Healthcare Social Safety Nets, Gender, and Innovative Entrepreneurship[*]

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ABSTRACT

This paper examines whether improved healthcare social safety nets reduce the gender gap in innovative entrepreneurship. I argue that improved healthcare social safety nets provide substitutes to employer-provided health insurance, thus removing job mobility constraints by lowering the opportunity cost of leaving employment. I propose that women are affected more than men and that innovative women are particularly more likely to enter entrepreneurship than noninnovative women because of a stronger preference for health-related benefits and a greater propensity to pursue entrepreneurial opportunities. Leveraging the quasi-experiment of the Affordable Care Act implementation, I find consistent evidence supporting these arguments and a reduced gender gap in science, technology, engineering, and mathematics (STEM) entrepreneurship. The findings shed light on how institutional policies promote diversity in innovative entrepreneurship.

Keywords: Entrepreneurship, Innovation, Gender, Institutional Change, Health Insurance

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1. INTRODUCTION

The gender gap in entrepreneurship remains a worldwide concern (Tonoyan, Strohmeyer, & Jennings, 2020). A 2019 global study found that women are 4–6 percentage points less likely than men to start new businesses and that closing this gap could boost global gross domestic product (GDP) by $2.5 to $5 trillion (Boston Consulting Group, 2019). The gender gap is even wider for *innovative* entrepreneurship (Brush, Greene, Balachandra, Davis, & Blank, 2014; Guzman & Kacperczyk, 2019), with women only half as likely as men to found high-growth businesses in technology industries (Miric & Yin, 2020). This underrepresentation of innovative female entrepreneurs is unsurprising: women make up a lower share of individuals with science, technology, engineering, and mathematics (STEM) degrees (Beede, Julian, Langdon, McKittrick, Khan, & Doms, 2011); are less likely to become innovators (Nager, Hart, Ezell, & Atkinson, 2016); and are subject to the so-called the leaky-pipeline problem, in which more women than men exit STEM-related occupations after entry (Yang, Bao, & Leung, 2021). Consequently, increased policy interests have aimed to create training programs and risk capital infrastructure to encourage growth-oriented women entrepreneurs (OECD, 2019), especially in STEM fields; such efforts have targeted business creation by the STEM workforce (Lupia, Marrongelle, Tilbury, Iacono, & Martonosi, 2020).

However, emerging scholarly work on institutional and contextual forces that reduce the gender gap in new business founding has primarily focused on *generic* entrepreneurship (Castellaneta, Conti, & Kacperczyk, 2020; Rocha & Van Praag, 2020), rather than unpacking specific types of entrepreneurship. In particular, little is known about the forces that might reduce the gender gap in *innovative* entrepreneurship—that is, when nascent ventures operate in innovation-oriented fields. This latter gap warrants more scrutiny because the relationship between entrepreneurship and economic growth is driven by the smaller subset of innovation-

driven, high-growth startups (Botelho, Fehder, & Hochberg, 2021; Decker, Haltiwanger, Jarmin, & Miranda, 2014; Haltiwanger, Jarmin, & Miranda, 2013). Earlier research has found correlational evidence for gender segregation in startup growth orientation in different institutional contexts (Thébaud, 2015). More recent work suggests that policies that increase the opportunity cost of leaving employment can disproportionally *discourage* high-growth female entrepreneurship (Marx, 2021). To date, knowledge about the institutional forces that *encourage* more innovative female entrepreneurship remains scant.

Filling this gap, the current paper examines whether the gender disparity in innovative entrepreneurship can be reduced by an important but understudied institutional factor in the organization and entrepreneurship literature: healthcare social safety nets that substitute for employer-provided health insurance benefits. In many countries, healthcare is expensive (WHO, 2019), and employer-provided health insurance benefits are more attractive than private insurance, for instance, in the United States, because of lower premiums, better coverage, and tax benefits (Buchmueller, DiNardo, & Valletta, 2011; Tsolmon & Ariely, 2022). Consequently, employer-provided health insurance often imposes mobility constraints and discourages the transition from paid employment to entrepreneurship for those who value health benefits (Si, 2021). I argue that improved healthcare social safety nets provide access to more affordable alternative options for employer-provided health insurance, which has differential effects on employment separation for women versus men and on subsequent entrepreneurial entry for innovative versus noninnovative women. Specifically, I suspect that the dispositional preference for employer-provided health benefits is the strongest for innovative female entrepreneurs because of their (1) greater attention to life aspects and greater healthcare needs relative to men and (2) more intense work nature and labor market bargaining power relative to noninnovative

workers. Therefore, given that innovative women experience the highest degree of job lock and have sufficient human capital to increase their likelihood of entrepreneurial entry, I hypothesize that these women will be the most likely to pursue entrepreneurial ventures following improved healthcare social safety nets, leading to a reduced gender gap in innovative entrepreneurship.

Empirically, I characterize innovative ventures as whether the entrepreneur self-reports a STEM occupational code, as STEM fields are considered to be drivers for national innovative capability and global competitiveness (Beede et al., 2011; Nager et al., 2016). This novel proxy for innovation-driven entrepreneurship differs from past *ex post* measures (see Botelho et al. (2021) for a review)—such as high growth (e.g., Decker et al., 2014; Eesley, 2016), achievement of initial public offering (IPO) (Guzman & Stern, 2020), and receiving venture capital (VC) funding (Kerr, Nanda, & Rhodes-Kropf, 2014; Puri & Zarutskie, 2012)—which rely on observing venture outcomes for multiple years since founding. The STEM-field categorization enables the identification of innovation-driven entrepreneurship at the time of entry and better reflects innovation orientation than a status of incorporation (Levine & Rubinstein, 2017).

To test my arguments, I leverage a quasi-experiment involving the U.S. healthcare social safety nets: the implementation of the major provisions of the Affordable Care Act (ACA). Effective in 2014, two ACA provisions—guaranteed issues and modified community ratings—improved access to affordable individual health insurance as an alternative to employer-provided health insurance for entrepreneurs; they induced exogenous variation in the treatment level in different U.S. states because of historical pre-ACA variation in the state regulations of individual health insurance markets. Using difference-in-differences and triple-difference designs with the Current Population Survey (CPS) data, I find that improved healthcare social safety nets significantly reduce the gender gap in innovative STEM entrepreneurship. This effect is not

driven by a reduction in the gender gap in generic entrepreneurship but instead by more women entering STEM entrepreneurship from STEM employment. Consistent with my predictions, I find a larger positive treatment effect on innovative women experiencing more job lock but not for men or noninnovative women. These heterogeneous treatment effects based on gender and venture type have two consequences: a compositional shift in women's entrepreneurship toward more innovation and increased business income for female entrepreneurs.

This study makes several contributions. First, it contributes to the organization and strategy literature on how institutional contexts shape entrepreneurial entry (Tolbert, David, & Sine, 2011) by highlighting the heterogeneity in venture innovation orientation and presenting a new *ex ante* categorization that is more reflective of the innovation nature: whether a business operates in a STEM field. The study thereby joins the scant work on institutional policies that considers innovation as an important outcome (Conti, Kacperczyk, & Valentini, 2021; Vakili & Zhang, 2018). Second, it extends the research on reducing the entrepreneurial gender gap (Castellaneta et al., 2020; Marx, 2021) by focusing on an institutional factor that encourages the establishment of more innovative female-led businesses. Third, this paper speaks to the strategic human capital literature on employee mobility constraints (Carnahan, Agarwal, & Campbell, 2012; Ganco, 2013; Starr, Ganco, & Campbell, 2018), especially the role of work benefits (Delery & Roumpi, 2017; Kryscynski, Coff, & Campbell, 2021; Tsolmon & Ariely, 2022). The findings imply that the effectiveness of such mobility constraints may be dependent on worker characteristics, such as gender and innovation orientation. Finally, the study contributes to work examining drivers of (entrepreneurial) career decisions for the STEM workforce (Elfenbein, Hamilton, & Zenger, 2010; Sauermann, 2018), particularly in its exploration of how individual attributes interact with contextual factors (Agarwal, Ganco, & Raffiee, 2021; Roach &

Sauermann, 2015). The results suggest that the effect of macro-level policies on these career choices may be contingent on micro-level preferences for work benefits.

2. THEORETICAL DEVELOPMENT

2.1. Gender gap in innovative entrepreneurship

A large gender gap persists in entrepreneurship participation (Markussen & Røed, 2017; Shahriar, 2018) and performance (Jennings & Brush, 2013). Even in countries with relatively high gender equality, women remain the minority in overall new venture creation (Tonoyan et al., 2020). This underrepresentation of female entrepreneurs is magnified for *innovative* entrepreneurship (Brush et al., 2014; Guzman & Kacperczyk, 2019; Marx, 2021)—that is, the creation of high-growth or conceptually innovation-driven ventures (Botelho et al., 2021). This wider gender gap is unsurprising given the historically lower share of women earning STEM degrees and entering STEM occupations (Kahn & Ginther, 2017), fields that are the key drivers for innovation and economic growth (Beede et al., 2011; Nager et al., 2016). Further, women who obtain STEM degrees and join the STEM workforce are less likely to remain there (Yang, Bao, & Leung, 2021) and are often pushed into roles positioned lower in the organizational hierarchy (Cardador, 2017). Adding to the smaller number of women employed in innovative fields, those women who choose to become entrepreneurs are often segregated to the less growth-oriented and thus less innovative industries because of salient work-family conflicts in many institutional contexts (Thébaud, 2015).

