidence implies that, beyond work-family conflict, career advacement stymied by having children might also motivate women into entrepreneurship. In fact, a long tradition of sociological research on social mobility, and recent developments in entrepreneurship research, suggest that entrepeneurship can serve as a career attainment mechanism that allows people to get ahead in their careers (Arum and Müller 2004, Kacperczyk 2012, Mills 1951, Sørensen and Sharkey 2014). However, this career antecedent of entrepreneurship has yet to be examined to better understand women's decisions to leave wage work for entrepreneurship.

In this study, we turn our attention to this dual challenge associated with motherhood to develop a more complete understanding of female entrepreneurship. In theorizing how work-life conflict and diminishing opportunities influence women's entry into entrepreneurship in tandem,

we argue that an important tension exists between the two separate antecedents of female entrepreneurship. Because most jobs, including entrepreneurship, tend to involve stark trade-offs between family-friendly amenities and pecuniary benefits, the fulfillment of family responsibilities and the pursuit of career opportunities cast two competing demands for women that necessitate a decision to prioritize one and sacrifice the other (Acker 1990, Cha 2010, Coser 1974, Edwards and Rothbard 2000, Hamilton 2000). A central question thus arises as to how the two *competing* demands associated with motherhood can simultaneously drive women's entry into entrepreneurship.

In explaining how accommodating childcare and advancing career opportunities can both motivate female entry, following the pivotal point of becoming a mother, we begin with the central insight of entrepreneurship theory: rather than being a single, uniform activity, entrepreneurship includes a wide array of activities, leading to heterogeneous outcomes (Aldrich and Ruef 2006, Assenova and Sorenson 2017, Budig 2006b, Levine and Rubinstein 2017, 2018, Thébaud 2015). In particular, entrepreneurship can be pursued via self-employment, which typically involves initiating a sole proprietorship that sells one's own products and service, or via the act of founding a new business, which often requires incorporating a business, hiring employees, and running it from the owner-manager position (Carroll and Mosakowski 1987).[1] Based on this distinction, we argue that the two forms of entrepreneurship afford different degrees of work-life balance versus career advancement, and that women's decisions to become self-employed or business founders will therefore reflect the relative intensity of each challenge they encounter in wage employment.

[1] Entrepreneurs rarely switch between the two legal forms for their business, and the choice of legal form largely reflects the ex-ante nature of the business (Kwon et al. 2013, Levine and Rubinstein 2017, Levine and Rubinstein 2018).

More specifically, women will disproportionately sort into self-employment when work-family conflict becomes more acute, because childcare responsibilities are often easier to accommodate through self-employment than through new-business founding. By contrast, women will launch new businesses at disproportionately higher rates when the opportunity structure in wage work diminishes more dramatically, because new-business founding holds greater promise of getting ahead than does self-employment. Overall, we posit that differences in the challenges mothers face in wage work will stratify them into different kinds of entrepreneurship, with founding a new, incorporated business being primarily motivated by the need to overcome career constraints, whereas transitioning into self-employment is motivated by the need to achieve work-life balance.

Testing the hypothesized relations poses stringent empirical challenges, because it requires career history, demography, and experience data for a large sample of individuals who experienced extended employment and, for at least some of them, spells in entrepreneurship. Such data must be drawn from a context in which women actively participate in the labor force before and after they have children. We obtained data that meet such requirements from the employee-employer registry from Sweden between 1990 and 2016, which tracks the career histories and life events of the entire Swedish adult population and their work conditions. We supplement the employee-level data with the Swedish Work Environment Survey (SWES), which contains information about job attributes, to directly evaluate the effects of diminishing career prospects and job stints on entrepreneurship. Sweden offers a strategic research site for our study. The generous family-friendly policies in Sweden have created more flexible wage jobs for parents than in other countries (e.g., the United States), and in turn have increased the labor participation rate for women in general, and for mothers in particular. However, family-friendly

policies can also dramatically reduce women's economic attainment and increase motherhood earnings penalties by amplifying employer discrimination against mothers (Mandel and Semyonov 2005, 2006).[2] Hence, mothers' dual challenges of less attractive career opportunities and intensified work-life conflict are highly relevant in the Swedish context, and we can examine these challenges with greater precision.

THEORY

The Prior Literature: Work-Family Conflict as the Mechanism

A central question in entrepreneurship research pertains to the antecedents of individuals' transition into entrepreneurship (Arum and Müller 2004, Burton et al. 2019, Freeman 1986, Kacperczyk 2012, Sørensen and Sharkey 2014). There is now a consensus among scholars that motives to enter entrepreneurship vary significantly by gender, with women's decisions heavily reflecting their attempts to fulfill family responsibilities (Budig 2006a, Carr 1996, Jennings and Brush 2013, Thébaud 2015). Much research has found that the central life event of becoming a mother inclines women to forgo opportunities in paid employment and to pursue entrepreneurship. Scholars primarily attribute this tendency to intensified work-family conflict, or the challenges with managing both paid work and childcare, and the sense that time for work or family is inadequate (Edwards and Rothbard 2000, Kelly et al. 2014). From this perspective, entrepreneurship is a more flexible work option than wage employment, presumably because it provides shorter work hours, a more convenient work location, and greater control over one's schedule. Thus, instances of female transition into entrepreneurship are often characterized as a fallback or "Plan B," whereby women become their own boss to reconcile work and family

[2] Studies consistently find that Sweden, like other Nordic countries, has relatively high labor participation rates among women and mothers, but it also has a higher level of occupational gender segregation, with women, especially mothers, less likely to work in lucrative and high-status occupations (Charles 1992, Mandel and Semyonov 2005, Petersen et al. 2014).

demands. Overall, motherhood is deemed to intensify the work-family conflict, and women's attempts to reconcile competing work and family demands are thought to overwhelmingly shape their decisions to enter entrepreneurship.

Despite this past work, however, theories of female entrepreneurship have not fully theorized the effect of motherhood challenges on women's entry into entrepreneurship. Beyond the supply-side challenges of work-family conflict that women inescapably face when becoming mothers, demand-side challenges may also arise following childbirth, leading to considerable career penalties for women who remain attached to paid employment. Studies of motherhood penalties attribute these obstacles to two interrelated processes, employer and institutional discrimination.

First, with regard to employer discrimination, motherhood is thought to serve as a salient status characteristic that biases employers' expectations, placing women with children at a systematic disadvantage at work (Budig and England 2001, Correll et al. 2007, England et al. 2016, Hochschild and Anne 2012). Widespread cultural beliefs about motherhood still prescribe mothers to be less competent or less committed workers than non-mothers, limiting career opportunities available to women. Thus, beyond intensified work-family conflict on the supply side, demand-side theories expect mothers to face considerable obstacles in the form of increased discrimination in wage employment. Indeed, employer discrimination against mothers and the resulting career penalties appear highly prevalent, with only a third of the motherhood earnings penalty being explained by women's interruptions from work, part-time employment, and decreased seniority/experience (Budig and England 2001). Experimental studies lend further empirical support to the possibility of discrimination against mothers: even when mothers and non-mothers demonstrate equivalent productivity, employers still view mothers less favorably,

exhibiting strong negative bias during hiring and promotion decisions against women who have children (Correll et al. 2007, Weisshaar 2018). Finally, ample qualitative evidence shows that, despite demonstrating extreme commitment to their careers (e.g., by closing a financial deal the day one gives birth), women are still subject to intense scrutiny and exclusion on the basis of their association with motherhood (Turco 2010). In brief, mothers are generally perceived as less capable or less committed to work, and such discrimination leads to a stark decline in the availability or attractiveness of career prospects available to them in paid employment.

Beyond employer discrimination, institutionalized discrimination in wage work further impedes mothers' career progress. Career clocks in many professions, especially those with lucrative opportunities, are institutionalized to fit employees free of family obligations; they are thus incompatible with the biological clocks of women who have children during their prime childbearing years (Cha 2010, Goldin 2014, Jacobs and Gerson 2004). As a result, women may miss normative deadlines for training and promotion while they are raising their children. For example, the tournament model for career progression in many professions exacerbates the motherhood penalty: forgone opportunities in early career stages affect women's chances to compete for career advancement in later stages (Blair-Loy 2003, Rosenbaum 1979, Stone 2007). To the extent that occupations have been institutionalized to make forgone opportunities unrecoverable for employees, even small career disadvantages that emerge during women's transition to motherhood may accumulate over time and become substantial (Abendroth et al. 2014). Thus, as the argument of institutional discrimination suggests, opportunities for mothers' advancement will continuously decline in the long run, even when the impact of motherhood on their human capital is negligible at the moment of childbirth.

Overall, it follows that motherhood triggers a dual challenge of work-life conflict and diminished advancement, and the two forces may, in tandem, incline women to enter entrepreneurship. Entrepreneurship scholars have neglected this joint impact, but an important theoretical tension arises when both challenges of motherhood are conceptualized more clearly in the context of entrepreneurial transition. A seemingly direct implication of the dual motherhood challenge is the expectation that accommodating childcare and advancing careers work together to motivate women toward entrepreneurship. Yet a long-standing view suggests acute trade-offs exist between flexible work arrangements (e.g., job interruptions, short hours, part-time work, and flexibility during the workday) and career attainment (e.g., pay, promotion, upward mobility), and thus the two are difficult, if not impossible, to achieve simultaneously (Acker 1990, Cha 2010, Coser 1974, Hamilton 2000). Indeed, organizational practices, workplace cultures, and social norms collectively construct high-paying jobs to demand exclusive commitment and loyalty from individuals occupying these positions (Cha and Weeden 2014, Goldin 2014, Jacobs and Gerson 2004, Williams 2001). Empirical evidence supports this claim, suggesting a strong negative relationship between flexible work arrangements and career advancement: an increase in one often necessitates a decrease in the other, forcing individuals to make acute trade-offs between achieving flexibility and advancing their careers (Budig and England 2001, Edwards and Rothbard 2000, Goldin and Katz 2011, Kalleberg 2000).

This well-established trade-off between flexible work arrangements and career advancement may even be amplified in entrepreneurship. For example, growing evidence suggests family-friendly arrangements, which entrepreneurship seems to offer (i.e., reduced work hours, convenient locations, and flexible schedules), tend to undermine women's earnings and long-term prospects in wage work (Budig 2006a, 2006b, Loscocco and Leicht 1993, Tonoyan et

al. 2010). If attempts to accommodate childcare responsibilities necessitate that women surrender or sacrifice their career prospects, a fundamental question arises regarding how the two competing demands associated with motherhood might drive women's entry into entrepreneurship.

Self-Employment vs. Founding a New Venture

Motherhood triggers dual needs—balancing work-family demands and seeking career advancement opportunities—but most jobs, including entrepreneurship, necessitate an inescapable trade-off between the two and are thus most likely pursued to prioritize a single need. To reconcile this theoretical tension, we propose that the two pressures imposed by motherhood will be associated with entry into different kinds of entrepreneurship: self-employment and the founding of a new business.

Studies of female entrepreneurship have treated women's transition into entrepreneurship as a uniform activity. However, recent entrepreneurship research recognizes that, rather than indicating a single state, entrepreneurial transitions can be better conceptualized as a number of different activities, associated with different outcomes (Burton et al. 2016, Sørensen and Fassiotto 2011). In particular, two distinct outcomes are often conceptualized (Levine and Rubinstein 2017, 2018): (1) self-employment, which commonly refers to running an unincorporated business solely relying on one's own production, and (2) founding a new organization, which typically involves incorporating a business and creating a separate legal identity from the founder to undertake large and risky investment with the help of employees (Carroll and Mosakowski 1987:575).[3]

[3] A small number of studies on female entrepreneurship highlight the conceptual and empirical challenges that arise when the two forms of entry are treated uniformly. For example, Budig (2006b) emphasizes the growing polarity of entrepreneurial activities among women, and that pooling these disparate entrepreneurial activities together risks obscuring our understanding of female entrepreneurship.

