Female representation and talent allocation in entrepreneurship: the role of early exposure to entrepreneurs

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Abstract

This paper shows that exposure to entrepreneurs during adolescence increases women's entry and performance in entrepreneurship and improves the allocation of talent in the economy. Using population-wide registry data from Denmark, we track nearly one million individuals from adolescents to adulthood and exploit idiosyncratic within-school, cross-cohort variation in exposure to entrepreneurs, as measured by the share of an adolescent's peers whose parents are entrepreneurs at the end of compulsory school. Early exposure, and in particular exposure to the entrepreneur parents of female peers, encourages girls' entry and tenure into this profession, while it has no effect on boys. The increase in female entrepreneurship is associated with the creation of successful and female-friendly firms. Furthermore, early exposure reduces women's probability to discontinue education at the end of compulsory school and to hold low wage jobs through their lives. Together these results challenge the view that the most successful female entrepreneurs would enter this profession regardless of early exposure.

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1 Introduction

Despite decades of convergence in the occupational distribution of men and women, women remain less likely to engage and succeed in entrepreneurship in all developed countries, including those well regarded for their levels of gender equality (OECD, 2021).[1] These disparities not only give rise to equity concerns but may also have important implications for aggregate productivity. Recent work shows that gender-specific barriers can result in substantial welfare costs when individuals have occupation-specific abilities (Hsieh et al., 2019). Such costs are likely to be particularly large in the context of entrepreneurship, given the key role entrepreneurs play for job creation and economic growth (e.g. Decker et al., 2014). Yet, despite these relevant implications, we still know surprisingly little about what could effectively encourage female entrepreneurship and how this would impact the allocation of talent in the economy.

This paper aims to answer these questions by proceeding in two steps. First, we investigate whether exposure to entrepreneurs that takes place during adolescence increases girls' likelihood of pursuing entrepreneurship in adulthood. Second, we study the impact of steering women into entrepreneurship through early exposure on the allocation of talent in the economy. For our analysis, we use comprehensive administrative data from Denmark, spanning from 1980 to the present, and define entrepreneurs as individuals who found or own a business with employees, thereby excluding the self-employed.[2] The longitudinal nature of the data, combined with detailed information on individuals' educational attainment and labor market status, allows us to relate early exposure to entrepreneurs to the career trajectories of almost one million individuals.

The first part of our analysis, which explores how exposure to entrepreneurs during adolescence influences girls' likelihood of becoming entrepreneurs later in life, is motivated by existing evidence showing that interacting with people with entrepreneurial experience affects both the decision to become an entrepreneur (see Parker, 2018, for a review) and the learning opportunities as an entrepreneur (e.g. Guiso et al., 2021; Guiso and Schivardi, 2011). Exposure that takes place early in life could be particularly relevant for female entrepreneurship, given that boys and girls make gendered educational and career choices already from a young age, with these differences solidifying in adulthood (e.g. Bertrand, 2011). In particular, if girls tend to make educational and career choices that are less conducive to entrepreneurship, early exposure to this

[1] For instance, in the five most gender equal OECD countries according to the 2020 Global Gender Gap Index, women constitute only between one-third and one-fifth of all entrepreneurs (in New Zealand and Sweden respectively). In Denmark - the country studied in this paper, which ranks 14th in the Global Gender Gap Index - women represent only 25 percent of all entrepreneurs.

[2] Our ability to exclude the self-employed stands in contrast to other studies, which faced limitations in doing so due to data constraints or concerns about sample size. We test the sensitivity of our results to our definition of entrepreneurs in Section 4.1.

profession may increase their probability of becoming entrepreneurs by affecting their entire education and career trajectories.[3]

Identifying the causal effect of early exposure to entrepreneurs is challenging, as it requires isolating exogenous variation in adolescents' exposure to entrepreneurs from other endogenous and potentially correlated factors, such as adolescents' background or the firm density in their area of residence. We address this challenge by exploiting quasi-random variation in the share of a student's peers with entrepreneur parents *across* cohorts *within* a school, controlling for the entrepreneurial status of the student's own parents.[4] We focus on exposure during the last three years of compulsory schooling, when students are between the ages of 13 and 16. This period is ideal for addressing our research question because during compulsory school the educational curriculum is the same for all students, irrespective of gender, allowing us to estimate the effect of exposure *before* any potentially endogenous choices are taken. Additionally, the final years of compulsory school represent a critical juncture in the Danish educational system, as students must choose their subsequent educational track by the end of this period.[5] Assuming that students do not sort into schools based on cohort-to-cohort variation in the share of peers with entrepreneurial parents, this strategy allows us to identify the causal effect of early exposure to entrepreneurs for the entire population of Danish students. We provide evidence in support of this identifying assumption by showing that the within-school variation in the share of peers with entrepreneurial parents can be considered "as good as random" and is not related to within-school variation in students' background characteristics.