The more alarming gender disparities in innovative entrepreneurship participation require the most pressing attention: the relationship between entrepreneurship and economic growth is driven not by the overall quantity of new firm entries but rather by the small subset of high-growth startups that are primarily categorized as innovation-driven (Decker et al., 2014; Haltiwanger et al., 2013). Studies have started to identify remedies for mitigating the generic

entrepreneurial gender gap, such as through lowering bureaucratic and financial barriers (Castellaneta et al., 2020), providing entrepreneurship programs that ease resource constraints (Lyons & Zhang, 2017), and establishing female role models (Rocha & Van Praag, 2020). However, these insights may not apply to the gender gap in the distinctive category of innovative entrepreneurship. In fact, recent work has suggested that men and women may respond differently to the same institutional environment in terms of the industry they enter (Marx, 2021).

I extend the critical line of inquiry on how to reduce the entrepreneurial gender gap by focusing on innovative entrepreneurship and by investigating an important institutional force—healthcare social safety nets—that lowers the opportunity cost of leaving employment. In what follows, I first outline previous arguments about why improved healthcare social safety nets might encourage entrepreneurial entry, as well as extant studies' mixed empirical findings. I then embrace the empirical contingencies and theorize why women (relative to men) and innovative women (relative to noninnovative women) are more likely to be affected by improved healthcare social safety nets, ultimately leading to a reduced gender gap in innovative entrepreneurship.

2.2. Healthcare social safety nets and entrepreneurial entry

Healthcare is expensive in many countries (WHO, 2019). As many personal bankruptcies derive from healthcare bills (Himmelstein, Thorne, Warren, & Woolhandler, 2009; Zywicki, 2005), most people find health insurance coverage essential for financial protection. Employer-provided health insurance is often more attractive than private insurance because employers often contribute to the insurance premium, lowering employees' premium costs. In addition, employer-provided plans must contain certain minimal benefits, such as inpatient hospital coverage, emergency room care, maternity care, and medical and surgical services, which may be expensive to cover under individual plans (Buchmueller et al., 2011). Finally, employer-provided health insurance may create tax benefits. For instance, in the United States, employee

contributions toward employer-provided health insurance are excluded from individual taxable income, thus providing extra tax subsidies to employees (Tsolmon & Ariely, 2022).

Consequently, researchers have argued that employer-based health insurance may restrict interfirm employee mobility (Tsolmon & Ariely, 2022) and create a job lock that prevents entry into entrepreneurship (Fairlie, Kapur, & Gates, 2011). Studies building on this argument have proposed that health insurance reforms that improve the healthcare social safety nets can remove such a mobility constraint and lower the opportunity cost of leaving wage work, thereby encouraging more entrepreneurial activities. However, empirical tests of this view have produced mixed findings. On the one hand, research examining the average effect of improved healthcare social safety nets has often found no effect on generic entrepreneurial entry.[1] Leveraging the 1986 Tax Reform Act, which provided tax deductions to self-employed individuals, Gumus and Regan (2015) find almost no effect on individuals' entry decisions despite the generous deductions. Similarly, Heim and Yang (2017) find no immediate effect of the implementation of major provisions in the ACA on the generic self-employment rate. Relatedly, Bailey (2017) exploits the ACA's dependent coverage mandate that improved young adults' access to affordable health insurance (by allowing them to acquire insurance via their parents' plans until age 25) and find no self-employment increase in this population.

On the other hand, several studies have identified demographic groups that are more likely to be affected by improved healthcare social safety nets. For example, studies have found that Medicare eligibility and policies that reduce out-of-pocket costs for prescription drugs spur more entrepreneurial entry for the elderly, who also tend to face higher health risks (Fairlie et al.,

[1] Across all such studies, entrepreneurship was defined based on self-employment work status in household survey data, such as the Current Population Survey and the American Community Survey. In this paper, I use the same definition of self-employment to characterize entrepreneurship.

2011; Moulton, Diebold, & Scott, 2017). Another study finds that women, who are more focused on balancing work and family than men, are more affected by the subsidized plans provided by public health insurance programs to leave traditional employment (Si, 2021).

These contingencies in the effects of improved healthcare social safety nets on entrepreneurial entry highlight the importance of considering the heterogeneous responses of different types of individuals, particularly those with different healthcare needs and life goals. I argue that the preference for health-related benefits is an important driver of such heterogeneous responses and that this preference is dependent on the entrepreneur's gender and innovation orientation.

2.3. Improved healthcare social safety nets encourage women's employment separation

Past research examining the sources of the entrepreneurial gender gap has largely attributed the disparities to either structural or dispositional reasons (Ahl, 2006). Some studies have found that institutional discrimination has imposed structural barriers to women's access to the necessary resources for founding their own businesses. For instance, negative gender biases in evaluations by external resource providers (Lee & Huang, 2018) can suppress access to capital (Brooks, Huang, Kearney, & Murray, 2014; Buttner & Rosen, 1989), especially in critical stages of the entrepreneurial process, such as initial fundraising (Ewens & Townsend, 2020) and VC funding (Guzman & Kacperczyk, 2019). Other studies have found that gender differences in individual attributes—such as risk preferences (Sexton & Bowman-Upton, 1990), responses to entrepreneurial role models (Matthews & Moser, 1996), and the pursuit of internal control (Maes, Leroy, & Sels, 2014)—lead to stronger entrepreneurial intent for men relative to women.

I adopt the latter perspective and propose that dispositional gender differences in the preference for health-related benefits contribute to more job lock for women and present larger mobility constraints to entering entrepreneurship. Women are likely to value health-related benefits more than men for two reasons. First, compared with men, women tend to be more

concerned with nonwork life aspects and value work benefits that support nonwork life. For instance, women prefer jobs with better anticipated work-life balance (Barbulescu & Bidwell, 2013; Mas & Pallais, 2017), and firms with more women provide more family-friendly workplace practices, such as childcare and flexwork benefits (Bloom, Kretschmer, & Van Reenen, 2011). The same reasoning applies to prospective entrepreneurs: female entrepreneurs are more likely to structure their work around their personal life (Bailyn, 1993) and use an entrepreneurial career to achieve more work flexibility so that they can attend to family obligations (DeMartino & Barbato, 2003). Therefore, women are likely to value health-related benefits more than men because health is a crucial determinant of life satisfaction (Fernandez & Kulik, 1981; Palmore & Luikart, 1972).

Second, relative to men, women are likely to value health-related benefits more because they have more healthcare needs. For instance, in 2004, women's annual health spending per capita was 32% (or $1,500) higher than men's, largely because of expenditures for maternity care and care related to breast cancer; this difference was even more substantial for those at working ages (Cylus, Hartman, Washington, Andrews, & Catlin, 2011). Moreover, because women relative to men tend to have a lower risk appetite (Harris & Jenkins, 2006), they are likely to place a higher value on health insurance. Confirming this higher valuation of health insurance, studies exploring the gender wage gap have found that women receive lower wages because of their preferences for employer-provided health insurance (Cowan & Schwab, 2016; Daneshvary & Clauretie, 2007). Analyses using direct survey responses have also found that female STEM workers value health benefits significantly more than male counterparts (Blume-Kohout, 2014).

Women's greater preference for health-related benefits implies their higher demand for employer-provided health insurance. As a result, employer-provided health insurance constitutes

a more substantive mobility constraint for female workers than for male workers (Buchmueller & Valletta, 1996). Improved healthcare social safety nets provide substitutes for employer-provided health insurance, encouraging more women than men to leave wage work upon the release of the mobility constraint.

This gender-based argument, however, does not consider important heterogeneities among women. Although research has found a larger job-lock release for women following improved healthcare social safety nets, it has not specified women's subsequent work-related choices. Rather than entering entrepreneurship, for example, women may choose contract jobs to achieve greater work flexibility (Si, 2021). I argue that the effects of improved healthcare safety nets on subsequent entrepreneurial entry are also contingent on another individual characteristic: the founder's innovation orientation. That is, improved healthcare social safety nets are more likely to encourage innovative entrepreneurship than noninnovative entrepreneurship among women.