Self-employment and founding a new business differ profoundly in the extent to which they afford work-life balance versus career advancement. Specifically, unlike self-employment, which typically facilitates home production and schedule flexibility, the act of founding a new organization likely demands a founder's undivided commitment, thus intensifying rather than ameliorating the competing work and family obligations that women aim to obviate when exiting wage employment. Ample evidence suggests the activities required to generate profits and hire early employees in startups require extreme commitment and long hours, imposing severe constraints for schedules and work location, and thus exposing founders and their families to high stress levels or intense schedules (Dahl et al. 2010, Litwin and Phan 2013, Livingston and Judge 2008). Along similar lines, the success of incorporated businesses hinges on specific locations to signal their existence or create work environments (Kwon et al. 2013); this often conflicts with home-based production, which is central to women's ability to reconcile work and family demands (Loscocco and Smith-Hunter 2004). Such undivided commitment is likely at odds with the provision of childcare or work-life balance, the alleged key benefits mothers seek when turning to entrepreneurship.[4]

However, despite the overwhelming requirement of time and effort, founding a new organization may appear more appealing for career advancement, especially among individuals who aspire to mobility but face obstacles imposed by the demand-side. Indeed, early sociological accounts associated entrepreneurship with the promise of upward mobility and career attainment,

Similarly, Thébaud (2015) notes that a holistic view of women's representation in entrepreneurship must recognize the different forms of entrepreneurial activities assumed by women.

[4] Indeed, highlighting such challenges, a *Wall Street Journal* article (Koh 2018) noted: "Taking little to no maternity leave is the norm for most female founders, especially those whose companies are just getting off the ground. Tight deadlines, daily crises and the potential for missed opportunities demand it, said Ms. Loviglio. She said she pitched a potential investor in Boon and Gable from her hospital bed the day after giving birth to her daughter Joscelin, who is now 4 years old."

especially among individuals facing exclusion or career obstacles in wage employment. For example, C. Wright Mills (1951) observed the growing appeal of small business ownership in the early twentieth century, noting that working on one's own became an admired feature of the American dream, compared to the soul-deadening situation facing white-collar workers trapped in large bureaucracies (Chinoy 1955, Mills 1951). Subsequent scholarship has similarly considered entrepreneurship to be explicitly associated with upward mobility into the American middle class (Aldrich and Yang 2012, Lipset and Bendix 1959). More recent developments in organizational sociology and career research have rekindled this long-standing tradition by formulating founding a new business as a mechanism for career advancement (Burton et al. 2016, Burton et al. 2019, Sørensen and Sharkey 2014).[5] From this perspective, employees decide whether to become entrepreneurs against the backdrop of options in paid employment, and the odds of pursuing new ventures increase when career opportunities become depleted or less plentiful. For example, Kacperczyk and Marx (2016) find that software engineers are more prone to launch startups when they are employed at large firms with fewer opportunities related to promotion, wages, or internal resources. Similarly, Carnahan et al. (2012) show that entrepreneurship rates are higher when employees are provided with fewer or less enticing offers from other firms, conditional on their turnover. Hence, these studies uniformly suggest that launching a new organization is widely recognized as a viable pathway to advancement when regular routes of attainment are less available in wage employment.

[5] In many other developed countries, entrepreneurship and founding a new business are considered an appealing career option. For example, the 2016 Global Entrepreneurship Monitor documents that most respondents in all but two of 61 countries agree that "successful entrepreneurs receive high status" and a majority in nearly 89 percent of those countries consider founding a business to be "a good career choice."

Building on these studies, we theorize that the key distinction between self-employment and new-venture founding offers one way to resolve the tension between the two competing views of female entrepreneurship, because self-employment and new-venture founding each afford varying degrees of work-family balance and attainment.

Dual Mechanisms and Dual Outcomes

The distinction between self-employment and the act of founding a new venture is particularly pertinent when theorizing female entry into entrepreneurship because the particular kind of entrepreneurship—self-employment versus new-venture founding—will likely reflect the relative weight an individual attaches to each competing demand: work-life conflict versus career attainment.

First, and consistent with prior studies (e.g.,Budig 2006a, 2006b, Carr 1996, Thébaud 2015), we expect motherhood to generally increase women's rate of transition from wage employment to entrepreneurship relative to other forms of mobility (i.e., moving to another employer), as work-life conflict and employer discrimination both intensify when women have children.

However, we further postulate that, in their transition from wage employment to entrepreneurship, the specific kind of startup activity women self-select into will reflect the more pressing demand they face. Specifically, when becoming mothers, women will pursue self-employment when their childcare duties become relatively more intense or more difficult to reconcile with their wage jobs. Because self-employment affords home production and reduced work hours, women will disproportionately pursue this path when work-life conflict becomes more acute.

Conversely, following their transition into motherhood, women will be more likely to become founders of new organizations when status-based discrimination against mothers increases, constraining their options to get ahead in wage work. Because discrimination against mothers is pervasive in labor markets, and status-based discrimination tends to be much stronger at the point of hire (Correll et al. 2007, Petersen et al. 2000), inter-firm mobility is unlikely to serve as a panacea for diminished opportunities. In these cases, founding a new organization may become a relatively more appealing option, allowing women to circumvent employer bias and the resulting career constraints within current or future employer organizations. Additionally, launching a new organization might enable mothers to create and shape the work environment according to their preferred blueprints, offering the possibility to foster positive attitudes toward mothers or to set norms about the ideal worker type (Baron et al. 2007, Burton and Beckman 2007, Phillips 2005). Based on these arguments, we propose the following:

> ***Main proposition****: Following their transition to motherhood, women's rate of self-employment will increase as their work-family conflict intensifies. By contrast, their rate of business founding will increase as their career opportunities further diminish in wage employment.*

[Figure 1 depicts our theoretical framework]

To further investigate how the two competing mechanisms—intensified work-life conflict and constrained career opportunities in wage employment—propel women to exit wage work and enter entrepreneurship, we focus on occupational conditions, given their well-established role in determining the relative strength of both constraints (Goldin and Katz 2011, Petersen and Morgan 1995). Indeed, scholars have found that work-family conflict and employer discrimination vary significantly across occupations and that occupations serve as critical conditions that affect work and family interference and the structure of career opportunities

(Kelly et al. 2014, Rosenfeld 1992, Yu and Kuo 2017). It therefore follows that occupational conditions will sort women into self-employment or business founding by raising the salience of the specific constraint they face in wage employment. More concretely and following our earlier argument, we expect that, following transition into motherhood, women will be more likely to become self-employed when competing work and family demands are particularly salient in their occupations, undermining employees' control over their work schedule (Kelly et al. 2014, Rosenfeld 1992, Yu and Kuo 2017). By contrast, we expect that, following transition into motherhood, women will be more likely to become founders of new organizations when career opportunities within their occupations decline relative to options available to non-mothers, due to employer or institutional discrimination against mothers (England et al. 2016, Petersen and Morgan 1995).

METHODS AND DATA

Data

Our theory implies predictions about how motherhood changes the opportunity structure available to women, and how such changes, in turn, affect women's transition to entrepreneurship. The ideal data to test our predictions need to meet three stringent requirements. First, the data should track a large sample of women over their career histories, observing various forms of job mobility, including moves to other organizations, moves to unemployment, and moves to self-employment and to entrepreneurship. Because the rate of entrepreneurship is prohibitively low, our analyses require a large sample size to produce reliable estimates. Second, to accurately estimate the effect of motherhood on women's career mobility, we must leverage detailed information about female fertility events and family conditions, including information

about husbands' employment and income that are likely to affect women's childcare responsibilities and their attachment to the labor market. Third, testing our hypotheses hinges on our ability to observe occupational-level conditions; we need detailed information about occupational characteristics that affect work and home conflict as well as employer discrimination on the basis of motherhood status.

We obtained a dataset that meets all three requirements from the population-based registry maintained by Statistics Sweden (SCB). These matched employer-employee data track the population of Swedish residents age 16 years old and older and their employers from 1990 to 2016, allowing for longitudinal analyses of individuals' parenthood status and labor market status. For individuals who are married or living with partners, spousal information can be matched based on a couple's identifier. Records are updated every November with each individual's age, education level, income, family characteristics, and extensive employer information, including number of employees, industry, and institutional sector. We supplement these data with an additional dataset sourced from the Swedish Work Environment Survey (SWES), which includes self-reported measures of work conditions for people working in different occupations (Petersen et al. 2014). The compiled data enable us to conduct direct, stringent tests of our hypotheses.[6]

The Context of Sweden

[6] Our baseline analyses use data for the entire observation period from 1990 to 2016 to track women for a long period of their life course, but analyses of the moderating conditions only use data from 2002 to 2016 because occupational codes (and thus occupation-level measures) are only available from 2002 onward. We also ran the baseline models with data from 2002 to 2016 to ensure the robustness of our results (see results in Appendix Table 1). The magnitudes of the motherhood effects are relatively smaller but remain statistically and substantively significant when we only use data from 2002 to 2016. The general patterns of the findings still hold, supporting our predictions.

Sweden presents an analytically valuable research site for our study for a number of reasons. First, Sweden is widely known to be an exemplary egalitarian society that offers the blueprints for family-friendly policies (Evertsson and Nermo 2004); cross-national comparisons indicate that the country lies "in the family-friendly corner of the world at the forefront of family policies" (Petersen et al. 2014:1436). Indeed, a variety of family-friendly policies are available to the country's citizens, including 18-month paid parental leave with at least two months dedicated to either the father or the mother, generous subsidized childcare, and opportunities to work part-time, especially in the public sector (Hegewisch and Gornick 2011).

Yet despite the extensive family-friendly policies and cultural beliefs about gender roles in the family domain, employer discrimination against women with children is widespread in Sweden. Specifically, family-friendly policies have proven to be a "double-edged sword," enabling more women to be economically active but stifling their attainment (Charles 1992, Mandel and Semyonov 2005, Mandel and Semyonov 2006). For example, empirical evidence shows that family-friendly policies in Sweden tend to exacerbate both vertical and horizontal gender inequality by increasing women's representation in female-typed occupations and limiting their representation in more lucrative or highly-ranked occupations (Mandel and Semyonov 2006).[7] As Hansen (1995:3) explicitly argues, "if women have social rights that do not apply to men or are seldom used by men, and the practices of these rights are unprofitable for the employers, employers may choose to discriminate against female job applicants." In brief,

[7] In a cross-national comparative study, Mandel and Semyonov (2006) show that among the 22 countries investigated, Sweden ranks highest in rates of both female labor participation and mothers' labor participation, but it ranked only 13th in women's representation in managerial positions. Mandel and Semyonov further show that even though long parental leaves, reduced working hours, and tolerance toward absenteeism from work all increase female labor participation, they indirectly harm women's career attainment by reducing their labor market experience and encouraging employer discrimination.

the flexible work arrangements available for mothers reinforce the expectation that women with children will be less committed to work and less invested in their careers.

Second, although the family-friendly policies in Sweden mitigate work-family conflict for working mothers, they do not resolve it entirely, because gendered cultural norms remain salient in the family domain. Many studies show that the family domain in Sweden lags behind the pace of progressive change in the public domain, with spousal couples still making traditional arrangements in childcare. For example, in over 80 percent of spousal couples, wives take at least three quarters of the parental leave, and husbands continue to be the primary earner in most family households (Sundström and Duvander 2002); this pattern has been stable over the past two decades (Brandén et al. 2016). Other studies suggest work-life conflict is on the rise in Sweden, especially among women with children.[8]

Our analyses of Sweden may raise concerns about the external validity of our findings and their generalizability to other contexts, such as the United States and other developed countries. Past studies, with their exclusive focus on the mechanism of work-family conflict, have analyzed cross-national data to reveal how women's rate of self-employment may vary across institutional contexts (Thébaud 2015, Tonoyan et al. 2010). Although important differences exist across institutional contexts, the proposed mechanism and the empirical evidence remain generalizable across countries, with work-family conflict being an important predictor of female self-employment across a large number of countries. The magnitude of effects may vary, but we expect our proposed mechanisms will hold for other industrialized societies. Indeed, by utilizing the large datasets from Sweden that include unusually detailed

[8] In a study of stress and workload in highly-ranked positions, Lundberg and Frankenhaeuser (1999) found that men's stress level peaked mid-day and then decreased rapidly at the end of the workday, whereas women's stress level remained higher than men's throughout the workday and peaked at the end of the workday, consistent with increased pressure on working mothers from the "second shift."

information on women and their work conditions, our approach echoes Thebaud's (2015:31) call for more in-depth investigations within a single country, because studies that rely on more *consecutive* years of data within a *single* country would be "better equipped to evaluate the theorized direction of the relationship between work–family institutions and gender stratification in entrepreneurship."