We show that early exposure to entrepreneurs increases girls' entry and tenure in this profession. In line with the fact that adolescents interact more frequently with their same-sex peers (e.g. Friebel et al., 2021; Rubin et al., 2015), we show that these effects are driven entirely by girls' exposure to entrepreneurs through the parents of their *female peers*. In contrast, early exposure does not appear to affect boys' overall propensity to enter entrepreneurship, irrespective of the gender of their peers.[6]

[3]In line with this notion, Table 1 shows that while boys and girls have the same exposure to entrepreneurs during compulsory school, their likelihood of interacting with individuals with entrepreneurial experience diverges as soon as they sort into their subsequent educational and professional paths. Thus, early exposure to entrepreneurs – that is, occurring before the trajectories of boys and girls start diverging – may act as an equalizer for girls who might not become familiar with this profession otherwise.

[4]The idea of exploiting natural variation in cohort composition within schools across time as a way to tackle endogenous selection into peer groups has been used in several papers (e.g. Olivetti et al., 2020; Carrell et al., 2018; Lavy and Schlosser, 2011; Hoxby, 2000).

[5]We discuss the Danish educational system in more detail in Section 2.1.

[6]The lack of peer effects for boys is in line with previous work from social psychology showing that girls develop friendships that involve greater communication and sharing of information than friendships among boys (see Rose and Rudolph, 2006, for a review). Consistent with this notion, several recent studies in economics find that, compared to female students, male students are either not affected or less affected by their peers (Hampole et al., 2021; Aguirre et al., 2021; Mouganie and Wang, 2020; Fischer, 2017; Schneeweis and Zweimüller, 2012).

In terms of magnitude, the estimated effects for girls suggests that increasing early exposure to entrepreneurs by the interquartile range (IQR) – from a cohort where 5.3 percent of female peers have entrepreneur parents to one where 16.7 percent do – increases the likelihood of women becoming entrepreneurs by age 35 by 4 percent. This effect is sizable, corresponding to 6.5 percent of the increased propensity to enter entrepreneurship associated with having an entrepreneur parent, a factor that strongly increases an individual's decision to pursue entrepreneurship.[7] Considering the substantial influence of growing up with an entrepreneur parent, this benchmarking emphasizes the significant role early exposure to entrepreneurs can play in fostering female entrepreneurship.

Given the low representation of women in entrepreneurship, showing that early exposure has the potential to encourage more women to become entrepreneurs is a relevant finding from a gender equality perspective. However, to understand the broader implications for allocative efficiency, we need to determine whether steering girls into entrepreneurship through exposure during adolescence is associated with a better allocation of talent in the economy. Answering this question, which we view as being central to our paper, involves obtaining two key pieces of information. First, we need to assess whether the increase in female entrepreneurship due to early exposure is associated with the creation of successful businesses. The answer to this question is ex-ante ambiguous: if potentially successful female entrepreneurs face challenges in entering and thriving in this profession due to gender-specific barriers, lowering such barriers through early exposure may lead to the creation of productive businesses. However, if early exposure lowers the cost of entering entrepreneurship for women who do not have a comparative advantage in this profession, which requires a specific set of skills and abilities (Lazear, 2004), it could lead to the creation of unproductive businesses. Second, we must identify the career paths these women would have pursued had they not been exposed to entrepreneurs during adolescence. Notably, both the private and social returns from steering women into entrepreneurship may differ depending not only on how successful their businesses are, but also on their counterfactual occupations, particularly whether we are redirecting women from low- or high-impact careers.