2.4. Improved healthcare social safety nets encourage more innovative entrepreneurship for women

Although I predict that women will experience more job lock release after improved social safety nets than men, I expect that women working in innovative industries are likely to make greater gains than women working in noninnovative industries because of the former's stronger preferences for health-related benefits. First, the demand for health-related benefits may be greater for knowledge workers, who have a more intense work nature and thus greater vulnerability to work stress, which can increase healthcare costs (Goh, Pfeffer, & Zenios, 2016; Manning, Jackson, & Fusilier, 1996). Second, innovative workers tend to have more bargaining power in the labor market than their noninnovative counterparts because of the larger labor demands driven by technological changes (Silva & Lima, 2017). As a result, innovative workers tend to receive better compensation packages. As many firms do not offer employer-provided

health insurance out of cost concerns (Tsolmon & Ariely, 2022), innovative workers may be more likely to have employment options that offer health insurance benefits, whereas noninnovative workers may often receive job offers that do not include such benefits.[2] Consequently, innovative workers are more accustomed to having health-related benefits, and employer-provided health insurance may present a larger job lock for these individuals.

The dual magnifying effects of gender and individual innovation orientation suggest that innovative women are the ones who value health-related benefits the most and thus benefit the most from the removal of job lock associated with employer-provided health insurance. I further argue that after job lock is removed, innovative women are more likely to enter entrepreneurship than noninnovative women because of their higher human capital and unique knowledge and skills for pursuing venture ideas that can achieve growth. For instance, research has suggested that technologically more advanced firms generate more employee entrepreneurs (Franco & Filson, 2006), and innovative workers who possess more complex knowledge-work outputs are more likely to become entrepreneurs (Ganco, 2013). Studies on institutions and entrepreneurship have also found that lower barriers to entry have a greater effect on individuals with higher human capital (Eesley, 2016) and disproportionately encourage more high-growth ventures by these individuals (Eberhart, Eesley, & Eisenhardt, 2017). A study focusing on women has found that those who are leaders in technology sectors are more likely to start their own companies than their counterparts in other industries (Miric & Yin, 2020).

Combining this perspective on innovation orientation with the previously theorized gendered effects on employment separation, I hypothesize that improved healthcare social safety nets are

[2] In unreported analyses using the same sample analyzed in this paper, I find that innovative workers (defined by high-tech industry codes or STEM occupational codes) are significantly more likely to be covered by employer-provided health insurance than noninnovative workers.

more likely to encourage entrepreneurial entry for women relative to men and specifically for innovative women rather than for noninnovative women. Altogether, such an institutional change can mitigate the gender gap in innovative entrepreneurship:

Hypothesis 1 (H1). *Improved healthcare social safety nets reduce the gender gap in innovative entrepreneurship.*

This prediction is important in light of recent findings that institutional forces increasing the opportunity cost of leaving employment widen the gender gap in growth-oriented ventures when such forces (e.g., noncompete policies) present greater costs for women (Marx, 2021). Here, I identify an institutional force that reduces the opportunity cost of leaving employment more for women and subsequently narrows the gender gap in innovative entrepreneurship.

3. STUDY CONTEXT: U.S. HEALTHCARE SOCIAL SAFETY NETS

3.1. Individual insurance markets and the ACA

To examine my hypothesis, I focus on the context of the U.S. healthcare social safety nets. Countries differ significantly in their healthcare social safety nets. Whereas many countries provide universal national insurance to most of their populations, U.S. government programs cover only certain vulnerable groups, such as the elderly and those with low incomes. Given the significantly high healthcare costs in the United States (Hankin & Renfro, 2021), private health insurance plans via employers or individual insurance markets are thus extremely important to protect Americans from the financial risks associated with health-related expenditures.

Historically, most of the American working population has relied on employer-provided health insurance (employer group health plans) because of the exorbitant prices of nongroup private health plans in individual insurance markets. Employer-provided health insurance is much more affordable for plans that cover necessary benefits: premium costs are significantly lower because employers contribute the bulk of employees' premiums, deductibles tend to be

lower in the employer-sponsored markets, and employees can reap large tax benefits when their contributions to health plans are excluded from their individual taxable income calculations (Buchmueller et al., 2011; Tsolmon & Ariely, 2022).

However, entrepreneurs tend to rely more heavily on the more costly individual (nongroup) insurance markets for several reasons. First, most entrepreneurial businesses are small at the time of entry, preventing the owners from participating in employer group health plans. Although small-group insurance markets are potential options for businesses with 50 or fewer full-time equivalent employees, health plans in these markets are sometimes more expensive than those in individual insurance markets (Hall & McCue, 2021). Second, a large proportion of entrepreneurs defined as self-employed do not hire employees (Blau, 1987) and are thus not qualified for purchasing in small-group insurance markets. Third, even when entrepreneurs do hire labor, they often choose not to offer health insurance benefits to their employees in the early years because of constrained resources; the founders themselves still need to purchase from individual insurance markets. Therefore, the more affordable access to health insurance via employers prevents many prospective entrepreneurs from leaving wage work and becoming self-employed.[3]

In 2010, the ACA was enacted by the U.S. Congress and signed into law to improve the U.S. healthcare social safety nets through regulations for the health insurance markets. These policies cover a wide range of aspects, such as dependent coverage, Medicare drug benefit, and taxes. The most prominent ACA reform, however, is an overhaul of the individual insurance markets. Implemented on January 1, 2014, two major provisions improved access to affordable individual health insurance. First, guaranteed issue regulations prohibited insurance companies from

[3] Although married individuals may be listed as a dependent on their spouses' employer-provided health coverage, such dependent coverage options are still much more expensive than ones' own employer-provided health plans because of surcharges.

denying coverage to individuals because of preexisting conditions or any factors that could predict the use of health services, thus broadening the access to individual insurance options for those who previously found it difficult to purchase in these markets. Second, modified community rating regulations limited how insurance companies might charge different premiums based on gender and health status, thus lowering insurance costs for those who were previously disadvantaged and faced higher premiums in individual insurance markets, such as women.

These regulations provided better healthcare social safety nets (i.e., access to affordable individual health insurance) for those who would lose their employer-provided health plan upon leaving employment. Notably, pre-ACA, more than half of those who needed individual market coverage were turned down or were offered more costly coverage that came with many exclusions (Norris, 2021). The potential benefits of the ACA came from not only the ensured access and the lower premiums but also the potential savings in out-of-pocket payments for many covered medical services (Glied, Collins, & Lin, 2020).

3.2. Exogenous variation in treatment levels across U.S. states by the ACA

The effects of the ACA vary across U.S. states because of pre-ACA variation in guaranteed issue and community rating regulations. This variation is primarily attributed to a range of state laws enacted in the late 1980s and early 1990s (Herring & Pauly, 2006), when the country was experiencing heated debates on comprehensive healthcare reform at the federal level and many states introduced their own regulations affecting the small-group and nongroup health insurance markets at different levels (Buchmueller & DiNardo, 2002). Although some states had already implemented regulations that were the same or similar to the ACA federal requirements before 2014, many states had lower levels of regulation in the individual insurance market before the ACA provisions became effective. Consequently, states with the same or similar heavy regulations pre-ACA were largely unaffected by the ACA reform in the individual insurance

markets. Thus, in this study, states with moderate or light regulation are those considered treated by the institutional change. Throughout the paper, "treatment" refers to these ACA provisions in 2014, and "pre-ACA" refers to the period before January 1, 2014.

To test the effect of the ACA on the U.S. gender gap in innovative entrepreneurship, I build on the categorization of Heim and Yang (2017) and consider (1) states with no pre-ACA guaranteed issue and community rating regulations to be the treated states,[4] (2) states with partial regulation (e.g., for a subset of plans in the individual insurance markets) to be the moderately treated states,[5] and (3) states with pre-ACA regulations that were the same or similar to the ACA provisions to be the control states.[6] Figure 1 shows the geographical distribution of varied treatment by the ACA regulations on the individual insurance markets.[7]

——————Insert Figure 1——————

My empirical test leverages a quasi-experiment provided by the ACA provisions implemented on January 1, 2014. Because the pre-ACA state laws were not introduced to address the U.S. entrepreneurial gender gap, the ACA induced exogenous variation in the treatment levels for various states. Moreover, given that these state laws were largely set 20 years before the ACA, any potential unintended effects on the entrepreneurial gender gap are likely to have stabilized and are unlikely to lead to differential trends for the treated and the control states.

4. METHODOLOGY

[4] These states are Alabama, Alaska, Arizona, Arkansas, California, the District of Columbia, Georgia, Illinois, Indiana, Kansas, Maryland, Missouri, Montana, Nebraska, New Mexico, Ohio, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Wisconsin, and Wyoming.
[5] These states are Colorado, Connecticut, Delaware, Florida, Hawaii, Idaho, Iowa, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Nevada, New Hampshire, North Carolina, North Dakota, Oregon, Rhode Island, South Dakota, Utah, and West Virginia.
[6] These states are Massachusetts, Maine, New Jersey, New York, Vermont, and Washington.
[7] Whereas Heim and Yang (2017) pay special attention to a group of states with the pre-ACA "business of group one" regulations that allowed the self-employed with no employees to access the small-group insurance market, I categorize these states into the "moderately treated" group because entrepreneurs may still prefer having access to options in the individual insurance markets that are sometimes cheaper than small-group health plans (Hall & McCue, 2021).