Sample

We constructed our sample with several needs in mind. First, because our central argument concerns women's transition to entrepreneurship relative to other forms of mobility when they become mothers, our main analyses only include women. For robustness, we analyze the sample of Swedish men and conduct cross-gender comparisons to validate our argument that parenting has a stronger effect on women's careers than men's due to the salience of motherhood status in the labor market and mothers' greater childcare responsibilities. Second, our data span 27 years, 1990 through 2016, which allow us to precisely identify whether a woman becomes a mother in 1991 or later. Thus, 1991 is the first year individuals in our sample are at risk of leaving paid employment to found a new incorporated venture or become self-employed. To avoid left-truncation, we exclude women who were already mothers in 1990, for whom the precise time for transition to motherhood is not clear. The risk set consists of women who are participants in the labor market; we thus exclude from our sample women who are unemployed. We focus on women age 20 to 60 years old, who are in their prime years to be part of the labor force.[9] Finally, in modeling entry into entrepreneurship, we allow for repeated transition from wage employment, but we control for previous startup experience. Right-censoring individuals at the point when they make the first entry has some advantages, but doing so would mechanically

[9] We performed the same analyses on a more restricted sample of women age 20 to 50 years old, and we found highly consistent results.

place a motherhood transition before a transition to entrepreneurship. Instead, allowing for multiple entries affords a more precise point estimate of the causal relationship between motherhood and entrepreneurship.

Dependent Variables

Mobility events. We model a comprehensive set of job mobility events: the first two are transition from wage employment to entrepreneurship, either by founding a new business or becoming self-employed; the other two are moving to another employer organization, or leaving the labor force or becoming unemployed. To differentiate founding a new business and self-employment, we follow Levine and Rubinstein (2017, 2018) who consider whether or not a new venture is incorporated. The decision to incorporate an entrepreneurial venture marks the key distinction between founding an organization and being self-employed (Stern and Guzman 2018; Levine and Rubinstein 2017, 2018). We follow this tradition and treat founding an incorporated business as founding a new business, distinct from being self-employed in an unincorporated business. Consistent with Levine and Rubinstein (2017, 2018), most new businesses in our data stick to the same legal form: only 0.28% of new businesses founded by women, and 0.43% of new businesses founded by men, ever switched between the two legal forms. That is, incorporated businesses almost never become unincorporated sole proprietorships, and unincorporated businesses rarely incorporate later. The choice of a legal form thus largely reflects the ex-ante nature of the business.

We created four dummy variables for the four different types of job mobility: (1) *organizational founding* equals "1" when individuals exit wage employment to launch an incorporated organization; (2) *self-employment* equals "1" when individuals exit wage employment and become self-employed in an unincorporated business; (3) *inter-firm move*

equals "1" when individuals stay in wage employment but move to another employer organization as employees; and (4) *out of labor force or unemployment* equals "1" when individuals exit wage employment and become unemployed or are no longer part of the labor force. For all these outcomes, staying in the same employer organization is our reference group and is coded "0."

Independent Variables

Motherhood status. Prior studies lack detailed information on timing of childbirths and age of children in a household. For example, information on children, including their age or number in the household, are rarely available on a large scale, making any attempts to estimate the effect of motherhood on entrepreneurship challenging. In rare instances where data on age are available, scholars use imprecise proxies for "young children," prohibiting a rigorous test of conditions related to childbirth.[10] By contrast, we obtained fine-grained measures of motherhood timing, based on data about women's biological children. Specifically, we measure whether *a woman has given birth to a child (0/1)* using a time-varying, dichotomous indicator that equals "1" for all observation years once a woman has a child, and "0" otherwise. As an alternative measure, we consider *the number of children*, or a time-varying, count variable. For robustness checks, we created two equivalent measures based on children in the household where a woman is a parent: (1) *whether a woman has any children in the household* and (2) *the number of children in the household.* Both variables vary annually. Finally, our results (available upon request) are consistent even when we use biological children or children in the household to proxy for parenting responsibilities.

Moderating Conditions

[10] A few notable exceptions include coarse interval variables for children, such as children under age 6 (Berglann et al. 2011, Carr 1996, Tonoyan et al. 2010).

Diminishing career opportunities. Like prior research, we use the earnings penalty to proxy for diminishing opportunities that arise due to discrimination against mothers within an occupation (Petersen and Saporta 2004, Petersen et al. 2014). In constructing the earnings penalty measure, we follow a well-established approach (Budig and England 2001, England et al. 2016): for each occupation (three-digit) in each year, we construct a measure of residual log earnings for mothers and non-mothers, net of a large array of observables at the individual, employer, and institutional levels. Specifically, we account for human capital attributes that are known to affect earnings, including an individual's years of labor-market experience, organizational tenure, whether born in Sweden or not, and age (Budig and England 2001, England et al. 2016). In addition, for the earnings penalty to reflect changing opportunities due to workplace discrimination, we account for women's commitment to wage work by controlling for the percentage of time an individual is fully employed. Thus, the earnings penalty for mothers estimated in our regressions does not reflect women's reduced work hours after they become mothers. At the organizational level, we account for employer size, age, percentage of female employees, and institutional sector (i.e., whether a firm is in the private or public sector). We then compute the difference between non-mothers' and mothers' residual wage within an occupation, net of individuals' human capital, work hours, and employer characteristics. Finally, we compute the percentage difference between non-mothers' and mothers' earnings as the independent variable to measure the motherhood earnings penalty in an occupation in a given year. Higher values of this measure indicate a larger motherhood earnings penalty within a given occupation.

Work-life conflict. To proxy for work-family conflict, prior research commonly focuses on employers' schedule control, or control over the timing of employees' work, including the

number of hours employees work and the location of their work (Kelly et al. 2014:487). Following this approach, we focus on schedule control at the occupation level, using the Swedish Work Environment Survey (SWES). Between 1995 and 2015, SWES surveyed about 10,000 to 15,000 individuals every two years, using a variety of questions about work conditions.[11] We draw on two of these questions to measure schedule control: (1) *whether individuals have the ability to decide about their work hours*, "1" for "yes" and "0" for "no"; and (2) *how often can individuals decide the pace of their work*: (1) *less than 10 percent of the time,* (2) *a quarter of the time,* (3) *half the time,* (4) *about three quarters of the time*, or (5) *almost all the time*. We used individual tax registration IDs to match SWES with the employer-employee data and to construct two measures at the occupation level (three-digit): (1) *the proportion of employees in an occupation that reports having the ability to decide their work hours* (ranging from 0 to 1); and (2) *on average, the extent to which workers in an occupation think they have the ability to decide their work pace* (ranging from 0 to 5). Higher values of this measure indicate that workers perceive having greater control over their work pace. We also tried an alternative measure for control over work pace by coding each categorical measure into a numerical number and then taking the average, for example: (1) *less than 10 percent of the time (10%),* (2) *a quarter of the time (25%),* (3) *half the time (50%),* (4) *about three quarters of the time (75%),* and (5) *almost all the time (100%)*. The interval measure and the continuous measure give consistent results.

Individual-level controls. We control for additional individual-level characteristics by including covariates for an individual's age and tenure prior to entry. We also control for labor market experience, measured by the number of years in wage employment, because experience is

[11] The survey is conducted by the Work Environment Authority in the fourth quarter every two years to ask employees questions concerning their work environment and work-related disorder. A phone interview is supplemented by a postal questionnaire. Because the SWES data are collected every two years, we impute the missing values from the previous year for years when the survey was not conducted.

a strong predictor of entrepreneurial entry (Shane 2003). We include an indicator variable for marriage status (single or cohabitating with a partner constitutes the reference group), and for whether an individual was born in Sweden. Finally, we add a control for job-switching propensity, measured by the number of times an individual previously changed employers.

Family-level controls. We control for husband's employment status by accounting for whether he is unemployed, employed in wage employment, self-employed in an incorporated business, or self-employed in an unincorporated business. We construct a dummy variable for each of the last three statuses, with unemployment being the reference group. Finally, we account for husband's income, because a husband's pay may be an important predictor of whether a woman is willing and able to enter entrepreneurship.

Occupation-level controls. At the occupation level, we include a number of controls to mitigate the concern that these attributes might correlate with our treatment and the outcome, if similar factors incline women to self-sort into certain types of occupations and to enter entrepreneurship. Specifically, we account for the rate of founding a new business by men in an occupation to mitigate the possibility that some women tend to self-sort into occupations with more ample entrepreneurial opportunities. For a similar reason, we control for self-employment by men within an occupation, given that individuals who are ultimately more likely to become self-employed might tend to self-sort into occupations with less ample opportunities in wage work. Our models also include controls for work hours: in the Swedish context, parents can work reduced hours at their own discretion. For example, parents might decide to work fewer hours, reducing their regular work time by 20 percent, 50 percent, or even more. We aggregate the level of involvement at work in each occupation for non-mothers and mothers by calculating the average percentage of full-time employment in an occupation for both mothers and non-

mothers. Finally, we control for the earnings difference between fathers and non-fathers to mitigate the possibility that mothers' transitions into entrepreneurship simply reflect earnings differences between parents and non-parents.

Firm-level controls. We include annually updated workplace-context variables to control for organizational conditions that shape careers. First, we control for workplace size and age because employees' propensity to enter entrepreneurship differs across organizational size and age distributions. Firm size is the natural logarithm of the number of employees, and the measure encompasses all establishments founded and owned by the same parent organization. Firm age is the number of years since founding. We include dummies for the employer's sector: (1) private sector, (2) governmental and municipal administrations, (3) government-owned organizations in the public sector, and (4) foreign companies. Private sector is the reference group. Finally, because the presence of close peers can affect entrepreneurship, we account for female representation in a firm by computing the percentage of female employees per firm.

[Insert Table 1 about here]

ANALYTIC STRATEGY

We estimate discrete-time competing risk models to assess how motherhood affects women's job-mobility outcomes, including transition into entrepreneurship. These models are particularly suitable for our analyses because they consider the possibility of temporal variations in the probability of transition to available states, such as motherhood and entrepreneurship. Moreover, our data involve annual records of women's career histories and life courses, which give rise to discretely measured durations. The dependent variables in our analyses are instantaneous rates of transition to different, mutually exclusive jobs in a specific year, and the competing risk models allow us to evaluate the relationship between covariates and the specific

transitions, including how transition into motherhood affects each of the four types of job mobility differently.

In all our models, we include an *individual fixed-effect* estimator to mitigate the concern that unobserved heterogeneity at the individual level can confound our results, leading to biased estimates. For example, stable individual dispositions or personal traits might be correlated with women's decisions on motherhood and their preferences for certain occupations and entrepreneurship activities. By estimating results "within an individual," it is possible to net out individuals' time-invariant, individual dispositions or socio-economic conditions. In our specific setting, it is thus possible to estimate the impact of motherhood on mobility events by directly comparing the rates of transition before and after a given woman becomes a mother.

Our models also include two-digit industry and county fixed-effects to mitigate the possibility that industry or geographic characteristics, which are time-invariant, drive the finding concerning motherhood. Similarly, in models where we investigate occupational-level conditions, we include three-digit occupation fixed-effects to estimate our results net of any unobserved and time-invariant attributes of occupations. With these specifications—including individual fixed-effects and a comprehensive set of time-varying variables at the individual, occupation, and firm levels—we can investigate more rigorously how motherhood affects individual women's transition to entrepreneurship over time, relative to other forms of mobility.

RESULTS

Descriptive Results

Table 1 presents descriptive statistics summarizing all individual-year observations. First, over their career histories, about 11 percent of women in our sample became self-employed (7%) or founded a new business (4%) by their mid-50s. The numbers are relatively lower than

estimates of female entrepreneurship in the United States, consistent with findings from cross-national comparative studies (Elam and Terjesen 2010, Thébaud 2015). The lower rate of female entrepreneurship is primarily driven by a smaller percentage of self-employed women in Sweden than in the United States, reflecting more abundant flexible job opportunities in wage employment in Sweden (Ferber and Waldfogel 1998, Guzman and Kacperczyk 2019).