To identify women's counterfactual paths, we study how early exposure affects girls' educational and professional attainments once they have completed compulsory school. We show that early exposure to female peers with entrepreneur parents reduces girls' probability of discontinuing education at the end of compulsory school and increases their probability of completing upper-secondary vocational education. Vocational training is highly conducive to entrepreneurship and undertaken by 62 percent

[7]Specifically, our data reveals that having an entrepreneur parent increases women's probability of entering entrepreneurship by their mid-30s by almost 60 percent, a magnitude that is in line with existing work (e.g. Lindquist et al., 2015; Colombier and Masclet, 2008; Sørensen, 2007b; Dunn and Holtz-Eakin, 2000).

of entrepreneurs in our sample. This result highlights the importance of exposing girls to entrepreneurship before they make educational choices that are hard to reverse and that may be less conducive to becoming an entrepreneur. In addition, we find that early exposure to entrepreneurs reduces women's probability of being employed in low-paying jobs. Taken together, these results indicate not only that early exposure may benefit women by helping them acquire more education and transition away from low-paying positions, but also that promoting female entrepreneurship through early exposure is unlikely to come at the cost of diverting women from pursuing high-impact careers. Because women's personal outcomes may also be affected by the type of careers they pursue, we complement this analysis by investigating the effect of early exposure on marriage and fertility outcomes, but we find no significant changes on these margins.

We then turn to investigate the quality of the firms created by women entering entrepreneurship due to early exposure and find that these firms appear to be highly successful, outperforming those created by both male and female incumbents in terms of their size and survival. This result speaks to the presence of misallocation in entrepreneurial talent and suggests that increasing female participation in entrepreneurship through early exposure can be instrumental by encouraging potentially talented entrepreneurs to pursue and succeed in this career. Together, these results challenge the view that the most productive female entrepreneurs would succeed in starting and growing their business regardless of early exposure, as would be predicted by models attributing women's under-representation in male-dominated occupations solely to differences in entry costs (e.g., Hsieh et al., 2019). Instead, these patterns align most closely with the notion that women encounter higher barriers not just in entering entrepreneurship but also in achieving entrepreneurial success once starting their firms.[8] In this context, early exposure emerges as a pathway for harnessing entrepreneurial talent by lowering both entry and operational barriers (Guiso et al., 2021).

In line with this perspective, when we investigate the potential mechanisms behind our results, we provide evidence of a "learning opportunity" channel, whereby early exposure can facilitate girls' acquisition of sector-specific human capital and information. This aligns with previous work by Guiso et al. (2021) and Guiso and Schivardi (2011) that shows that exposure to entrepreneurs, as proxied by local firm density, can shift the distribution of entrepreneurs' productivity by providing learning opportunities, resulting in a positive relationship between the propensity of individuals to become entrepreneurs and the average productivity of their firms. We also find evidence supporting a "consideration set" channel, whereby exposing girls to entrepreneurs can

[8]Consistent with this notion, the two most recent OECD reports on women's entrepreneurship identify several constraints to women's success in this field, such as greater barriers in skills, fewer mentoring opportunities, smaller networks, and unsupportive social norms that can lower their ambition (OECD, 2019; Halabisky, 2018).

increase their awareness about entrepreneurship as a possible career path and change their goals and aspirations. This is consistent with the findings of Bell et al. (2019) in the context of inventors. Instead, differently from Bell et al. (2019), we do not find evidence in favor of a role modeling channel, as girls do not respond more to exposure to entrepreneurship arising from the mothers rather than the fathers of their peers. While our analysis does not pinpoint the exact policies that would be successful at increasing female entrepreneurship, the fact that our empirical strategy compares students within the same school and municipality suggests that the environment and social context matter through narrower channels than those at play in the context of broad-based investments in schools or neighborhoods. More broadly, our analysis indicates that early interventions that can target both entry and operational barriers faced by women in entrepreneurship could be beneficial not only for women's own outcomes but to the greater economy.[9]

This paper contributes to several stands of the literature. First, it contributes to the literature on the importance of the environment in shaping the educational and professional trajectories of women (see Bertrand, 2020, 2011, for reviews). In particular, our results align with those of a predominantly experimental literature that highlights the role of information, social norms, stereotypes, and beliefs in determining women's educational and professional choices (e.g. Hoisl et al., 2022; Del Carpio and Guadalupe, 2021; Wiswall and Zafar, 2021; Bursztyn et al., 2020; Porter and Serra, 2020; Bell et al., 2019; Carlana, 2019). A key advantage of our data is the ability to investigate the counterfactual educational and professional choices of women had they not been exposed to entrepreneurship early on. This allows us to investigate the effects of reallocating women across occupations not only from the perspective of gender equality but also from that of allocative efficiency. Such analysis is particularly important in the context of entrepreneurship, a profession that has long been acknowledged for its role in job creation and economic growth (e.g. Aghion and Howitt, 1992; Murphy et al., 1991).