4.1. Data

The analyses in this paper use the public-use version of the Current Population Survey (CPS) and its Annual Social and Economic Supplement (ASEC) sample between 2011 and 2018. Prior studies on entrepreneurial activities have extensively used CPS data, characterizing these activities as the count of self-employed individuals (Burtch, Carnahan, & Greenwood, 2018; Fairlie et al., 2011; Gumus & Regan, 2015; Heim & Yang, 2017). The census household survey data render a representative sample of Americans for estimating the average treatment effects on entrepreneurial entry.[8] Given the rarity of innovative entrepreneurial events (Agarwal et al., 2021; Bao, 2022), I use annual instead of monthly data to reduce noise in the dynamic patterns of these events. The CPS ASEC sample is a pooled cross-sectional data set, allowing me to examine differential treatment effects on women versus men. I restrict the analyses to individuals aged 18–65 who are in the labor force. The sample includes 475,135 observations for 335,792 individuals in all U.S. states, covering 273 census industries. The observations are 48% female.

4.2. Variables

4.2.1. Innovative entrepreneurship

Consistent with prior work on entrepreneurial entry (e.g., Burtch et al., 2018), I characterize entrepreneurship as self-employment status. This broad definition captures both growth-oriented innovative entrepreneurship (Botelho et al., 2021) and noninnovative entrepreneurship that may be sole proprietorships or necessity-driven (Fairlie & Fossen, 2018). Although the former is the focus of the paper, the latter enables a potential comparison for examining my arguments about the mechanism that hinges on the uniqueness of innovative entrepreneurs. *Generic Entrepreneurship* is an indicator equal to 1 if an individual is self-employed and 0 otherwise.

[8] The CPS data do not permit the identification of individuals who may be freelancers or gig workers, which is a potential data limitation: the ACA was enacted when gig work platforms, such as Uber, Upwork, and Wonolo, became increasingly popular. However, I suspect that gig workers are unlikely to self-identify as self-employed (Burtch et al., 2018) and are even less likely to be innovative entrepreneurs.

To further characterize the outcome of interest, innovative entrepreneurship, I construct a new measure based on the founder's innovation orientation according to whether the founder declares a STEM occupational code. STEM fields are considered important drivers of national innovative capability and global competitiveness (Beede et al., 2011; Nager et al., 2016). Past work typically assesses innovation-driven entrepreneurship through *ex post* measures (for a review, see Botelho et al. 2021), such as high growth (e.g., Decker et al., 2014; Eesley, 2016), the achievement of IPO or positive valuation (Guzman & Stern, 2020), and the receipt of VC funding (Kerr et al., 2014; Puri & Zarutskie, 2012). However, these measures require the observation of venture outcomes for multiple years after founding, which may render analyses subject to survival biases. The STEM-field categorization enables the identification of innovation-driven entrepreneurship at the time of entry and better reflects innovation orientation than the status of incorporation (Levine & Rubinstein, 2017). In recent years, increased institutional and governmental interests have been devoted to broadening participation in STEM entrepreneurship (i.e., business creation by the STEM workforce; Lupia et al., 2020).

The dependent variable *STEM Entrepreneurship* is set to 1 if an individual is self-employed and declares a STEM occupational code, and equals 0 otherwise. The STEM occupational codes are based on the census STEM and STEM-related occupation code list using the 2010 Standard Occupational Classification (SOC).

4.2.2. Posttreatment dummy

In a standard difference-in-differences approach, the average treatment effect is estimated by the posttreatment dummy *Treated* × *Post*. *Treated* equals 1 for individuals in states with no or partial pre-ACA regulations in individual insurance markets (the treated and moderately treated states) and 0 for individuals in states with the same or heavy (i.e., close to ACA level)

regulations before the ACA. *Post* equals 1 for observations after the start of the ACA provisions (i.e., from 2014 onward) and 0 otherwise.

4.2.3. Gender

Female is the moderating variable and is a binary indicator equal to 1 for women and 0 for men. When the triple interaction *Female* × *Treated* × *Post* is included in the regressions, it estimates the differential treatment effects for women versus men. The posttreatment dummy *Treated* × *Post* estimates the treatment effect for men only.

4.2.4. Controls

Several individual-level control variables are included in the regressions: (1) *Married* equals 1 for individuals who are married and 0 otherwise; (2) *Have Children* equals 1 for individuals who have children and 0 otherwise; (3) *Age* is the numerical value of the individual's age, and *Age Squared* captures a potential nonlinear effect; (4) *Race* is a categorical variable equal to 1 for White Americans, 2 for African Americans, and 3 otherwise; (5) *Education* equals 1 for individuals with a bachelor's or a more advanced degree and 0 otherwise; and (6) *Average County-Year Household Income (Logged)* is the natural logarithm of the average household income at the county-year level and controls for local economic conditions.

4.2.5. Summary statistics

Table 1 presents the summary statistics for the analytical sample, broken down by gender and state type. Table 2 presents the pairwise correlations.

——————Insert Table 1——————

——————Insert Table 2——————

4.3. Empirical strategy

To test my hypothesis on the effect of improved healthcare social safety nets on the gender gap in innovative entrepreneurship, I leverage a triple-difference design to estimate the relative

difference in the treatment effects on entrepreneurial entry between women and men (e.g., Muralidharan & Prakash, 2017; Porter & Serra, 2020). The main specification is as follows:

$$STEM\ Entrepreneurship_{ist} = \alpha_s + \lambda_{tj} + \gamma' X_{ist} + \beta_1 Treated_s \times Post_t + \beta_2 Female_i \times Post_t + \beta_3 Female_i \times Treated_s + \beta_4 Female_i \times Treated_s \times Post_t + \epsilon_{ist},$$

where *i* indexes individuals; *s* indexes states; *t* indexes year; α_s represents state fixed effects; λ_{tj} represents year-industry fixed effects, where industries are based on two-digit NAICS industry codes based on the census crosswalk; *X* is the vector of controls; and ϵ is the error term. In all regressions, standard errors are clustered at the state level to address the potential nonrandom treatment assignment of quasi-experiments (Abadie, Athey, Imbens, & Wooldridge, 2017) and within-state serial correlation (Bertrand, Duflo, & Mullainathan, 2004). ASEC sampling weights are also employed in all regressions to adjust for sampling biases. The coefficient of interest, β_4, represents the treatment effect difference between women and men—that is, the treatment effect on the gender gap in STEM entrepreneurship. A positive estimate would suggest that women are encouraged into entry more than men, indicating a reduced gender gap.

Figure 2 plots the raw trends of the difference between male and female STEM entrepreneurship rates separately for the treated and control states. Despite noisy raw trends before the ACA, the treated states experienced a sharp decline in the STEM entrepreneurial gender gap immediately following the implementation of the ACA provisions at the beginning of 2014. The control states, in contrast, saw a relatively flat trend in the STEM entrepreneurial gender gap after 2014. These trends are suggestive of a reduced gender gap in innovative entrepreneurship for the treated states relative to the control states in the years after the ACA.

——————Insert Figure 2——————

5. EMPIRICAL RESULTS

5.1. Main results

The raw trends do not control for compositional differences of individuals with various characteristics and state-level economic conditions for treated versus control states. To evaluate whether treated and control states were trending similarly in the STEM entrepreneurial gender gap, I employ an event study methodology to examine the time trends while conditioning on the control variables (Lipsitz & Starr, 2021). Extending the main specification by allowing the treatment effect (i.e., the posttreatment dummy) and the gender-based differential treatment effects (i.e., the triple-difference term) to vary across years, I plot the estimated coefficients for the year-specific triple-difference terms in Figure 3. Consistent with common practice, I make the year before ACA (i.e., 2013) the reference year. Each dot in the graph represents the year-specific difference, relative to the pretreatment year, between the treated and the control states in the STEM entrepreneurial gender gap (for women relative to men). The figure suggests that there is little evidence of pretreatment trending differences for the treated and control states in the STEM entrepreneurial gender gap, hence providing support for the parallel trends assumption of the triple difference (Muralidharan & Prakash, 2017). Notably, in 2014 and later, the treated and control states differ in the extent to which more women enter STEM entrepreneurship than men.

——————Insert Figure 3——————

Table 3 reports the results for testing the effect of improved healthcare social safety nets on the gender gap in innovative entrepreneurship. Model 1 shows that the treatment effect on STEM entrepreneurship entry is larger for women than for men, as indicated by the statistically significant and positive triple-difference estimate. Specifically, the treatment generates a 0.4 percentage point increase in the likelihood of entering STEM entrepreneurship for women relative to men. This finding supports Hypothesis 1, which posits a reduced gender gap in innovative entrepreneurship. Models 2 and 3 evaluate the treatment effects separately for women

and men and show that although the ACA provisions do not appear to have a statistically significant effect on male entrepreneurial entry, women are 0.2 percentage points more likely to enter STEM entrepreneurship after the treatment ($p < .10$). The magnitude of this effect seems small but represents a surprisingly large 40% increase from the average STEM entrepreneurship entry rate of 0.5% for women pre-ACA, given the rarity of innovative entrepreneurship.