Second, aggregated at the individual-year level, our analyses show that motherhood is more commonly associated with female founders (83%) and self-employed women (76%) than with female wage workers (62%), suggesting a positive relationship between motherhood and women's participation in entrepreneurship. Third, our results show profound differences between incorporated and unincorporated businesses founded by women in Sweden. Incorporated businesses founded by women are more likely to have employees: the average size of an incorporated business is 9, compared to 1.45 for self-employment. Indeed, nearly 80 percent of incorporated businesses have at least one employee, whereas only 20 percent of unincorporated businesses do. In terms of the location of a new business, we found that incorporated businesses are much less likely than unincorporated businesses to be home-based. About 65 percent of unincorporated businesses are located at home, compared to only a quarter of incorporated businesses.

Finally, incorporated businesses generate higher financial returns to female entrepreneurs than do unincorporated businesses: female entrepreneurs in incorporated businesses earn, on average, 450,500 Swedish kr per year (about 49,500 U.S. dollars); this is more than the earnings for self-employed women (217,500 kr, about 24,000 U.S. dollars) and female salaried workers (305,000 kr, about 33,600 U.S. dollars). Overall, these differences confirm that organizational founding is less likely than self-employment to be associated with flexible home arrangements,

but it has much greater potential for career attainment, especially for increasing earnings (Yavorsky et al. 2019).

Model Results

The Baseline Effect of Motherhood

Our central claim states that motherhood will change the distribution of advancement opportunities available to women, increasing the appeal of being a business founder, relative to other forms of mobility events or staying put within the current employer. Table 2 presents baseline findings from a discrete-time competing risk model, showing the effects of motherhood on women's job transitions: founding a new business, becoming self-employed, switching jobs, and entering unemployment or leaving the labor force. Consistent with our baseline expectation, motherhood increases women's likelihood of exiting wage employment to pursue entrepreneurship, either to found a new business or to become self-employed. Strikingly, these results further show that motherhood is associated with a greater likelihood of becoming a business founder than becoming self-employed. More specifically, columns 1 and 2 show that motherhood increases the rate of founding a new business by 39% [=exp(0.331)-1, $p<0.0001$] and the rate of self-employment by 15% [=exp(0.1367)-1, $p<0.0001$].

A potential concern about the motherhood effect on women's entry into entrepreneurship is that it may simply reflect a higher propensity for mobility: exiting from one's current employer. However, column 3 indicates this is not the case: motherhood is negatively associated with inter-firm mobility, as the rate of inter-firm moves decreases by 9% [=1-exp(-0.0978), $p<0.0001$]. This might reflect increased barriers to inter-firm mobility for mothers, as employer discrimination against mothers is also likely to put them at a systematic disadvantage at the point of hire (Correll et al. 2007, Petersen et al. 2000). Furthermore, when comparing the motherhood

effect across mobility outcomes, we see that becoming a mother increases women's propensity to found a new business more rapidly than their propensity to move to another employer organization: the difference between the two estimates is statistically significant at conventional levels ($\chi^2 = 6.26, 1\ df$). This comparison suggests that, following transition into motherhood, the relative appeal of entrepreneurship to wage employment increases, with women being more likely to exit wage employment and to pursue alternative options in entrepreneurship. Finally, column 4 shows that women are also significantly more likely to leave the labor force or become unemployed when they become mothers [=exp(1.91)-1, p<0.0001].

As a way to validate our findings on motherhood, we estimated the same specifications for men to examine the differences between fatherhood and motherhood (see results in Appendix Table 2). We found that across all four types of job mobility, the effects of fatherhood on men's career mobility are significantly smaller in magnitude than the effects of motherhood on women's career mobility. For example, fatherhood increases the rate of founding a new business by 8% for men, whereas motherhood increases women's rate of founding a new business by 39%. Similarly, fatherhood increases the rate of self-employment by 3%, compared to 15% for women when they become mothers. These results suggest that when they become parents, women experience more salient changes in their family responsibilities and their careers than do men. The greater career and family challenges associated with motherhood, in turn, lead to a stronger effect of motherhood on women's mobility into entrepreneurship.

Taken together, the differential effects of motherhood on the four types of mobility suggest motherhood increases women's transitions out of wage employment: some women will opt out of wage employment or become unemployed, and others will self-sort into different forms of entrepreneurship. Importantly, the significant effects of motherhood on both types of

entrepreneurship (self-employment and founding a new business) imply two different processes inclining women to pursue entrepreneurial activities. In the next section, we examine those processes in further detail.

[Insert Table 2 about here]

Moderating Effects of Career Opportunities and Work-Family Conflict

We next turn to conditions predicted to moderate the effects of motherhood on women's transition into entrepreneurship. We proposed that conditions that mainly intensify work-family conflict will have a disproportional influence on mothers' transition into self-employment, whereas conditions that mainly diminish mothers' advancement options will have a disproportional influence on their founding of an incorporated business.

Diminishing career opportunities. To test our claims formally, we first examine the interaction term between motherhood status and the motherhood earnings penalty in Table 3. In column 1, we estimate the transition from wage employment to becoming a founder of a new business, and in column 2, we estimate the transition from wage employment to self-employment. As expected, the interaction effect of motherhood and the motherhood earnings penalty in the current occupation is positive and statistically significant. Recall that we proxy for diminishing career opportunities for mothers due to discrimination by computing a motherhood earnings penalty, that is, the residual difference between non-mothers' wages and mothers' wages within an occupation net of a large battery of controls. The average motherhood earnings penalty is 7.6%, with a standard deviation of 11.3%. Becoming a mother will increase a woman's odds of founding a new organization by about 10%, as the motherhood earnings

penalty in their occupation increases by one standard deviation, 11.3% [exp(=0.0085*11.3)-1, p<0.0001].

By contrast, women's transition to self-employment does not depend on the motherhood earnings penalty in their occupation, as shown by the insignificant effect of the interaction term of motherhood status and motherhood earnings penalty in an occupation. Furthermore, the motherhood earnings penalty in an occupation has a stronger positive effect on mothers' transition to entrepreneurship than their transition to self-employment, and the difference is significant at conventional levels ($\chi^2 = 22.85, 1df$). These results lend strong support to our argument that, when women face diminishing career opportunities in wage employment and incur a motherhood penalty, they become more willing to pursue entrepreneurship via founding an incorporated business rather than via self-employment in an unincorporated venture.

[Insert Table 3 about here]

One concern with the moderating effect of the occupation-level motherhood earnings penalty is that mothers who are prone to founding a new business might also be more likely to self-select into occupations that exhibit a greater earnings penalty. We first mitigate this concern by including in our specifications an occupation fixed-effect estimator. With an occupation fixed-effect, our estimates can be interpreted as suggesting that, for the same individual within the same occupation, a transition from being a non-mother to being a mother increases the probability of becoming a founder. Despite this rigorous specification, however, one might still be concerned that the motherhood earnings penalty can vary over time within an occupation, and that such variance can be spuriously correlated with entrepreneurial opportunities, inclining mothers to transition from wage employment to entrepreneurship. This alternative explanation is

unlikely, because such selection would need to additionally correlate with propensity to become a mother; there is no obvious explanation, however, as to why selection into occupations with entrepreneurial opportunities would be higher among mothers than non-mothers. However, to examine this possibility formally, we account for time-varying entrepreneurial opportunities within an occupation by including in our models the rate of founding a new business among male employees in a given year and occupation, and the rate of self-employment among men within a given year and occupation. Including these controls has no bearing on the coefficients of motherhood and the occupational level conditions (results available upon request). Overall, these findings help rule out alternative explanations of our results.

Work-family conflict in an occupation. We also proposed that the effect of motherhood on self-employment should be amplified for mothers in occupations that impose intense work-family conflict. Accordingly, the effect of motherhood should diminish for women in occupations with greater schedule control or flexible work arrangements (Kelly et al. 2011, Kelly et al. 2014, Rosenfeld 1992, Yu and Kuo 2017). We test this possibility by interacting the transition into motherhood with work-life conflict (measured by the proportion of individuals within the occupation able to determine their work hours (ranging from 0 – 1) and the extent to which individuals in an occupation can decide the pace of work (ranging from 1 – 5). Columns 1, 2, and 3 in Table 4 show estimates for the transition from wage employment to launching a new business, and columns 2, 3, and 4 show estimates for the transition from wage employment to self-employment in an unincorporated business.

The results for both measures lend consistent support to our argument that women are less likely to fall back on self-employment when they work in occupations with greater schedule control. For example, on average, 6 out of 10 employees report having the ability to control work

hours, and one standard deviation of this variable is 0.2. As the percentage of individuals in an occupation reporting they have the ability to determine their work hours increases by 20%, the effect of motherhood on women's transition to self-employment decreases by 6% [=1-exp(-0.323*0.20), $p<0.01$]. However, this condition about schedule control does not have any significant effect on women's transition to founders' roles, regardless of whether or not they have children. We find similar patterns with our second measure. Recall that employees can report the extent to which they have the ability to decide the pace of their work. The average level of control over work pace in our data is about 3.6, which is between half and about three quarters of the time. The standard deviation of this variable is about 0.37. As the level of control over work pace increases by 0.37 for workers in a given occupation, the rate of self-employment decreases by 4% for women with children [=1-exp(-0.113*0.37), $p<0.01$].[12] However, this condition bears no effect on women's transition to entrepreneurship via founding a new business, regardless of whether or not women have children.

Together, these results provide strong support to our argument that work conditions that affect women's control over their schedule and the extent to which they experience competing work-family demands have a profound influence on women's transition into self-employment: when women have more control over their work hours and their work pace, they are less likely to retreat to self-employment for better work-life balance. We do not find similar results for

[12] Employees' control over work pace in an occupation is positively correlated with transition to self-employment for women without children. This may reflect the similar characteristics of jobs in such occupations and self-employment, and individuals' preferences for jobs with family-friendly amenities. But mobility between self-employment and wage jobs tends to decline when women have children, for two reasons: (1) the transition cost of changing jobs is higher when women have children; and (2) the marginal family-friendly benefits provided by self-employment may decline if women are already in such wage jobs.

founding a new business. Overall, these analyses deliver additional evidence that two parallel processes lead women toward entrepreneurship.

[Insert Table 4 about here]

Additional Analyses, Robustness Checks, and Alternative Explanations

Evidence for the Trade-offs

Our argument suggests that founding a new business is a career attainment mechanism, likely adopted in response to an earnings penalty following transition into motherhood. This is in significant contrast with the argument for women's entry into self-employment, which suggests women willingly sacrifice their earnings for greater work-life balance. To offer additional support, we examine earnings changes when women become founders of new businesses versus becoming self-employed.

Results in Table 5 confirm that founding a new business holds greater promise for earnings: mothers who found an incorporated business earn 2,500 kr more than comparable salaried mothers. Moreover, self-employed mothers earn 110,400 kr less than comparable salaried mothers. We further assess the motherhood earnings penalty between mothers and non-mothers in each of the three groups. Women in wage employment experience a substantial earnings penalty when they become mothers: on average, salaried female workers earn about 51,000 kr less when they have children [$p<0.001$]. However, founding a new business can *mitigate* the motherhood earnings penalty: the motherhood earnings penalty is 26,460 kr among founders of new organizations, much smaller than the motherhood earnings penalty among salaried wage workers [26,460 kr=24,570-51,030, $p<0.001$]. By contrast, self-employment amplifies the motherhood earnings penalty: compared to self-employed women without children,

self-employed mothers earn 59,610 kr less [=(-51,030-8,580)*100, $p<0.001$]. Together, these results validate our argument that women tend to make trade-offs when choosing between entrepreneurship and self-employment, and their decisions are likely heavily influenced by the strength of the particular challenge they face in wage employment: diminishing career opportunities versus intensified work-family conflict.

[Insert Table 5 about here]

Family Conditions and Spousal Influence

Our argument hinges on the effect of motherhood on women's career opportunities in wage employment and their subsequent mobility into entrepreneurship. Putting women in the context of their family households, we assess whether women's pursuit of entrepreneurship for either career attainment or work-life balance is contingent on their family conditions: (1) whether they are living with spouses/partners or are single mothers, and (2) if they have spouses or partners, whether their spouses are also involved in entrepreneurship.