Second, this paper relates to the literature on selection into entrepreneurship, and particularly to existing studies highlighting the role of the social context in the creation of entrepreneurs. We make two contributions to this literature. First, a key advantage of our analysis is the unique combination of quasi-exogenous variation in exposure to entrepreneurs and a population-wide longitudinal dataset covering both individuals and their firms, whereas previous studies typically incorporate only one of these elements (e.g. Wallskog, 2022; Guiso et al., 2021; Hacamo and Kleiner, 2020a; Lerner and Malmendier, 2013; Guiso and Schivardi, 2011; Nanda and Sørensen, 2010).

[9]For example, initiatives such as mentorship programs with established entrepreneurs or internships at local businesses during the final years of compulsory schooling could both raise girls' awareness of entrepreneurship as a potential career path and facilitate the acquisition of specific skills they might not otherwise acquire.

This allows us to provide credible causal estimates on the long-run effects of exposure to entrepreneurs on the probability of entering and succeeding in this profession for the entire Danish population born between 1965 and 1979. Given that this literature has largely overlooked the impact of interacting with individuals with entrepreneurial experience on women's entry and performance in entrepreneurship, our second contribution is to present novel population-wide evidence on how this factor may affect women's likelihood of engaging and succeeding in entrepreneurship.[10,11]

Finally, this paper relates to the emerging body of work studying the aggregate implications of removing occupation-specific gender-based distortions. Existing studies have used a model-based approach to estimate the macroeconomic gains derived from reducing the occupational barriers facing women in general (Hsieh et al., 2019), and within entrepreneurship (Morazzoni and Sy, 2022; Chiplunkar and Goldberg, 2021; Bento et al., 2020). In contrast to these papers, we investigate the effects of increasing women's representation in entrepreneurship by leveraging exogenous variation in girls' early exposure to entrepreneurs. This approach offers two key advantages. First, while previous studies are agnostic about the nature of the barriers facing women in entrepreneurship, we show that higher exposure to entrepreneurs during adolescence can promote the entry and the success of women in this profession, providing evidence for a potential micro-foundation of these barriers. Second, by exploiting quasi-random variation in women's probability to become entrepreneurs, we can pin down the causal effect of increasing female entrepreneurship on the allocation of entrepreneurial talent without relying on the demanding assumptions required when estimating this relationship using a structural model.

The remainder of this paper is organized as follows. Section 2 describes the data and the main variables of interest. Section 3 presents the empirical strategy and discusses its validity. Section 4 presents the result on the role of early exposure for the creation of female entrepreneurs, while Section 5 focuses on the efficiency implications associated with the observed increase in female entrepreneurship. Section 6 investigates the plausible mechanisms underlying our results. Finally, Section 7 concludes.

[10]In particular, the few existing studies on the role of exposure to entrepreneurs in relation to female entrepreneurship focus on samples of highly selected women, such as those enrolled in MBA programs or employed in start-ups and do not study firm characteristics and performance (Hacamo and Kleiner, 2020a; Rocha and Van Praag, 2020; Markussen and Røed, 2017). However, if one factor that prevents some talented women from pursuing entrepreneurship is precisely their lower likelihood of self-selecting into environments with high exposure to entrepreneurs (see Table 1), focusing on these specific sub-samples would lead to underestimating the cost of the under-representation of women in entrepreneurship.

[11]In this respect, our paper also connects to recent studies showing how discrimination may distort the performance of female entrepreneurs (e.g., Brock and De Haas, 2023; Ewens and Townsend, 2020; Hebert, 2020).