——————Insert Table 3——————

I further investigate whether the reduced gender gap in STEM entrepreneurship is driven by a reduced gender gap in generic entrepreneurship. The results for Models 4 and 5 of Table 3, which examine the treatment effect of the ACA on the gender gap in non-STEM and generic entrepreneurship, respectively, reveal no statistically significant effects. In Model 6, I examine the treatment effect on the STEM entrepreneurial gender gap conditioning on the STEM workforce. These results confirm that the reduced gender gap is primarily driven by more women switching from STEM employment to STEM entrepreneurship rather than by more women entering generic entrepreneurship. Therefore, the effect of improved healthcare social safety nets on reducing the entrepreneurial gender gap applies only to innovative entrepreneurship, which is consistent with my theoretical arguments that women are affected more than men and that innovative women rather than noninnovative women are affected.

5.2. Testing the mechanisms

In this section, I provide further support for my arguments that the improved healthcare social safety nets encourage women's entry into innovative entrepreneurship through removing the job mobility constraint and that this mechanism is the most pronounced for innovative women. I first examine whether the positive effect of ACA implementation on entrepreneurial entry differs for innovative and noninnovative women by testing the moderating effect of whether a woman declares a STEM occupational code. Model 1 of Table 4 suggests that the ACA effect of

encouraging entrepreneurial entry is specific to women in STEM occupations; the effect is not statistically significant for non-STEM women.

——————Insert Table 4——————

I argue that improved access to affordable individual health insurance options lowers the opportunity cost of losing employer-provided health insurance, thereby removing the job mobility constraint. To test this argument, I leverage information on whether an individual was unemployed for any weeks in the previous year to proxy for the opportunity cost of leaving employment. Unemployment for any period suggests a low opportunity cost of leaving employment. If ACA encourages entrepreneurial entry by lowering the opportunity cost of leaving employment, then individuals with higher opportunity costs should benefit more from ACA implementation; individuals with already low opportunity costs because of less stable employment should be affected less by ACA implementation. Consequently, having been unemployed would negatively moderate the positive treatment effect on entrepreneurship entry. Moreover, if the proposed mechanism is most likely to operate for innovative women, then the negative moderating effect of unemployment experience may not apply to men or to noninnovative women. Indeed, Table 4 shows a negative moderating effect of unemployment experience for women (Model 2) but not for men (Model 3); the moderating effect is also negative for innovative women (Model 4) but not for noninnovative women (Model 5). In other words, there is a larger positive effect of ACA implementation for innovative women experiencing more job lock. Together, these results support the mobility constraint mechanism and indicate this mechanism is specific to innovative women.

5.3. Robustness checks and alternative explanations

5.3.1. Sensitivity to different definitions of treatment

The current categorization of treatment includes all U.S. states for sample representativeness. For robustness, I replicate the main finding using alternative definitions of the treatment and control groups by considering more nuanced differences within each group. The results, shown in Table OA1 in the Online Appendix, suggest that the reduced gender gap in STEM entrepreneurship is robust when (1) only states with light regulations before ACA are defined as the treated states (Model 1), (2) only states with the same regulations as ACA before ACA implementation are defined as the control states (Model 2), or (3) both conditions hold (Model 3), thus verifying that the observed effect is not sensitive to the definition of the treatment and control groups.

5.3.2. Sensitivity to different time window selections

I also verify that the main result is not sensitive to different selections of the sampling time window. Figure OA1 shows that the reduced gender gap in STEM entrepreneurship is robust when different numbers of pre-periods and post-periods are used for constructing the sample.

5.3.3. Placebo simulations

Because there are relatively fewer states in the control group (see footnote 6), I address the concern that the observed effect is capturing a spurious correlation by performing the triple-difference analysis on placebo laws in which the year of passage and the set of six control states are chosen at random (Bertrand et al., 2004). When 1,000 simulations are used, only 2.6% of the models generate a positive and statistically significant triple-difference estimate at the 5% level, providing confidence that the reduced gender gap in STEM entrepreneurship is driven by the ACA treatment rather than randomness.

5.3.4. State-year specific macroeconomic trends

I add several controls to ensure that the observed effect is not driven by state-year-specific macroeconomic trends. Average household income at the county-year level has already been included as a control for local economic conditions. Here, I further control for alternative state-

year economic indicators: housing prices, population, GDP, unemployment rates, business dynamics, and labor market demographics and conditions. The results, shown in Table OA2,[9] suggest a robust reduction in the STEM entrepreneurial gender gap after the ACA treatment.

5.3.5. Migration

An alternative explanation for the observed effect is that instead of encouraging switching from employment to entrepreneurship, the release of employment lock may increase geographical mobility and allow residents in the control states to move to the treated states. Consequently, if such an effect on moving intention is stronger for women, an influx of knowledge workers or entrepreneurs may drive the gender gap reduction in STEM entrepreneurship. All results are robust when individuals who have experienced an interstate migration in the last year are excluded from the sample, thus ruling out this possibility.

5.3.6. Gendered effects on entry into healthcare industries

An alternative explanation to the proposed mobility constraint mechanism is that the ACA treatment spurred STEM entrepreneurial opportunities in healthcare industries because of increased health maintenance organization penetration and associated business activities. If women are more likely than men to pursue healthcare-related business opportunities, then the reduction in the STEM entrepreneurial gender gap may be driven by the change in market conditions rather than the opportunity cost of leaving employment. To test this possibility, I exclude individuals working in healthcare primary and support occupations. The results show a robust effect of ACA implementation on the STEM entrepreneurial gender gap.

[9] I measure housing prices using the Zillow Home Value Index (ZHVI) data from Zillow.com, which is a smoothed, seasonally adjusted measure of the typical value for homes in the 35th to 65th percentiles. The natural logarithm of the ZHVI (log(ZHVI + 1)) in the observation's state in the year is added as a control. State-year population and GDP data are from the U.S. Bureau of Economic Analysis. State-year unemployment rates are from the U.S. Bureau of Labor Statistics. Business dynamics data on firm entry and exit rates are from the U.S. Census Business Dynamics Statistics. I use labor market demographic data from the analytical CPS sample. Minimum wage data from the Federal Reserve Economic Data are also included.

5.3.7. Potential confounding state events for promoting female STEM entry

To address the concern that state-level programs for promoting female STEM representation are confounding the observed effect on STEM entrepreneurship, I conduct a systematic search of state-level legislative events that might have impacted the female STEM workforce. Using the Bloomberg Government database, I find 251 bills (of any status) during 2012–2014 across U.S. states by searching for keywords related to women and STEM.[10] Reviewing the bills' synopses, I find 15 bills in five states that actually relate to promoting female STEM education or occupational participation in the respective state. Table OA3 provides the details on these bills. These state legislative events around the time of the ACA implementation might indicate possible state-specific trends that could have affected female STEM entrepreneurship participation. To ensure that they are not confounding the observed effect, I exclude these five states (Louisiana, Minnesota, New Jersey, New York, and Tennessee) from the analyses and still find a robust reduction in the STEM entrepreneurial gender gap.

5.3.8. Young versus old women

The ACA also contained a provision in 2010 that extended the age limit for dependent health insurance coverage that allowed adults younger than 26 to access affordable health insurance via their parents' plans. This provision might have affected the magnitude of the observed effect if young women in the treated and control states were affected differently before the 2014 provisions for individual insurance markets. I find that excluding individuals younger than 26 leaves the estimated triple-difference coefficient unchanged, consistent with prior research finding that younger adults are not more likely to enter entrepreneurship following improved

[10] The search result must include at least one of the woman-related keywords (i.e., "woman," "women," or "female") and at least one of the STEM-related keywords (i.e., "STEM"; "science, technology, engineering, and mathematics"; "science, technology, engineering, mathematics"; "science, technology, engineering, and math"; and "science, technology, engineering, math"). A number of bills on marijuana appeared in the keyword search because they included the word "stem" with a different meaning; these bills were excluded.

healthcare social safety nets (Bailey, 2017). Instead, older women are driving the increase in STEM entrepreneurship.

5.4. Post hoc analyses: Other consequences for women

Two consequences of women's increased likelihood of pursuing innovative entrepreneurship following ACA implementation are worth noting. First, the positive effect of ACA implementation on women's innovative entrepreneurship only suggests a compositional shift in entrepreneurship type for female entrepreneurs toward more innovative ventures. Table 5 shows a higher composition of STEM businesses among all entrepreneurial businesses for women post-ACA (Model 1), especially when compared with male entrepreneurship (Model 2). Second, this compositional shift may have contributed to increased business income for female entrepreneurs (Model 3), thus reducing the income gender gap for entrepreneurs (Model 4). These results further highlight the importance of healthcare social safety nets for female entrepreneurs.