Differences between married and single mothers. Having a spouse might affect women's share of childcare responsibilities and their ability to take low-paying jobs. We thus run the baseline models separately on women living with a husband or partner and women who are single, separated from their spouse, or widowed. Results in Table 6 show that motherhood has stronger effects on women's founding of a new business and their transition to self-employment when they are married or cohabiting with a partner than when they are single parents. For example, motherhood increases women's rate of transition to entrepreneurship by 63% when they are married or living with a partner (column 1) but only by 21% when they are single parents (column 3). This may reflect stronger constraints single mothers face in pursuing career

opportunities. Furthermore, motherhood significantly increases the rate of transition to self-employment by 45% (column 2) for women who are married or cohabiting, but it bears no statistically significant effect on single mothers' transition to self-employment. This finding suggests self-employment is a more feasible approach to work-life balance when women have breadwinner husbands and can thus afford the financial cost. In summary, entrepreneurship is more likely to serve as an alternative route for career attainment or a "Plan B" when women have financial and childcare support from a spouse.

[Insert Table 6 about here]

Effects of spouse's entrepreneurial status. Our findings suggest the motherhood transition inclines women to pursue entrepreneurship, but one alternative explanation might concern the confounding effect of spouses' entrepreneurial status. For example, a spouse's decision to found a new business may affect a woman's decision to become a mother and to subsequently transition to entrepreneurship. One possible scenario might be that women's transitions into entrepreneurship are primarily driven by their husbands' decisions to found a new business, following their transition into parenthood. That is, although women found a new business following their transition to motherhood, they simply join their husbands to found a family business. Consistent with this claim, prior studies show that women often found new businesses with their husbands, as part of the family plan for income and childcare (Yang and Aldrich 2014).

Descriptive results indicate that about 40% of Swedish female founders also have husbands running a new business, and about 90% of entrepreneurial couples are running the

same business. But spousal teams are less common for self-employment, with only a quarter of self-employed women having self-employed husbands.

To mitigate the concern more formally, we estimate the net effects of motherhood while controlling for husbands' labor market status. In columns 1 and 2 of Table 7, we estimate the competing risk models for the four different types of career mobility, while controlling for husband's income and employment status—i.e., whether husbands are running a new business, are self-employed, or work as an employee, with unemployment as the reference group. There is some evidence that women's entrepreneurial status, either their founding of a new business or their self-employment, is correlated with their husbands' entrepreneurial status; this reflects some co-selection of spousal couples into entrepreneurship. However, the effects of motherhood on founding a new business and self-employment remain statistically significant, although the magnitudes become relatively smaller.

To further rule out the possibility that a husband's entrepreneurial status may drive our effect entirely, we re-estimate our baseline specifications but exclude women's entrepreneurial entry when it involves their spouse as a cofounder, for an incorporated or unincorporated business. Results in columns 3 and 4 of Table 7 show that our findings remain fairly stable, with motherhood statistically increasing women's entry into entrepreneurship, independent from their spouses' founding status. Overall, while confirming the strong tendency of husbands' and wives' co-selection into entrepreneurship, our findings suggest the strong effect of motherhood on women's entry into entrepreneurship is not driven by co-selection of spousal couples into entrepreneurship.

[Insert Table 7 about here]

Strategic Sorting

Another concern might pertain to strategic sorting, whereby women anticipate heavier workloads associated with starting a new business and thus choose to time motherhood to precede entrepreneurial entry to free up time for their new businesses later. Strategic sorting is unlikely to drive our findings for several reasons. First, the strategic sorting argument implies joint planning for motherhood and entrepreneurship, based on an individual woman's (fixed) intrinsic preference for both motherhood and career advancement. By including individual fixed-effects and various time-varying controls in our models, we should have mitigated the possibility of strategic sorting. Second, to offer an alternative explanation, strategic sorting would also imply that women with a preference to advance their careers are more likely than their counterparts to have children early. However, much literature documents empirical patterns that directly contradict this idea. Specifically, studies generally find "delayed pregnancy" effects, whereby women pursuing time-intensive and demanding careers typically become mothers later rather than earlier in the life course. For example, an extensive review of studies on women's fertility shows, in general, a negative relationship between women's labor participation rate and fertility rate, suggesting delayed transition to marriage and motherhood as women pursue their careers (Brewster and Rindfuss 2000). Blossfeld and Huinink (1991) provide more detailed evidence, showing that competitive professions have more requirements for educational credentials, and women's extended schooling delays their transition into motherhood, an effect aligned with normative expectations that young women in school are "not ready" for marriage and motherhood. We found a similar pattern in our data. As shown in Figure 2, women in managerial or professional occupations tend to have children later than do women in other occupations. In fact, on average, women who occupy non-managerial or non-professional occupations tend to have their first child before age 30. By contrast, women in managerial or

professional occupations tend to have their first child in their early 30s. These results do not support the argument that women have children early in order to take on more time-demanding tasks.

[Insert Figure 2 about here]

Although the patterns in our data do not support the possibility of strategic sorting, we nevertheless conducted additional analyses using an instrumental variable (IV) estimation to further mitigate a concern of sorting along unobserved, time-varying dimensions that could correlate with motherhood timing. An instrument uses variation unrelated to the outcome to estimate the causal effect of a treatment (Morgan and Winship 2015). To identify such variation, we used the success of sporting events (i.e., victories of a football league) within a given county and a given year. Prior research documents the causal effects of sporting success on birth rates, whereby cities that celebrate football victories tend to experience higher birth rates in the following year (Montesinos 2013). Our instrument builds on the idea that some pregnancies might be driven less by an individual's strategic choice, reflecting instead transient changes in the social environment. At the same time, winning a sport championship is unlikely to directly influence our outcome—female transition into entrepreneurship— and thus it represents a plausible instrument for the timing of transition into motherhood. We therefore use the championship of a local football league to instrument for motherhood. We obtained data on annual Swedish football champions for every year between 1990 and 2016.[13] We identify the county where the winning team was based to instrument the timing of transition into motherhood for women residing in the same county.

[13] https://en.wikipedia.org/wiki/List_of_Swedish_football_champions

Table 8 reports two-stage least squares (2SLS) models. In the first stage (8A), we regress a woman's likelihood of having a child on whether she resided in a winning county in the prior year. As expected, results from an OLS specification indicate that a local team's championship in the previous year increases a woman's likelihood of having a child in the current year by 0.004. The effect is significant at the 0.0001 level, while controlling for county and calendar-year fixed-effects. The second stage (8B) shows that the (instrumented) child births lead to similar estimates for all the transitions we considered: motherhood increases women's exit from wage employment to either become unemployed or to transition into entrepreneurship (founding a new business or self-employment). Importantly, the IV estimates remain statistically significant, suggesting that, even when timing of childbirth arises exogenously, our results are recovered. Interestingly, the IV coefficients are relatively smaller than the estimates we obtained in previous analyses: motherhood increases women's rate of founding by 7% (versus 39% without IV) and women's rate of unemployment by 30% (versus 5 times without IV). Accounting for the potential endogeneity of motherhood timing leads to a relatively smaller but still statistically significant effect of motherhood on transition into entrepreneurship. Overall, these results provide additional evidence that our effects are unlikely to reflect strategic sorting into motherhood timing.

[Insert Table 8 about here]

DISCUSSION

Entrepreneurship has long been touted as an alternative work arrangement to wage employment, serving as the last resort for individuals to escape from greedy, modern organizations (Coser 1974, Epstein 1999, Jacobs and Gerson 2004, Nomaguchi and Johnson

2009, Williams 2001). In explaining women's decisions to enter entrepreneurship, however, prior research has exclusively focused on a single mechanism: intensified work-family conflict when women become mothers (Budig 2006a, 2006b, Burton et al. 2019, Carr 1996, Thébaud 2015). Yet, beyond work-family conflict, motherhood is also associated with a concomitant challenge in wage employment: diminishing career opportunities stemming from employer or institutional discrimination. By incorporating diminishing career opportunities as an additional determinant behind women's entry into entrepreneurship, our study develops a more complete theory about the influence of motherhood on entrepreneurship. We propose that, insofar as the decision to prioritize family-friendly amenities necessities the decision to forgo career opportunities, and vice versa, women's entry into entrepreneurship inevitably involves acute trade-offs.

Drawing on large-scale matched employer-employee data from Sweden, our empirical analyses show that, following childbirth, intensified work-family conflict and diminishing career opportunities sort women into different types of entrepreneurship. Making an important distinction between self-employment and founding of a new organization, our results document two different antecedents of female entrepreneurship, with work-family conflict disproportionally inclining women to pursue self-employment and diminishing opportunities primarily leading them toward founding a new business.

By probing deeper into these mechanisms, we found that when women work in occupations where mothers experience a greater earnings penalty, they are more likely to turn to entrepreneurship for more abundant career opportunities. But the pursuit of career opportunities in entrepreneurship is exclusively tied to business founding, not self-employment. In contrast, when wage jobs available to women provide less schedule control and thus intensify work-

family conflict, mothers are more likely to fall back on self-employment to mitigate competing work and family demands. The need to reconcile work and family demands does not motivate women to found new businesses, as founding a business often intensifies rather than ameliorates the job strain mothers experience.

We also investigated the contingencies of our arguments by taking into account women's marital status and spousal influence. We found that pursuit of entrepreneurship for career opportunities or work-life balance is more likely when women are married or cohabiting. To the extent that husbands' income provides a stable base, women are more able to afford the financial cost of becoming self-employed. Likewise, insofar as spousal support facilitates women's pursuit of entrepreneurship for career opportunities, career attainment through entrepreneurship is less feasible for single mothers who face more constraints in the family domain.

CONTRIBUTIONS

By developing a more complete theory to account for women's transition from wage employment to entrepreneurship, our study extends prior work on female entrepreneurship. We draw on insights from the motherhood penalty literature, research on career mobility, and the literature on work-family intersections, and we make important contributions to each of these research areas.

First, we contribute to a more complete understanding of women's mobility from wage employment to entrepreneurship by examining how the dual challenge facing mothers in wage employment—diminishing career opportunities and intensified work-family conflict—affects their propensity to seek alternative career options in entrepreneurship. Whereas prior work has characterized entrepreneurship as a fallback strategy to resolve work-family conflict, we proposed an alternative perspective: female entrepreneurship can also be viewed as a path for

career advancement, and women will likely pursue this route when chances for attainment within wage work diminish, in part due to employer discrimination against mothers. Our proposed theory relaxes the assumption made in past research that women will uniformly accept lower earnings in exchange for nonpecuniary benefits, such as family-friendly amenities. An important implication of our findings is that intensified work-family conflict and increased employer discrimination might co-occur as women transition to motherhood, but they have different ramifications for how women pursue entrepreneurship. Motherhood status is strongly associated with women's likelihood of departing from wage employment and becoming their own boss, but women's approaches to entrepreneurship may vary significantly depending on their priorities: family responsibilities versus career advancement.

Empirically, we offer direct evidence of the influence of work-family conflict and employer discrimination on women's entry into entrepreneurship. Studies on work-family conflict often rely on cross-national comparisons, providing suggestive evidence for how family-friendly policies ease women's need to enter entrepreneurship (Elam and Terjesen 2010, Thébaud 2015, Tonoyan et al. 2010). By analyzing long-term career histories of women in Sweden, our study probes deeper into the work-family conflict experienced by individuals in wage employment. Unusually rich information on individual women and their career conditions in wage employment afford stronger evidence for the argument that women may fall back on entrepreneurship as work-family conflict intensifies (Thébaud 2015).

Second, we bridge the literature on the motherhood earnings penalty in wage employment and the literature on entrepreneurship by examining how employment conditions accelerate women's entry into entrepreneurship after they become mothers (Budig and England 2001, Correll et al. 2007, England et al. 2016, Hochschild and Anne 2012, Petersen et al. 2014,

Stone 2007). Our analyses document frequent transitions between wage employment and entrepreneurship and how career challenges in wage employment incline women to found new incorporated businesses. Most of the literature on motherhood penalties focuses on career attainment and outcomes in wage employment, but our findings demonstrate the prevalence of entrepreneurship for women's career attainment and the theoretical relevance of entrepreneurship for understanding motherhood penalties. In doing so, we bring to light a new set of phenomena for empirical investigation by gender and family scholars.