2 Data

We use individual-level administrative data covering the entire Danish population from 1980 onward. A key advantage of this data is the possibility of linking longitudinal information contained in school, family, and employment registers at the individual level. Specifically, we use employer-employee registers to identify entrepreneurs, the characteristics of their firms and the occupation of non-entrepreneurs; education registers to identify the school individuals attend and their school peers; and we use demographic registers to connect individuals to their family members.

2.1 Sample selection and the Danish education system

Our sample includes 786,660 individuals who attended the last three years of compulsory schooling (grades 7-9) in 1,564 different schools between 1980 and 1992, when they were between the ages of 13 and 16.[12] We choose this sample for several reasons. First, focusing on students completing compulsory school before 1993 allows us to follow the educational and career trajectories of each student over a long period of time, enabling us to identify both the short- and long-run effects of early exposure to entrepreneurs. In particular, in our analysis we follow individuals up to age 40 as, by construction, our sample size begins to decrease beyond that age (see Figure A3).[13] Importantly, the vast majority of individuals in our sample (85 percent) enter entrepreneurship for the first time before age 40, thus mitigating potential concerns about restricting our analysis at this age.

Second, all students follow the same curriculum during compulsory school. This ensures that the period we study is prior to any divergence in the educational and professional trajectories of boys and girls, and that our effects are not influenced by (endogenous) gender differences in the probability of self-selecting into environments characterized by different levels of exposure to entrepreneurs.[14] At the same time, the end of compulsory school represents a critical juncture in the Danish educational system. Students must decide whether they want to conclude their formal education or advance their studies by enrolling in academic or vocational upper secondary edu-

[12] In Denmark, compulsory education consists of a unique block of school years ranging from grade 0 to 9, covering both primary and lower-secondary education. While we observe information on the school students attend only for the final years of compulsory school, this entire educational period typically takes place within a single institution.

[13] In particular, Figure A3 shows that up to age 40 we have a nearly balanced panel. Note that as our dataset includes all people residing in Denmark each year, thus the only reasons for data attrition are emigration or death.

[14] The fact that we can estimate the effects of exposure *before* any potentially endogenous education and career choices are made implies that we can estimate the effect of exposure on a fully representative set of women. This stands in contrast with previous studies (e.g. Hacamo and Kleiner, 2020a; Rocha and Van Praag, 2020) which instead focused on a highly selected group of women, such as those enrolled in MBA programs or working in start-ups.

cation, each of which lasts for three years. The academic track serves as a foundation for tertiary education, and the vocational track is meant to prepare students for specific jobs.[15] While there are more than 100 different types of vocational education, virtually all of them entail a dual principle, where students alternate between school classes and periods of practical work experience in approved companies.[16]

Finally, existing studies document that adolescence is a period where individuals form their preferences and beliefs, and when social learning – defined as the ability to learn from one's environment – is at its peak (Booth et al., 2019; Klimstra, 2013; Harris, 2011; Borghans et al., 2008; Heckman, 2007; Krosnick and Alwin, 1989). Thus, students at this age may be particularly susceptible to the inputs surrounding them.

2.2 Identifying entrepreneurs

We identify entrepreneurs as individuals starting or owning a business with employees, thereby excluding the self-employed.[17] We impose this restriction for two reasons. First, the self-employed are unlikely to constitute a good proxy for entrepreneurship, as noted by previous studies (Levine and Rubinstein, 2017; Boeri et al., 2020). Second, in contrast to entrepreneurs, the self-employed do not contribute to economic growth through job creation. Nonetheless, we show in Section 4.1 that our results are robust to adding the self-employed in our definition of entrepreneurs.

While owners of *unincorporated* businesses are directly identified in the Danish administrative registers, individuals who found *incorporated* ventures are not, as they are typically registered as employees of their own firms in the data.[18] To identify founders of *incorporated* businesses we follow the approach taken in other studies using Danish data and classify top managers of newly created firms as entrepreneurs (e.g., Iversen et al., 2016; Nanda and Sørensen, 2010; Sørensen, 2007a). Finally, for both incorporated and unincorporated businesses, we only consider as entrepreneurs individuals for whom their entrepreneurial activity is their main occupation. In doing so, we exclude from our definition of entrepreneurs part-time consultants and individuals who may

[15] Once upper secondary education is completed, students decide whether to attend university. In contrast to the students attending academic tracks, students completing vocational tracks are usually required to do additional coursework before enrolling in university. Figure A1 in the Appendix shows a graphical representation of the Danish education system and of the educational choices students face at different points in time.