——————Insert Table 5——————

6. DISCUSSION AND CONCLUSION

Although the entrepreneurial gender gap is the most significant for innovative entrepreneurship (Brush et al., 2014; Guzman & Kacperczyk, 2019), knowledge of the institutional forces that can reduce such a gender gap has been limited. Characterizing innovative entrepreneurship as STEM entrepreneurship, this paper examines a specific type of institutional factor that impacts the opportunity cost of leaving employment: healthcare social safety nets. I argue that improved healthcare social safety nets provide substitutes for employer-provided health insurance, thus removing the job mobility constraint by lowering the opportunity cost of leaving wage work. Moreover, I propose that women are affected more than men and that innovative women are particularly more likely to enter entrepreneurship than noninnovative women because of a stronger preference for health-related benefits (and thus stronger job lock) and a greater

propensity to pursue entrepreneurial opportunities. Consequently, the improved healthcare social safety nets mitigate the gender gap in innovative entrepreneurship. This hypothesis and the underlying argument are supported by a triple-difference empirical design leveraging the implementation of major ACA provisions that improved access to affordable health insurance in non-employer-sponsored individual insurance markets. The reduced gender gap in STEM entrepreneurship also leads to a compositional shift in women's entrepreneurship toward more innovation and increased business income for female entrepreneurs.

A few limitations are noteworthy and point to future research opportunities. First, I choose the CPS data because they are representative of the U.S. population and are based on a large sample of surveyed individuals. Given the rarity of innovative entrepreneurship, longitudinal panel data sets on newly founded ventures, such as data from the Panel Study of Entrepreneurial Dynamics (PSED) and the Kauffman Firm Survey (KFS), typically present statistical power issues for in-depth analyses that hinge on interstate variation because of the small numbers of innovative firms sampled in each state. Using data sets on a subset of innovative startups, on the other hand, precludes comparisons of innovative businesses with noninnovative ones for evaluating the contingency in the documented effects. Nevertheless, the pooled cross-sectional nature of the CPS data limits observations of within-individual switching behavior to shed light on the micro-level mechanisms. Future research can leverage newer and better data sets that track various types of entrepreneurs over time to enrich the understanding of individual-level responses.

Second, although my empirical tests generate results consistent with the proposed mobility constraint mechanism for innovative women, I do not have direct measures of individual-level preferences for health-related benefits to verify that innovative women value these benefits the most. Future studies can offer more direct evidence via surveys or experiments to quantify the

dispositional differences in such preferences based on gender or innovation orientation. Moreover, despite robustness tests to improve the confidence in the theorized mobility constraint mechanism, I cannot rule out the possibility that the observed increase in female STEM entrepreneurship is partially driven by female entrepreneurs pivoting into STEM entrepreneurship from non-STEM entrepreneurship. Given that industry choices are likely malleable (Hiatt & Carlos, 2019; Nikiforou, Dencker, & Gruber, 2019), a proportion of the STEM entrepreneurial entry may come from non-STEM entrepreneurs who seize new opportunities enabled by the changed market conditions associated with the ACA implementation. My findings remain robust after I exclude healthcare-related businesses. Beyond this exploration, future research can investigate possible effects on industry selection.

Third, given that the focus of this paper is on the gender gap in innovative entrepreneurship, I do not expand on the discussion of the effects of ACA implementation on generic entrepreneurship. I have also largely focused on why innovative women enter, bypassing a direct theory on the implications for men. Women's increased likelihood of leaving wage work to pursue innovative business opportunities may have unintended consequences for men through within-household dynamics by requiring their male entrepreneur partners to return to wage work (e.g., to provide more stable income flows for the family). For instance, the results for Model 5 of Table 3 show a decrease in generic entrepreneurial entry for men following ACA implementation. Further, in unreported analyses (available upon request), I find that this effect is driven by married men with children. Future research should further investigate this possibility by linking spousal observations in household surveys to unpack the consequences for men.

I conclude by highlighting this paper's contributions to theory and practice. First, the paper contributes to the organization and strategy literature on how institutional contexts shape

entrepreneurial entry (Bruton, Ahlstrom, & Li, 2010; Tolbert et al., 2011) by highlighting the important contingency for innovative versus noninnovative businesses. Whereas past studies have explored different business types based on *ex post* measures, such as growth (Eberhart et al., 2017; Eesley, 2016) and financial milestones (Guzman & Stern, 2020), I present a new *ex ante* categorization that is more reflective of innovation: whether a business operates in a STEM field. This study therefore joins the scant work on institutional policies that considers innovation as an important outcome (Conti et al., 2021; Vakili & Zhang, 2018).

Second, the study extends research at the intersection of policy, entrepreneurship, and diversity (Hwang & Phillips, 2020) and studies specifically focused on reducing the entrepreneurial gender gap (Castellaneta et al., 2020; Marx, 2021) by examining the expansion of healthcare access as an institutional factor that encourages the establishment of more innovative female-led businesses. The findings thus have important policy implications for promoting innovation-driven entrepreneurship and diversity within it.

Third, the paper speaks to the strategic human capital literature on employee mobility constraints (Carnahan et al., 2012; Ganco, 2013; Starr et al., 2018). Much of the previous literature on mobility constraints among knowledge workers has largely focused on legal constraints, such as immigration work status (Agarwal et al., 2021) and the threat of litigation (Marx, 2021). By contrast, I contribute to research stressing the role of working conditions and benefits (Delery & Roumpi, 2017; Kryscynski et al., 2021; Tsolmon & Ariely, 2022). My findings imply that the effectiveness of these constraints may be contingent on gender and workers' innovation orientation and that health-related benefits may be a particularly strong mobility constraint for innovative female workers. The managerial implication for firms seeking worker retention tools is that such tools should consider workforce gender and skill composition.

Finally, I contribute to work examining drivers of (entrepreneurial) career decisions among the STEM workforce (Elfenbein et al., 2010; Sauermann, 2018), particularly regarding how individual attributes interact with contextual factors (Agarwal et al., 2021; Roach & Sauermann, 2015). The presented evidence suggests that the effect of macro-level policies on career choices may be contingent on micro-level differences that drive varying preferences for work benefits.

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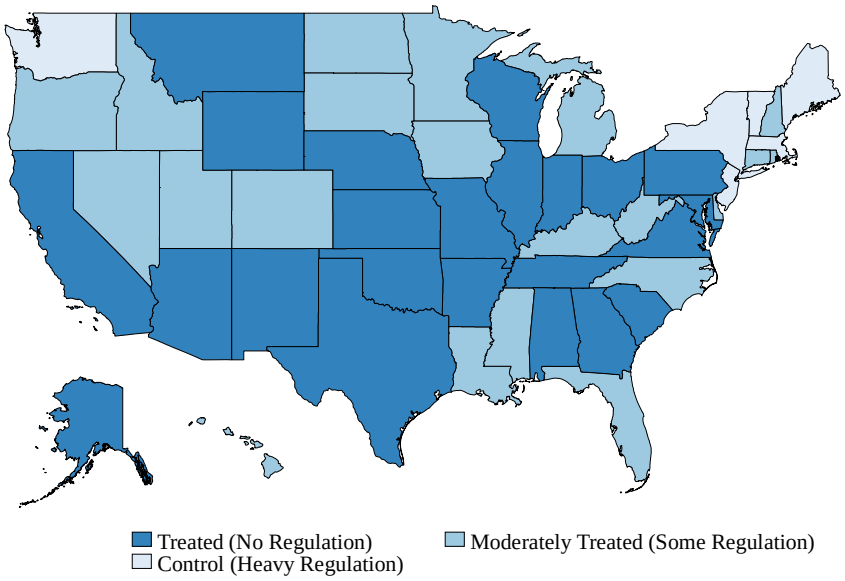

FIGURE 1: Pre-ACA Variation in State Individual Health Insurance Market Regulations. This figure illustrates the geographical variation in state individual health insurance market regulations before the implementation of the Affordable Care Act (ACA) provisions in 2014. States are color-coded based on the degree of local individual ("nongroup") health insurance market regulation.