Third, by explaining how women's overall career opportunities in wage employment affect their entry into entrepreneurship, we contribute to the rising stream of research that takes a career mobility perspective to explaining entrepreneurship (Burton et al. 2019, Freeman 1986, Kacperczyk 2012, Sørensen and Sharkey 2014). As one of the most important developments in the entrepreneurship literature, the career mobility perspective has brought entrepreneurship back to the context of employment organizations to shed light on individuals' transition to entrepreneurship. In explaining entrepreneurial entry, however, the career mobility perspective has restricted attention to the current employer organization (Sørensen and Sharkey 2014). Yet when examining declining career opportunities due to workplace discrimination, women's overall career opportunities in wage employment, rather than those in the current organizations, will determine the relative appeal of entrepreneurship (Abendroth et al. 2014, Petersen and Morgan 1995, Yu and Kuo 2017). For example, motherhood discrimination in the current organization might incline women to switch employer organizations rather than move into entrepreneurship. But discrimination against mothers at the occupation level will diminish women's career opportunities in wage employment in general and thus increase the relative attractiveness of entrepreneurship as a career option. We advance the career mobility perspective

on entrepreneurship by emphasizing how occupational conditions affect women's career opportunities in wage employment.

Finally, we contribute to the large body of research on work and family intersections by enriching the understanding of how work-family interference affects women's career decisions. More specifically, we integrate two important insights from the recent literature on work-family intersections: employees' schedule control profoundly affects their ability to cope with the work-family interface (Kelly et al. 2011, Kelly et al. 2014), and women's career decisions reflect constraints in both the work and family domains (Cha and Weeden 2014, Hochschild and Anne 2012, Kelly et al. 2014). Our findings illustrate how diminishing career opportunities in wage employment might exert a stronger influence on women's pursuit of entrepreneurship when they face fewer constraints in the family domain, i.e., when they have spousal support in financial resources and childcare. Spousal support facilitates women's career mobility, and a lack of support leads to significant constraints for single mothers, who might get stuck in their current wage jobs without much freedom to seek alternatives.

Several issues remain to be addressed in future research. First, our study strongly suggests that the two types of entrepreneurial entry are associated with different motivations and different concerns, so future work might explore in greater depth the trade-offs women face when deciding whether to transition into self-employment or found a new organization. For example, scholars might investigate the potential effects of launching a new venture on women's work-life balance and their well-being more broadly. Our descriptive analyses provide the first step toward such understanding, and we document that, relative to paid employment, newly-founded firms are unlikely to offer better work-life balance (e.g., in terms of work-home travel distance). But future research should further investigate the extent to which founding a new

organization affects women's work-life conflict and whether acute trade-offs between earnings and work-life balance might arise when women leave paid employment to found and grow new organizations. Such research would have important policy implications. Second, in analyzing a longitudinal dataset from Sweden, we have taken the first step to test the different conditions that drive women's transitions to entrepreneurship. Future studies of alternative contexts, especially countries where female wage employees experience intense work-family conflict (e.g., the United States and Germany), may help assess the generalizability of our findings.

CONCLUSION

By establishing clear linkages between the career challenges women face in wage employment and their transition to entrepreneurship, our study makes important contributions to theories and empirical work on gender inequality, career mobility, and entrepreneurship. We advance current theories by proposing an alternative view of female entrepreneurship that emphasizes career antecedents; this complements prior work that disproportionately highlights women's motivation to accommodate the conflicting demands of job and family as a key driver of female entrepreneurship. We document that motherhood status triggers distinct processes that stratify women into different types of ventures, with organizational founding motivated by career advancement and self-employment motivated by work-life demands. Together, these findings suggest that specifying the causal processes by which women enter entrepreneurship must begin with more analytical precision. Moving the debate beyond its current focus on work-life conflict, and recasting the core arguments in terms of the precise mechanisms behind self-employment versus the act of launching a new venture, is the first step toward a clearer understanding of the antecedents of female entrepreneurship.

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Figure 1. Conceptual Framework of Female Entrepreneurship

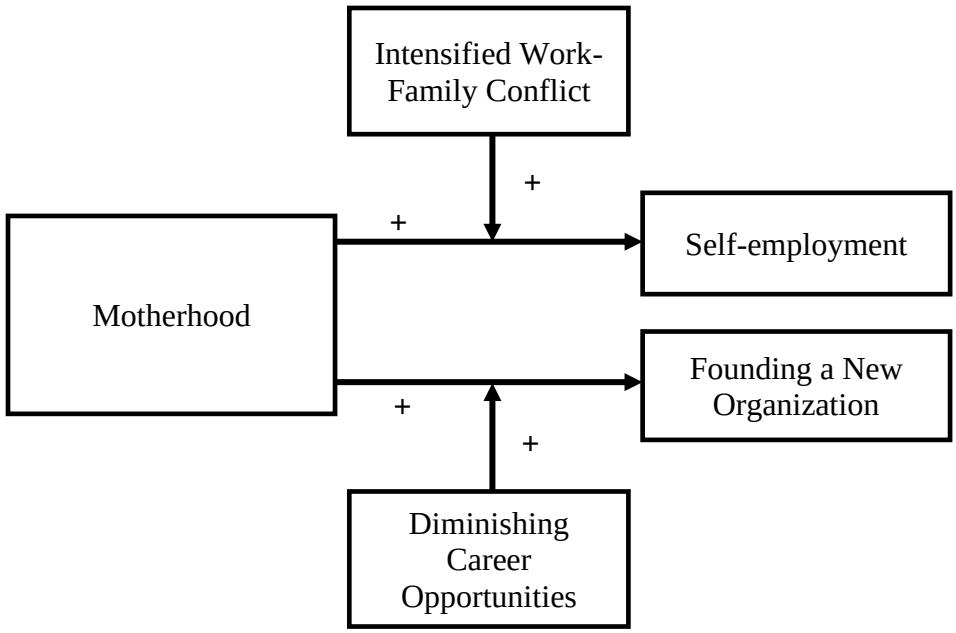
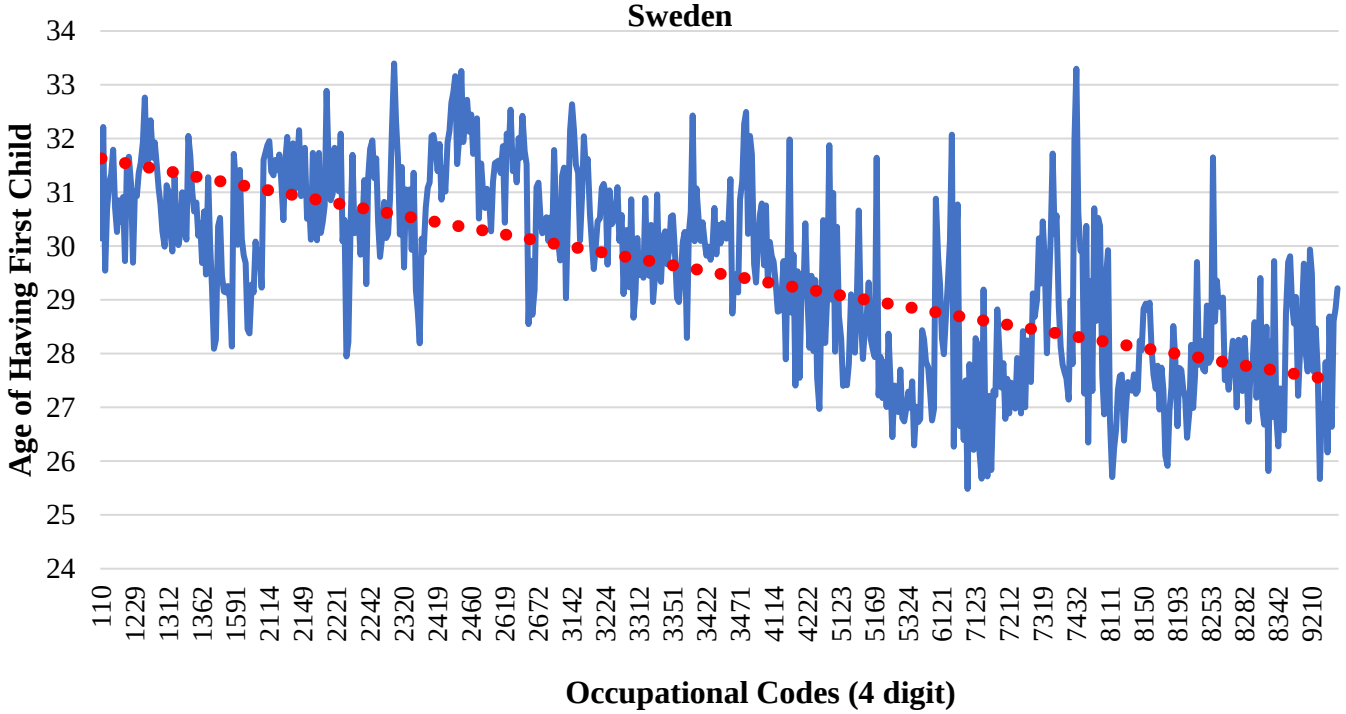


Figure 2. Age of Having First Child for Women Across Different Occupations in Sweden



Note: First digit 1 and 2 indicate managerial and professional occupations, all other numbers indicate other professions.

Table 1. Descriptive Statistics for All Variables

Variables	Mean	SD
Transition to founding a new business	0.002	0.048
Transition to self-employment	0.005	0.071
Transition to another employer	0.260	0.439
Transition to unemployment	0.032	0.177
Mother	0.600	0.490
Earnings (per 5,000,000 kr)	0.058	0.043
Age	33.301	8.817
Single	0.571	0.495
Married	0.366	0.482
Divorced, separated, or widowed	0.063	0.243
Years of labor market experience	11.821	6.562
Establishment tenure	3.927	3.917
Years of previous startup experience	0.027	0.355
Employment size of current employer	484	1356
Number of females at current employer	321	981
Establishment age (yrs)	12.232	7.328
Private sector	0.386	0.487
State-controlled organization	0.079	0.270
County- or municipality-owned organization	0.331	0.470
Foreign-owned companies	0.089	0.284
Spousal income (per 5,000,000 kr)	0.067	0.058
Spouse is employed	0.835	0.371
Spouse is self-employed	0.042	0.200
Spouse is running a new business	0.048	0.214
Motherhood earnings penalty in an occupation	7.640	11.292
Avg. percent of full-time work mothers do in an occupation	13.916	11.138
Avg. percent of full-time work non-mothers do in an occupation	16.588	9.258
Percentage of income non-fathers earn more than fathers in an occupation	-7.151	3.639
Proportion of employees in an occupation that report they can decide their work hours	0.601	0.227
The extent to which workers in an occupation think they can decide their work pace	3.289	0.373

Note: Although all other information is available from 1990 to 2016, occupational codes are only available from 2002 to 2016. Thus, the total number of observations for all other variables is 18,300,000, but the number of observations for occupation-level measures is 6,070,801.