[16] The four main subject areas of the Danish vocational education system are: (i) Care, health, and pedagogy; (ii) Administration, commerce, and business service; (iii) Food, agriculture, and hospitality; and (iv) Technology, construction, and transportation. A typical vocational program lasts between 3 and 3.5 years and entails a 2:1 split between workplace and college-based training, although there can be considerable variations among programs. More information on vocational education can be found on the website of the Danish Ministry of Children and Education.

[17] Our ability to exclude the self-employed stands in contrast to other studies, which faced limitations in doing so due to data constraints or concerns about sample size (e.g. Hombert et al., 2020; Lindquist et al., 2015; Nanda and Sørensen, 2010).

[18] This is the case unless they are passive investors not participating in the direction of the firm.

set up a side business to shelter taxes.

2.3 Summary statistics

2.3.1 Overall sample

Table 2 reports descriptive statistics for individuals in our analysis sample. Panel A of the table reports our main outcomes of interest, namely share of individuals becoming entrepreneurs and the average number of years spent in entrepreneurship. Nearly 5 percent of individuals in our sample are identified as entrepreneurs at some point over the observation period.[19] Entry into entrepreneurship increases with age, and women are significantly less likely than men to enter entrepreneurship at every age, with this disparity growing larger as age increases. Conditional on becoming an entrepreneur, the average time spent in entrepreneurship is 4.5 years, with this period being significantly shorter for women.

Panel B of Table 2 provides an overview of our measure of early exposure to entrepreneurship, defined as the share of peers with at least one entrepreneur parent at any point within the last three years of compulsory school. This variable is constructed at the school-cohort level excluding the individual herself.[20] On average 11.6 percent of a student's peers have at least one parent who is an entrepreneur, and the average exposure is the same for boys and girls. Breaking down this measure by the gender of peers reveals that the share of female and male peers with entrepreneur parents is virtually the same. The interquartile range (IQR) of the share of peers with entrepreneur parents is 0.094, while the interquartile range (IQR) of the share of female and male peers with entrepreneur parents is 0.114 and 0.113 respectively. We will use these values (which are not reported in the table) to interpret the magnitudes of our estimates when presenting the results. The average cohort size is 44 students, balanced between boys and girls. Given the relatively small number of students in a cohort, it is likely that students interact with the majority of their peers.[21]

Finally, Panel C of Table 2 provides an overview of other characteristics of individuals in our sample. Eighteen percent of students discontinue education at the end of compulsory school and 40 percent obtain a university degree. The share of students completing upper secondary academic education after compulsory schooling closely matches the share of students completing vocational education, with boys (girls) being more inclined to opt for vocational (academic) education.

[19] This is in line with the national entrepreneurship data from OECD (2021).

[20] A detailed explanation of how the variable is constructed is provided in Section 3.

[21] Note that we cannot observe students division into classes in the data. However, we think that for our empirical strategy it is preferable to define peers based on cohorts as opposed to classes, as the allocation of a student into a specific class within a cohort can be influenced by parental preferences.

2.3.2 Entrepreneurs sample

Panel A of Table 3 reports descriptive statistics for the individuals that ever entered entrepreneurship during our sample period, and separately for men and women. Twenty-two percent of individuals pursuing entrepreneurship as a career have at least one parent who is an entrepreneur, and male entrepreneurs are more likely than female entrepreneurs to have entrepreneur parents. Note that these shares are approximately twice as large as those obtained for the overall sample shown in Panel C of Table 2, in line with the fact that having entrepreneur parents has a large positive effect on an individual's likelihood of pursuing entrepreneurship. While the share of entrepreneurs discontinuing education at the end of compulsory school is similar to that observed in the overall sample (see Table 2), entrepreneurs are more likely to enroll into and complete vocational education. In particular, among the different educational paths, the vocational track is the most conducive to entrepreneurship, with almost 64 percent of male entrepreneurs and 56.5 percent of female entrepreneurs completing this education. For both men and women, the average age at first entry into entrepreneurship is around 31 and, during the time spent in this profession, men and women lead between 1.30 and 1.22 entrepreneurial firms, the majority of which are unincorporated firms.[22]