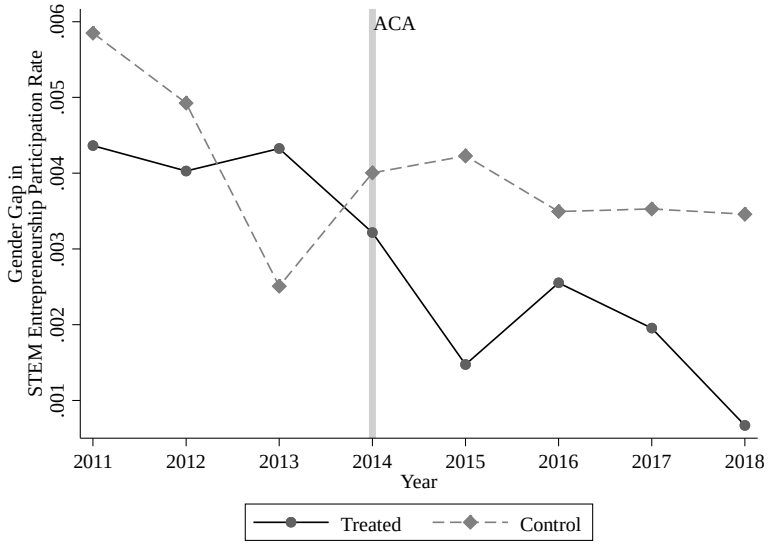

FIGURE 2: Raw Trends of Gender Gap in STEM Entrepreneurship. This figure plots the difference between male and female STEM entrepreneurship rates over time for treated versus control states separately.

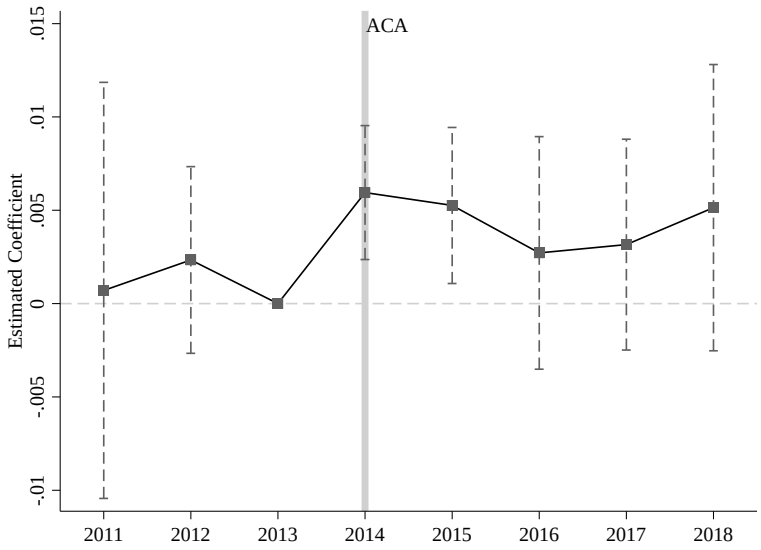

FIGURE 3: Event Study Estimates for STEM Entrepreneurship. This figure plots the estimated coefficients for year-specific triple-difference terms in an event study that allow the treatment effect (i.e., the posttreatment dummy) and the gender-based differential treatment effects (i.e., the triple-difference term) to vary across years in the main specification. The year before ACA (i.e., 2013) is the reference year. The 95% confidence intervals are shown in the dashed vertical lines.

TABLE 1: Summary Statistics. This table presents the summary statistics broken down by gender and state type. Mean values are presented. Binary variables are indicated with (0/1). Logarithm refers to the natural logarithm of the variable plus one. Standard deviations are in the parentheses.

	Female Subsample			**Male Subsample**		
Variables	*Control* *N=28,725*	*Moderately Treated* *N=81,379*	*Treated* *N=117,348*	*Control* *N=30,270*	*Moderately Treated* *N=88,123*	*Treated* *N=129,290*
STEM Entrepreneurship (0/1)	0.006	0.005	0.005	0.010	0.008	0.008
	(0.077)	(0.069)	(0.072)	(0.100)	(0.091)	(0.087)
Generic Entrepreneurship (0/1)	0.073	0.075	0.073	0.119	0.121	0.114
	(0.260)	(0.264)	(0.259)	(0.324)	(0.326)	(0.318)
Nonfarm Business Income ($, Logged)	8.450	8.379	8.495	9.342	9.161	9.280
	(3.129)	(3.104)	(3.021)	(2.863)	(2.939)	(2.805)
Married (0/1)	0.528	0.550	0.533	0.574	0.589	0.583
	(0.499)	(0.497)	(0.499)	(0.495)	(0.492)	(0.493)
Have Children (0/1)	0.481	0.483	0.483	0.439	0.436	0.437
	(0.500)	(0.500)	(0.500)	(0.496)	(0.496)	(0.496)
Age	42.446	41.706	41.285	42.185	41.661	41.240
	(12.830)	(12.935)	(12.868)	(12.775)	(12.837)	(12.749)
Race: White (0/1)	0.824	0.818	0.790	0.839	0.842	0.822
	(0.381)	(0.386)	(0.407)	(0.367)	(0.364)	(0.383)
Race: Black (0/1)	0.090	0.097	0.125	0.071	0.076	0.096
	(0.287)	(0.296)	(0.330)	(0.257)	(0.266)	(0.294)
Race: Other (0/1)	0.086	0.085	0.086	0.090	0.081	0.083
	(0.280)	(0.279)	(0.280)	(0.286)	(0.273)	(0.275)
Education: Below College/Some College (0/1)	0.562	0.643	0.628	0.612	0.686	0.675
	(0.496)	(0.479)	(0.483)	(0.487)	(0.464)	(0.468)
Education: Bachelor's/Advanced Degree (0/1)	0.438	0.357	0.372	0.388	0.314	0.325
	(0.496)	(0.479)	(0.483)	(0.487)	(0.464)	(0.468)
Average County-Year Household Income ($, Logged)	2.425	2.415	2.416	2.425	2.415	2.416
	(0.019)	(0.016)	(0.017)	(0.019)	(0.016)	(0.017)

TABLE 2: Correlations. This table presents the correlations for the analytical sample. Binary variables are indicated with (0/1). Logarithm refers to the natural logarithm of the variable plus 1.

	Variables	1	2	3	4	5	6	7	8	9
1	STEM Entrepreneurship (0/1)									
2	Generic Entrepreneurship (0/1)	0.13								
3	Nonfarm Business Income ($, Logged)	0.12	0.54							
4	Female (0/1)	0.00	-0.03	-0.13						
5	Married (0/1)	0.02	0.07	0.09	-0.02					
6	Have Children (0/1)	0.00	0.02	0.04	0.03	0.34				
7	Age	0.07	0.17	0.15	-0.02	0.19	-0.13			
8	Race	0.00	-0.01	-0.01	0.01	-0.03	0.03	-0.02		
9	Education (0/1)	0.20	-0.12	0.02	0.07	0.04	-0.02	0.05	0.00	
10	Average County-Year Household Income ($, Logged)	0.05	-0.03	0.02	0.02	0.00	0.00	0.03	0.07	0.15

TABLE 3: Main Results. This table presents the main results for the effect of the ACA 2014 provisions on the gender gap in innovative entrepreneurship. Robust standard errors in parentheses are clustered at the state level. + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

Dependent Variable:				**Entrepreneurship**		
	STEM Entrepreneurship			**Non-STEM**	**Generic**	**STEM**
Sample:	*Full Sample*	*Female Only*	*Male Only*	*Full Sample*	*Full Sample*	*STEM Workers*
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female × Treated × Post	0.004*			0.002	0.006	0.028*
	(0.001)			(0.004)	(0.004)	(0.012)
Treated × Post	-0.002	0.002+	-0.002	-0.007	-0.009+	-0.017
	(0.001)	(0.001)	(0.001)	(0.005)	(0.005)	(0.011)
Treated	0.004**	0.002*	0.005***	-0.008*	-0.004	0.018+
	(0.001)	(0.001)	(0.001)	(0.003)	(0.003)	(0.010)
Post	-0.008	-0.002	-0.011	-0.058	-0.066	-0.033
	(0.010)	(0.001)	(0.013)	(0.039)	(0.042)	(0.082)
Treated × Female	-0.001			0.000	-0.000	-0.011
	(0.001)			(0.007)	(0.007)	(0.014)
Post × Female	0.000			-0.002	-0.002	-0.001
	(0.001)			(0.003)	(0.003)	(0.012)
Constant	-0.095**	-0.153**	-0.039	0.061	-0.034	-0.306
	(0.034)	(0.048)	(0.043)	(0.123)	(0.143)	(0.248)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	432,286	209,941	222,345	432,286	432,286	54,796
R-squared	.030	.018	.052	.086	.087	.069

TABLE 4: Testing the Mechanisms. The difference between the estimated coefficients in Models 4 and 5 for *Any Weeks Unemployed* × *Treated* × *Post* is statistically significant at the 10% level (p value = .0678). Robust standard errors in parentheses are clustered at the state level. + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