Table 2. Discrete-Time Competing Risk Models of Women's Career Mobility

	(1)	(2)	(3)	(4)
	Transition to			
	Founding a New Business	Self-employment	Another Employer	Out of Labor Force or Unemployment
Mother	0.33147****	0.13679****	-0.09781****	1.95819****
	(0.02413)	(0.01473)	(0.00218)	(0.00900)
Earnings (per 5,000,000 kr)	0.51457***	-17.38616****	-8.82686****	-25.99097****
	(0.16878)	(0.19191)	(0.03342)	(0.15564)
Age	0.35993****	0.36638****	-0.00264**	-1.04045****
	(0.01564)	(0.00860)	(0.00123)	(0.00513)
Age * Age	-0.00428****	-0.00345****	0.00129****	-0.00218****
	(0.00013)	(0.00007)	(0.00001)	(0.00005)
Married	0.59381****	0.08281****	-0.08559****	0.06205****
	(0.03238)	(0.01809)	(0.00254)	(0.01041)
Divorced, separated, or widowed	0.14279***	-0.12141****	0.07339****	0.23952****
	(0.04989)	(0.03046)	(0.00469)	(0.01865)
Years of labor market experience	0.29279****	0.00779	-0.09391****	1.31345****
	(0.01307)	(0.00704)	(0.00107)	(0.00504)
Establishment tenure	0.07742****	0.12505****	0.03167****	0.07151****
	(0.00284)	(0.00221)	(0.00031)	(0.00134)
Years of previous startup experience	-0.90498****	-0.29597****	0.05066****	-0.05001****
	(0.00785)	(0.01246)	(0.00295)	(0.01101)
Employment size of current employer	-0.00045****	-0.00014****	-0.00021****	-0.00015****
	(0.00006)	(0.00002)	(0.00000)	(0.00001)
Number of females at current employer	0.00052****	0.00010***	0.00013****	0.00018****
	(0.00008)	(0.00003)	(0.00000)	(0.00002)
Establishment age (yrs)	-0.09040****	-0.00488****	-0.01559****	-0.02582****
	(0.00150)	(0.00093)	(0.00015)	(0.00062)
State-controlled organization	-1.21262****	-0.44201****	-0.14620****	-0.73692****
	(0.05897)	(0.02664)	(0.00368)	(0.01799)
County- or municipality-owned organization	-1.22293****	-0.48087****	0.08473****	-0.60229****
	(0.04115)	(0.01845)	(0.00252)	(0.01025)
Foreign-owned companies	-0.95787****	0.01828	0.01552****	0.00341
	(0.03432)	(0.01909)	(0.00294)	(0.01139)
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N= 18,300,000; *p<0.10, ** p< 0.05, *** p<0.001, **** p< 0.0001 (two-sided t-tests). Clustered standard errors are in parentheses.

Table 3. Discrete-Time Competing Risk Models of Women's Career Mobility

	(1)	(2)
	Transition to	
	Founding a New Business	Self-employment
Mother	0.13620**	0.03597***
	(0.06093)	(0.01256)
Motherhood earnings penalty in an occupation	-0.00416**	-0.00056
	(0.00191)	(0.00126)
Mother * Motherhood earnings penalty in an occupation	0.00852**	0.00115
	(0.00377)	(0.00165)
Earnings (per 5,000,000 kr)	0.69534****	-17.66887****
	(0.19005)	(0.20882)
Age	0.25965****	0.31963****
	(0.01708)	(0.00918)
Age * Age	-0.00371****	-0.00307****
	(0.00014)	(0.00008)
Married	0.49214****	0.02277
	(0.03587)	(0.02007)
Divorced, separated, or widowed	0.23957****	-0.07452**
	(0.05370)	(0.03232)
Years of labor market experience	0.31463****	0.02470****
	(0.01399)	(0.00739)
Establishment tenure	0.07479****	0.12920****
	(0.00304)	(0.00234)
Years of previous startup experience	-0.94776****	-0.28011****
	(0.00854)	(0.01337)
Avg. percent of full-time work non-mothers do in an occupation	-0.00823***	0.00227
	(0.00283)	(0.00143)
Avg. percent of full-time work mothers do in an occupation	0.03398****	0.04364****
	(0.00315)	(0.00154)
Fatherhood earnings premium in an occupation	-0.03255****	-0.00277***
	(0.00362)	(0.00086)
Spousal income	-0.03043	0.70693****
	(0.16857)	(0.12963)
Spouse is employed	0.24492****	0.01701
	(0.03158)	(0.01972)
Spouse is self-employed	0.11629**	0.94024****
	(0.05401)	(0.02642)
Spouse is running a new business	0.89386****	-0.21990****
	(0.03975)	(0.03394)
Occupation fixed-effects (3-digit)	Yes	Yes
Industry fixed-effects (2-digit)	Yes	Yes
County fixed-effects	Yes	Yes
Individual fixed-effects	Yes	Yes

Note: N=6,070,801; * $p<0.10$, ** $p< 0.05$, *** $p<0.001$, **** $p< 0.0001$ (two-sided *t*-tests). Clustered standard errors are in parentheses. Establishment size, age, and institutional sectors are included but not shown due to limited space.

Table 4. Discrete-Time Competing Risk Models of Women's Career Mobility

	(1)	(2)	(3)	(4)
	Transition to			
	Founding a New Business	Self-employment	Founding a New Business	Self-employment
Mother	0.32612****	0.36259****	0.29753****	0.49532****
	(0.02651)	(0.06849)	(0.03046)	(0.11063)
Proportion of workers in an occupation report they can control work hours	0.35527	0.37616**		
	(0.35170)	(0.14849)		
Mother * Proportion of workers in an occupation report they can control work hours	0.03427	-0.32283****		
	(0.21754)	(0.09292)		
Avg. level workers in an occupation report they can control work pace			0.15569	0.13815****
			(0.09514)	(0.03986)
Mother * Avg. level workers in an occupation report they can control work pace			0.06587	-0.11302***
			(0.08463)	(0.03493)
Avg. percent of full-time work non-mothers do in an occupation	-0.01212	-0.00325	-0.01150	-0.00361
	(0.00833)	(0.00293)	(0.00835)	(0.00289)
Avg. percent of full-time work mothers do in an occupation	-0.00812	0.00176	-0.00819	0.00227
	(0.00937)	(0.00333)	(0.00937)	(0.00329)
	(0.01520)	(0.00512)	(0.01519)	(0.00491)
Earnings (per 5,000,000 kr)	-1.03095*	-13.17323****	-1.03721*	-13.17834****
	(0.59091)	(0.40865)	(0.59066)	(0.40858)
Age	-0.09702	0.33740****	-0.08233	0.35777****
	(0.14224)	(0.05201)	(0.14208)	(0.05208)
Age * Age	-0.00137	-0.00341****	-0.00153	-0.00362****
	(0.00110)	(0.00034)	(0.00110)	(0.00034)
Married	0.03175	-0.03299	0.03582	-0.04028
	(0.11711)	(0.04420)	(0.11867)	(0.04416)
Divorced, separated, or widowed	-0.77591****	0.05292	-0.77337****	0.05008
	(0.22015)	(0.09011)	(0.22039)	(0.09006)
Years of labor market experience	1.50650****	0.09640**	1.50490****	0.09730**
	(0.12135)	(0.04798)	(0.12119)	(0.04802)
Establishment tenure	0.09751****	0.27469****	0.09730****	0.27414****
	(0.01130)	(0.00596)	(0.01130)	(0.00596)
Years of previous startup experience	-4.14854****	-0.77907****	-4.14991****	-0.78650****
	(0.07057)	(0.08064)	(0.07057)	(0.08086)
Spousal income	0.02564	0.18232	0.02643	0.12806
	(0.63298)	(0.37689)	(0.63375)	(0.37750)
Spouse is employed	0.25972**	0.06599	0.28088	0.07302
	(0.11015)	(0.04707)	(0.21059)	(0.04706)
Spouse is self-employed	0.18676	0.78317****	0.21186	0.78830****
	(0.17541)	(0.06186)	(0.24304)	(0.06182)
Spouse is running a new business	0.73292****	-0.19714***	0.75172****	-0.19304***
	(0.14104)	(0.07435)	(0.22836)	(0.07437)
Occupation fixed-effects (2-digit)	Yes	Yes	Yes	Yes
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N=6,070,801; * $p<0.10$, ** $p< 0.05$, *** $p<0.001$, **** $p< 0.0001$ (two-sided *t*-tests). Clustered standard errors are in parentheses. Establishment size, age, and institutional sectors are included but not shown due to limited space.

Table 5. OLS Regressions of Earnings

	(1)	(2)
Mother	-51023.880****	-51030.527****
	(97.902)	(98.833)
Self-employment	-110087.147****	-103533.299****
	(278.343)	(474.591)
Founding a new business	-1921.180****	-22496.293****
	(360.549)	(794.386)
Mother * Self-employment		-8580.953****
		(507.323)
Mother * Founding a new business		24570.731****
		(845.293)
Age	2827.270****	2840.831****
	(56.442)	(56.444)
Age * Age	-23.456****	-23.506****
	(0.444)	(0.444)
Married	10632.222****	10639.434****
	(116.840)	(116.836)
Other	22835.508****	22865.235****
	(212.754)	(212.749)
Years of labor market experience	21081.785****	21071.948****
	(48.974)	(48.976)
Establishment tenure	-571.440****	-569.967****
	(11.271)	(11.270)
Employment size of current employer	17.180****	17.180****
	(0.109)	(0.109)
Number of females at current employer	-19.695****	-19.694****
	(0.155)	(0.155)
Establishment age (yrs)	49.670****	49.414****
	(7.537)	(7.538)
State-controlled organization	12895.798****	12897.245****
	(179.985)	(179.978)
County- or municipality-owned organization	953.326****	949.368****
	(126.889)	(126.888)
Foreign-owned companies	36086.999****	36084.125****
	(137.802)	(137.803)
Constant	40555.080****	40270.668****
	(1134.501)	(1134.492)
Industry fixed-effects (2-digit)	Yes	Yes
County fixed-effects	Yes	Yes
Individual fixed-effects	Yes	Yes
R-squared	0.541	0.542
AIC	283543769.2	283542523.8

Note: N= 16,786,062; * p<0.10, ** p< 0.05, *** p<0.001, **** p< 0.0001 (two-sided t-tests). Clustered standard errors are in parentheses.

Table 6. Discrete-Time Competing Risk Models of Women's Career Mobility

	(1)	(2)	(3)	(4)
	Married		Single, Divorced, Widowed	
	Transition to			
	Founding a New Business	Self-employment	Founding a New Business	Self-employment
Mother	0.49204****	0.37515****	0.19345****	0.02096
	(0.04077)	(0.02910)	(0.03685)	(0.01951)
Earnings (per 5,000,000 kr)	0.62259***	-15.50589****	0.00063	-17.79652****
	(0.21382)	(0.29981)	(0.34502)	(0.27945)
Age	0.25750****	0.27060****	0.42052****	0.43002****
	(0.02584)	(0.01723)	(0.02788)	(0.01251)
Age * Age	-0.00244****	-0.00164****	-0.00548****	-0.00477****
	(0.00021)	(0.00015)	(0.00022)	(0.00011)
Years of labor market experience	0.26309****	-0.04679****	0.42251****	0.05942****
	(0.02189)	(0.01415)	(0.02414)	(0.01059)
Establishment tenure	0.05983****	0.14090****	0.10968****	0.14620****
	(0.00395)	(0.00337)	(0.00497)	(0.00339)
Years of previous startup experience	-1.06078****	-0.27535****	-1.08884****	-0.33055****
	(0.01333)	(0.02084)	(0.01428)	(0.02034)
Employment size of current employer	-0.00037****	-0.00008**	-0.00093****	-0.00019****
	(0.00007)	(0.00004)	(0.00014)	(0.00003)
Number of females at current employer	0.00041****	0.00004	0.00113****	0.00017****
	(0.00010)	(0.00005)	(0.00019)	(0.00005)
Establishment age (yrs)	-0.09025****	-0.00618****	-0.09004****	-0.00559****
	(0.00218)	(0.00155)	(0.00248)	(0.00132)
State-controlled organization	-1.08726****	-0.45014****	-1.26652****	-0.42831****
	(0.08096)	(0.04579)	(0.10527)	(0.03713)
County- or municipality-owned organization	-0.96405****	-0.39514****	-1.45107****	-0.48088****
	(0.05583)	(0.03114)	(0.07469)	(0.02608)
Foreign-owned companies	-0.88471****	0.06858**	-1.00046****	-0.08250***
	(0.04909)	(0.03155)	(0.05685)	(0.02728)
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N= 18,300,000; *p<0.10, ** p< 0.05, *** p<0.001, **** p< 0.0001 (two-sided t-tests). Clustered standard errors are in parentheses. Columns 1 and 2 are women who are married or cohabiting; columns 3 and 4 are women who are separated, divorced, widowed, or single.

Table 7. Discrete-Time Competing Risk Models of Women's Career Mobility

	Full Sample		Excluding Entries with Spouse	
	(1)	(2)	(3)	(4)
	Transition to			
	Founding a New Business	Self-employment	Founding a New Business	Self-employment
Mother	0.19388****	0.04916***	0.17704****	0.04574***
	(0.02689)	(0.01707)	(0.02941)	(0.01739)
Earnings (per 5,000,000 kr)	0.53687***	-17.20053****	0.02694	-17.24509****
	(0.16904)	(0.19253)	(0.18781)	(0.19658)
Age	0.35111****	0.36026****	0.36007****	0.36044****
	(0.01576)	(0.00869)	(0.01766)	(0.00887)
Age * Age	-0.00416****	-0.00338****	-0.00430****	-0.00342****
	(0.00013)	(0.00008)	(0.00015)	(0.00008)
Married	0.47061****	0.01848	0.33408****	0.01663
	(0.03409)	(0.01926)	(0.03642)	(0.01966)
Divorced, separated, or widowed	0.26048****	-0.06785**	0.20353****	-0.07081**
	(0.05066)	(0.03096)	(0.05419)	(0.03147)
Years of labor market experience	0.29079****	0.00868	0.31412****	0.01223*
	(0.01316)	(0.00712)	(0.01481)	(0.00728)
Establishment tenure	0.07707****	0.12671****	0.07727****	0.12486****
	(0.00285)	(0.00223)	(0.00312)	(0.00228)
Years of previous startup experience	-0.91063****	-0.28353****	-0.93275****	-0.31612****
	(0.00788)	(0.01242)	(0.00875)	(0.01349)
Employment size of current employer	-0.00045****	-0.00014****	-0.00044****	-0.00018****
	(0.00006)	(0.00002)	(0.00006)	(0.00002)
Number of females at current employer	0.00051****	0.00010***	0.00054****	0.00015****
	(0.00008)	(0.00003)	(0.00008)	(0.00003)
Establishment age (yrs)	-0.09047****	-0.00544****	-0.08947****	-0.00402****
	(0.00150)	(0.00094)	(0.00159)	(0.00095)
State-controlled organization	-1.21333****	-0.44763****	-0.95544****	-0.41153****
	(0.05921)	(0.02681)	(0.06061)	(0.02713)
County- or municipality-owned organization	-1.22149****	-0.48733****	-0.86040****	-0.42254****
	(0.04136)	(0.01857)	(0.04281)	(0.01880)
Foreign-owned companies	-0.95234****	0.01240	-0.83807****	0.04549**
	(0.03446)	(0.01915)	(0.03571)	(0.01944)
Spousal income	-0.04643	0.59105****	0.59829****	0.70350****
	(0.16006)	(0.12273)	(0.16096)	(0.12494)
Spouse is employed	0.25655****	0.03861**	-0.16862****	-0.06220***
	(0.03004)	(0.01902)	(0.03225)	(0.01941)
Spouse is self-employed	0.13881***	0.93874****	0.22111****	0.88165****
	(0.05148)	(0.02556)	(0.05476)	(0.02619)
Spouse is running a new business	0.88372****	-0.22746****	0.71922****	-0.59248****
	(0.03796)	(0.03249)	(0.04217)	(0.03566)
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N= 18,300,000; * p<0.10, ** p< 0.05, *** p<0.001, **** p< 0.0001 (two-sided t-tests). Clustered standard errors are in parentheses.

Table 8. 2SLS Estimates of Women's Career Mobility (Instrumental Variable Estimates)

8A. Stage-one estimate of a childbirth

Team won the championship last	0.00407****
	(0.00015)
Age	-0.003217****
	(0.000006)
Year dummies	Yes
County dummies	Yes
R-square	0.01542

8B. Stage-two instrumental variable estimates of career mobility

	(1)	**(2)**	**(3)**	**(4)**
	Transition to			
	Founding a New Business	Self-employment	Founding a New business	Out of Labor Force or Unemployment
Mother	0.06119****	0.12670****	-0.86602****	0.28435****
	(0.00285)	(0.00407)	(0.02575)	(0.00753)
Earnings (per 5,000,000 kr)	0.08591****	0.06100****	-2.17999****	0.13181****
	(0.00321)	(0.00457)	(0.02893)	(0.00846)
Age	-0.00512****	-0.01053****	0.08066****	-0.05831****
	(0.00028)	(0.00040)	(0.00251)	(0.00074)
Age * Age	0.00005****	0.00010****	-0.00052****	0.00025****
	(0.00000)	(0.00000)	(0.00002)	(0.00001)
Married	0.00366****	0.00594****	-0.04455****	0.00982****
	(0.00013)	(0.00019)	(0.00120)	(0.00035)
Divorced, separated, or widowed	-0.00956****	-0.02100****	0.14560****	-0.04011****
	(0.00049)	(0.00070)	(0.00443)	(0.00130)
Years of labor market experience	0.00040****	0.00053****	-0.02355****	0.03454****
	(0.00003)	(0.00004)	(0.00028)	(0.00008)
Establishment tenure	-0.00012****	-0.00027****	0.00866****	-0.00051****
	(0.00001)	(0.00001)	(0.00007)	(0.00002)
Years of previous startup experience	-0.00924****	-0.00163****	0.01187****	-0.00124****
	(0.00006)	(0.00008)	(0.00050)	(0.00015)
Number of females at current employer	0.00000****	0.00000****	-0.00000	0.00001****
	(0.00000)	(0.00000)	(0.00000)	(0.00000)
State-controlled organization	-0.00219****	-0.00108****	-0.03860****	-0.00640****
	(0.00008)	(0.00012)	(0.00074)	(0.00022)
County- or municipality-owned organization	-0.00209****	-0.00214****	0.01227****	-0.00826****
	(0.00006)	(0.00008)	(0.00050)	(0.00015)
Foreign-owned companies	-0.00335****	-0.00111****	0.00701****	-0.00204****
	(0.00006)	(0.00009)	(0.00056)	(0.00016)
Spousal income	-0.00158***	-0.00994****	0.19927****	-0.06202****
	(0.00061)	(0.00087)	(0.00551)	(0.00161)
Spouse is employed	-0.03305****	-0.06881****	0.43689****	-0.13563****
	(0.00154)	(0.00220)	(0.01389)	(0.00406)
Spouse is self-employed	-0.03049****	-0.05086****	0.40656****	-0.12321****
	(0.00144)	(0.00206)	(0.01301)	(0.00380)
Spouse is running a new business	-0.02535****	-0.06715****	0.42909****	-0.13477****
	(0.00150)	(0.00214)	(0.01356)	(0.00397)
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N= 18,300,000; * $p<0.10$, ** $p< 0.05$, *** $p<0.001$, **** $p< 0.0001$ (two-sided *t*-tests). Clustered standard errors are in parentheses. Establishment size, age, and institutional sector are included but not shown due to limited space.

ONLINE APPENDIX

Appendix Table 1. Discrete-Time Competing Risk Models of Women's Career Mobility (2002-2016)

	(1)	(2)	(3)	(4)
	Transition to			
	Founding a New Business	Self-employment	Another Employer	Out of Labor Force or Unemployment
Mother	0.19388****	0.04916***	-0.01874****	1.73001****
	(0.02689)	(0.01707)	(0.00263)	(0.01033)
Earnings (per 5,000,000 kr)	0.53687***	-17.20053****	-8.91601****	-25.79111****
	(0.16904)	(0.19253)	(0.03353)	(0.15630)
Age	0.35111****	0.36026****	-0.00117	-1.04492****
	(0.01576)	(0.00869)	(0.00124)	(0.00517)
Age * Age	-0.00416****	-0.00338****	0.00122****	-0.00201****
	(0.00013)	(0.00008)	(0.00001)	(0.00005)
Married	0.47061****	0.01848	-0.03581****	-0.03631****
	(0.03409)	(0.01926)	(0.00273)	(0.01080)
Divorced, separated, or widowed	0.26048****	-0.06785**	0.03362****	0.35741****
	(0.05066)	(0.03096)	(0.00477)	(0.01905)
Years of labor market experience	0.29079****	0.00868	-0.09116****	1.31168****
	(0.01316)	(0.00712)	(0.00107)	(0.00507)
Establishment tenure	0.07707****	0.12671****	0.03211****	0.07140****
	(0.00285)	(0.00223)	(0.00031)	(0.00135)
Years of previous startup experience	-0.91063****	-0.28353****	0.04943****	-0.04611****
	(0.00788)	(0.01242)	(0.00296)	(0.01105)
Employment size of current employer	-0.00045****	-0.00014****	-0.00021****	-0.00015****
	(0.00006)	(0.00002)	(0.00000)	(0.00001)
Number of females at current employer	0.00051****	0.00010***	0.00013****	0.00017****
	(0.00008)	(0.00003)	(0.00000)	(0.00002)
Establishment age (yrs)	-0.09047****	-0.00544****	-0.01561****	-0.02580****
	(0.00150)	(0.00094)	(0.00015)	(0.00062)
State-controlled organization	-1.21333****	-0.44763****	-0.14506****	-0.73711****
	(0.05921)	(0.02681)	(0.00368)	(0.01811)
County- or municipality-owned organization	-1.22149****	-0.48733****	0.08551****	-0.60521****
	(0.04136)	(0.01857)	(0.00253)	(0.01033)
Foreign-owned companies	-0.95234****	0.01240	0.01538****	0.00215
	(0.03446)	(0.01915)	(0.00294)	(0.01143)
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N= 6,070,801; *p<0.10, ** p< 0.05, *** p<0.001, **** p< 0.0001 (two-sided t-tests). Clustered standard errors are in parentheses.

Appendix Table 2. Discrete-Time Competing Risk Models of Men's Career Mobility

	(1)	(2)	(3)	(4)
	Transition to			
	Founding a New Business	Self-employment	Another Employer	Out of Labor Force or Unemployment
Father	0.08090****	0.03245***	-0.03121****	0.07625****
	(0.01410)	(0.01192)	(0.00244)	(0.01013)
Earnings (per 5,000,000 kr)	-2.62535****	-14.42762****	-3.75550****	-19.35762****
	(0.08614)	(0.12862)	(0.02250)	(0.13433)
Age	0.49119****	0.21038****	0.04570****	-0.73145****
	(0.00985)	(0.00616)	(0.00129)	(0.00444)
Age * Age	-0.00575****	-0.00329****	0.00051****	0.00153****
	(0.00007)	(0.00005)	(0.00001)	(0.00004)
Married	-0.05119***	-0.04978****	0.02024****	0.05487****
	(0.01650)	(0.01416)	(0.00263)	(0.01372)
Divorced, separated, or widowed	-0.18823****	-0.25103****	0.03075****	0.14012****
	(0.02764)	(0.02305)	(0.00460)	(0.01928)
Years of labor market experience	0.37684****	0.16396****	-0.10172****	0.79584****
	(0.00842)	(0.00517)	(0.00115)	(0.00412)
Establishment tenure	0.11048****	0.13210****	0.04445****	0.05090****
	(0.00148)	(0.00161)	(0.00028)	(0.00146)
Years of previous startup experience	-0.79545****	-0.33265****	0.01894****	-0.01875***
	(0.00342)	(0.00599)	(0.00157)	(0.00623)
Employment size of current employer	-0.00072****	-0.00026****	-0.00022****	-0.00017****
	(0.00003)	(0.00001)	(0.00000)	(0.00001)
Number of females at current employer	0.00092****	0.00026****	0.00020****	0.00017****
	(0.00006)	(0.00003)	(0.00000)	(0.00002)
Establishment age (yrs)	-0.09904****	-0.00237***	-0.02155****	-0.03247****
	(0.00089)	(0.00074)	(0.00015)	(0.00071)
State-controlled organization	-1.08363****	-0.33689****	-0.00512	-0.70911****
	(0.03971)	(0.02154)	(0.00340)	(0.01902)
County- or municipality-owned organization	-1.49913****	-0.34677****	0.13981****	-0.71893****
	(0.04633)	(0.02021)	(0.00345)	(0.01748)
Foreign-owned companies	-0.97813****	0.04857****	-0.01387****	0.06070****
	(0.01849)	(0.01467)	(0.00246)	(0.01245)
Industry fixed-effects (2-digit)	Yes	Yes	Yes	Yes
County fixed-effects	Yes	Yes	Yes	Yes
Individual fixed-effects	Yes	Yes	Yes	Yes

Note: N= 18,548,561; * p<0.10, ** p< 0.05, *** p<0.001, **** p< 0.0001 (two-sided t-tests). Clustered standard errors are in parentheses.