Dependent Variable:	**Entrepreneurship**	**STEM Entrepreneurship**		**Entrepreneurship**	
	Female	*Female*	*Male*	*STEM Female*	*Non-STEM Female*
	Model 1	Model 2	Model 3	Model 4	Model 5
STEM × Treated × Post	0.016**				
	(0.005)				
Treated × Post	-0.005	0.007*	-0.017**	0.051*	0.004
	(0.004)	(0.003)	(0.006)	(0.024)	(0.013)
STEM × Treated	-0.017+				
	(0.010)				
STEM × Post	-0.018***				
	(0.003)				
Treated	-0.021***	-0.001	0.005	-0.008	-0.036*
	(0.004)	(0.003)	(0.006)	(0.022)	(0.014)
Post	0.041	-0.007*	-0.002	-0.017	0.033
	(0.057)	(0.003)	(0.016)	(0.023)	(0.058)
STEM	-0.029**				
	(0.010)				
Any Weeks Unemployed × Treated × Post		-0.006+	0.016**	-0.046*	-0.010
		(0.003)	(0.006)	(0.023)	(0.012)
Any Weeks Unemployed × Treated		0.003	0.001	0.020	0.011
		(0.003)	(0.006)	(0.023)	(0.014)
Any Weeks Unemployed × Post		0.007*	-0.011*	0.050*	0.018+
		(0.003)	(0.005)	(0.020)	(0.011)
Any Weeks Unemployed		-0.009**	-0.010*	-0.071***	-0.064***
		(0.003)	(0.004)	(0.020)	(0.013)
Constant	-0.209	-0.147**	-0.038	-0.692+	-0.130
	(0.153)	(0.047)	(0.045)	(0.356)	(0.167)
Controls	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year-Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	209,941	209,941	222,345	28,650	181,291
R-squared	.079	.018	.053	.050	.087

TABLE 5: Post Hoc Analyses on Other Consequences. Robust standard errors in parentheses are clustered at the state level. + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

Dependent Variable:	**STEM Entrepreneurship**		**Business Income (Logged)**	
	Female Entrepreneurs	*All Entrepreneurs*	*Female Entrepreneurs*	*All Entrepreneurs*
	Model 1	Model 2	Model 3	Model 4
Treated × Post	0.023*	-0.009	0.280***	-0.226**
	(0.010)	(0.006)	(0.059)	(0.075)
Female × Treated × Post		0.033*		0.514***
		(0.015)		(0.102)
Treated	0.039**	0.032***	0.006	0.322***
	(0.012)	(0.006)	(0.063)	(0.046)
Post	-0.003	0.006	-0.120	0.242
	(0.036)	(0.035)	(0.345)	(0.217)
Treated × Female		0.001		-0.316***
		(0.008)		(0.080)
Post × Female		-0.012		-0.438***
		(0.014)		(0.072)
Constant	-1.518*	-0.785***	0.353	-3.018
	(0.630)	(0.188)	(3.733)	(2.695)
Controls	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes
Year-Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	15,802	42,426	9,591	23,661
R-squared	.242	.299	.084	.085

ONLINE APPENDIX FOR

HEALTHCARE SOCIAL SAFETY NETS, GENDER, AND INNOVATIVE ENTREPRENEURSHIP

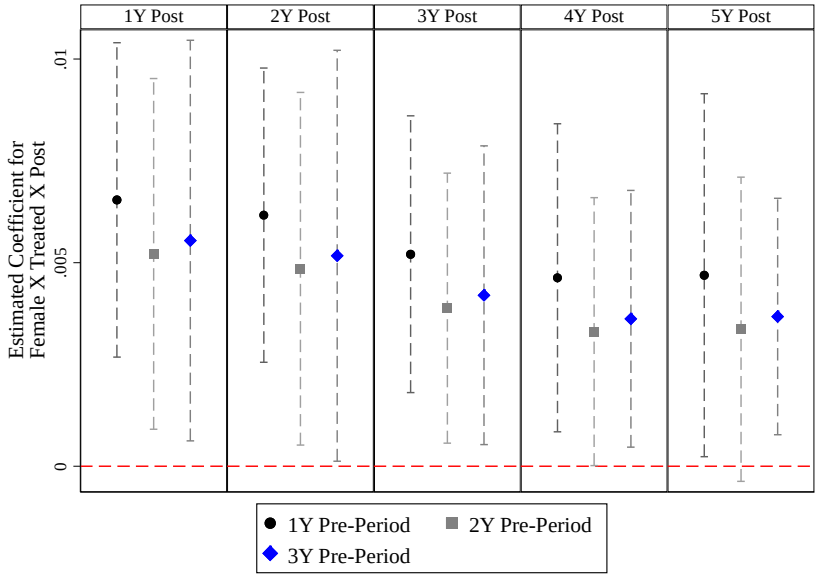

FIGURE OA1: Different Time Windows. This figure presents the estimated coefficients for *Female* × *Treated* × *Post* when different numbers of pre-periods and post-periods are used. The 95% confidence intervals are shown in the dashed vertical lines.

TABLE OA1: Different Definitions of Treatment. Robust standard errors in parentheses are clustered at the state level. + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

Dependent Variable:	**STEM Entrepreneurship**		
	A. Light Regulation States Only as Treated	*B. Same Regulation States Only as Control*	*Both A and B*
	Model 1	Model 2	Model 3
Female × Treated × Post	0.003+	0.006*	0.005*
	(0.002)	(0.002)	(0.003)
Treated × Post	-0.002	-0.004*	-0.004+
	(0.001)	(0.002)	(0.002)
Treated	0.003*	0.004**	0.004*
	(0.001)	(0.002)	(0.002)
Post	-0.013	0.004+	0.005*
	(0.015)	(0.002)	(0.002)
Treated × Female	0.000	-0.003	-0.003
	(0.001)	(0.002)	(0.002)
Post × Female	-0.000	-0.002	-0.002
	(0.001)	(0.002)	(0.002)
Constant	-0.082+	-0.080**	-0.061*
	(0.041)	(0.027)	(0.030)
Controls	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes
Year-Industry Fixed Effects	Yes	Yes	Yes
Observations	277,696	392,171	237,581
R-squared	.031	.030	.030

TABLE OA2: Macroeconomic Trends. Robust standard errors in parentheses are clustered at the state level. + $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$.

Dependent Variable:	**STEM Entrepreneurship**						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Female × Treated × Post	0.004*	0.004*	0.004*	0.004*	0.004*	0.004*	0.004**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Treated × Post	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002+
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Treated	0.001	0.002	-0.005	0.004**	0.005*	0.004**	0.002+
	(0.003)	(0.005)	(0.004)	(0.001)	(0.002)	(0.001)	(0.001)
Post	-0.007	-0.008	-0.005	-0.007	-0.007	-0.008	-0.009
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)
Treated × Female	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Post × Female	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Home Value Index (Logged)	-0.003						
	(0.002)						
Population (Logged)		-0.004					
		(0.013)					
GDP (Logged)			-0.010*				
			(0.005)				
Unemployment Rate				0.000			
				(0.000)			
Business Exit Rate					0.001**		
					(0.000)		
Business Entry Rate					-0.000		
					(0.001)		
Labor Force: Married (%)						0.015	
						(0.009)	
Labor Force: College Education (%)						0.007	
						(0.008)	
Minimum Wage							-0.000
							(0.000)
Constant	-0.058	-0.029	0.035	-0.098**	-0.109**	-0.102**	-0.095**
	(0.050)	(0.218)	(0.065)	(0.033)	(0.034)	(0.035)	(0.035)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	432,286	432,286	432,286	432,286	432,286	432,286	402,319
R-squared	.030	.030	.030	.030	.030	.030	.031

TABLE OA3: Potential Confounding State Events.

State	Bill Number	Date	Synopsis
LA	HCR136	5/7/2014	Requests the Department of Economic Development to encourage new and existing Louisiana companies to create strategies that would increase the number of women employed in STEM positions
	HCR156	5/13/2014	Requests that the state Department of Education and public school governing authorities implement certain measures based on the Louisiana Women's Policy and Research Commission's recommendations pertaining to science, technology, engineering, and math (STEM) education in its 2013 report to the governor
	HCR204	5/27/2014	Requests the Department of Public Safety and Corrections to align its job training programs across all prison systems to high-demand, high-wage jobs in a gender-neutral manner to assist women in attaining such jobs upon release
MN	HF2291	2/25/2014	Women's economic self-sufficiency promoted; gender segregation in the workforce reduced; gender pay gap reduced through the participation of women in high-wage, high-demand, and nontraditional occupations; women and nontraditional jobs grant program established; and money appropriated
	SF2274	3/4/2014	
NJ	A2015	1/10/2012	Establishes the four-year "New Jersey Innovation Inspiration School Grant Pilot Program" in DOE to fund non-traditional STEM programs
	S2562	2/7/2013	
	S3094	12/12/2013	
	S225	1/14/2014	
	A940	1/16/2014	
	S960	1/27/2014	
NY	A6417	3/25/2013	Provides science, technology, engineering and mathematics grants for the encouragement of women and minorities to pursue careers in technology
	S5237	5/14/2013	
TN	HB2295	1/31/2014	Naming and Designating—As enacted, designates the month of August as "Women in STEM" month to raise awareness of the opportunities for women to pursue a career in a STEM related field; STEM refers to the fields of study science, technology, engineering, and mathematics—Amends TCA Title 49
	SB2460	2/5/2014	