Panel B of Table 3 reports descriptive statistics for firms created by entrepreneurs in our sample. We first note that entrepreneurial firms are present across all industries and represent 38 percent of all firms active over our sample period (see Panel A of Figure 1). Although these firms tend to be small, they employ almost 16 percent of the Danish workforce, therefore representing a substantial source of job creation (see Panel B of Figure 1). The average entrepreneurial firm employs 5.1 workers and survives for 3.7 years, with male-led firms being larger and surviving for longer than female-led firms.[23] The average tenure and full-time earnings of workers employed in entrepreneurial firms are 2.1 years and DKK 195,664 respectively, with average earnings being higher in male-led firms.[24] Finally, the table reveals that female-led entrepreneurial firms could be regarded as more female-friendly, given that they employ a much higher share of women and employees working part-time. The differences in workforce composition between male and female-led firms suggest that increasing female entrepreneurship through early exposure could impact the diversity and inclusivity of job opportunities available in the economy, something we investigate in more

[22]Note that we cannot compare the earnings of entrepreneurs to those of non-entrepreneurs due to incompatibility of the earnings measure for owners of unincorporated firms. Indeed, for these owners, the earnings measure is combined with the profits and losses of their firms, making direct comparison difficult for the great majority of our sample of entrepreneurs.

[23]For each entrepreneur, we define their firm's survival as the number of years the firm survives conditional on the entrepreneur being in the firm. Relaxing this condition does not affect our analysis.

[24]Using July 2024 exchange rate, 195,664 DKK corresponds to approximately 28,500 USD. The corresponding amount for employees in non-entrepreneurial firms is slightly higher and equal to 215,523 DKK or 31,300 USD.

detail in Section 5.2.

3 Empirical strategy

The main challenge in identifying the effect of early exposure to entrepreneurs on individuals' career trajectories is that sorting of individuals into environments characterized by different levels of exposure is unlikely to be random and could correlate with adolescents' background characteristics and propensity to become entrepreneurs. The ideal experiment to identify the impact of early exposure on individual outcomes would randomize adolescents' exposure to entrepreneurs and identify its effect by comparing the outcomes of individuals with different levels of early exposure in the subsequent years. We approximate this experiment by exploiting within-school across-cohort variation in adolescents' exposure to entrepreneurship, as measured by the share of their peers whose parents are entrepreneurs. Intuitively, we compare the probability of becoming an entrepreneur for two students selecting into the same school - thus exposed to the same overall environment - but belonging to different cohorts, such that one student is exposed to more peers with entrepreneur parents than the other.

This strategy, which allows for endogenous selection into schools, has been used in various settings to isolate quasi-random variation in peers' characteristics (e.g., Lavy and Schlosser, 2011; Angrist and Lang, 2004; Hoxby, 2000). In our context, the key identifying assumption for this strategy to yield causal estimates is that variation in the composition of parental occupations across cohorts within a particular school is quasi-random. While parents presumably choose a school for their children based on its overall characteristics, they are probably not aware of the within-school variation in the share of students with entrepreneur parents in their children's cohort. Consequently, they are unlikely to consider this factor when making their school choice. We provide evidence in favor of this assumption in Section 3.2.

3.1 Regression Models

To identify the impact of early exposure to entrepreneurs on students' probability to pursue entrepreneurship as a career in adulthood, we estimate the following age-specific regression separately for boys and girls from age 18 to 40:

$$Y_{i(sc),a} = \beta_1^a Entrepr_{-i,sc} + \beta_2^a Parent_{i(sc)} + \gamma_s^a + \gamma_{m,c}^a + \theta^a X_i + \eta^a Z_{sc} + \epsilon_{i(sc),a} \quad (1)$$

where $Y_{i(sc),a}$ is the outcome of individual i, who attended school s in cohort c, measured at age a. Our two main outcomes of interest are an indicator equal to 1 if i has entered entrepreneurship by age a and the total number of years spent in

entrepreneurship by age a. $Entrepr_{-i,sc}$ is the share of peers with at least one parent who is an entrepreneur ($Parent_{i(sc)} = 1$) and is defined as:

$$Entrepr_{-i,sc} = \frac{\sum_{k \neq i \in (sc)} Parent_{k(sc)}}{n_{sc} - 1}$$

Thus, for each individual i, the term $Entrepr_{-i,sc}$ represents the share of students in the same school and cohort as i, who have at least one entrepreneur parent, excluding individual i from the calculation.[25] To address the mechanical negative correlation between the share of peers whose parents are entrepreneur and own parent's entrepreneurial status (see Angrist, 2014, for a discussion), while also accounting for the high intergenerational transmission of entrepreneurship (Lindquist et al., 2015; Sørensen, 2007b; Dunn and Holtz-Eakin, 2000), we also condition on own parent's entrepreneurial status, $Parent_{i(sc)}$. The coefficients γ_s^a and $\gamma_{m,c}^a$ denote school and municipality-by-cohort fixed effects, respectively. The school fixed effects account for school characteristics that are constant across cohorts, for example whether the school tends to be attended by students with specific set of background characteristics. The municipality-by-cohort fixed effects account for confounding factors affecting all individuals within the same municipality and cohort, such as some municipalities becoming more attractive to entrepreneurs over time, or municipality-specific economic shocks, such as booms or busts. Finally, we condition on a vector of individual level controls, X_i, and a vector of other peer characteristics, Z_{sc} to increase precision, and we cluster standard errors at the school level to account for potential correlation in students' outcomes within schools.[26]

The main parameters of interest are the β_1^a's and capture the change in Y associated with the share of peers with entrepreneur parents increasing from zero to one. These estimates are causal under the assumption that within school-across cohort variation in the share of peers with entrepreneur parents is as good as random. We provide evidence in favor of this assumption in Section 3.2.

We further estimate specifications that allow for a different effect of early exposure to entrepreneurs, according to the gender of the peers through which exposure arises.[27]

[25] This *leave-one-out* strategy is standard in the peer effect literature (see e.g. Olivetti et al., 2020; Carrell et al., 2018).

[26] The vector X_i includes age; an indicator for i living with one of her parents only; indicators for i being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. The vector Z_{sc} includes cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. All peer characteristics are calculated in the same *leave-one-out* manner as $Entrepr_{-i,sc}$.

[27] In our analysis of mechanisms, we further investigate whether the effect of exposure depends on

There are at least two reasons why peers' gender could matter in our context. First, insights from psychology suggest that boys and girls tend to interact more frequently with same-sex peers than with those of the opposite sex, particularly during adolescence (see Rubin et al., 2015; Rose and Rudolph, 2006, for reviews). Second, boys and girls develop different types of relationships with their friends: while friendships among girls typically revolve around conversations and sharing of information, friendships among boys tend to be focused on activities done together (Perry and Pauletti, 2011; Rose and Rudolph, 2006; Underwood, 2004; Aukett et al., 1988). Thus, if the impact of early exposure is influenced by the frequency and type of interactions, it is reasonable to assume that the effect of exposure varies by the gender of the peers through which exposure arises.

We investigate this hypothesis by estimating the following age-specific regression for each male and female student in our sample:

$$\begin{aligned} Y_{i(sc),a} =& \delta_1^a Entrepr_{-i,sc}^{FP} + \delta_2^a Entrepr_{i(sc)}^{MP} + \delta_3^a Parent_{i(sc)} \\ &+ \bar{\gamma}_s^s + \bar{\gamma}_{m,c}^a + \bar{\theta}^a X_i + \bar{\eta}^a Z_{sc} + e_{i(sc),a} \end{aligned} \tag{2}$$

where $Entrepr_{-i,sc}^{FP}$ and $Entrepr_{-i,sc}^{MP}$ denote the share of female and male peers with at least one entrepreneur parent, respectively; and all other terms are defined as in equation (1). As in equation (1), both $Entrepr_{-i,sc}^{FP}$ and $Entrepr_{-i,sc}^{MP}$ are constructed as the *leave-one-out* distribution of students with an entrepreneur parent belonging to a specific gender, school and cohort:

$$\begin{aligned} Entrepr_{-i,sc}^{FP} &= \frac{\sum_{k\neq i\in(sc)} Parent_{k(sc)}}{n_{sc}^F - 1} \quad \text{for girls;} \quad Entrepr_{i,sc}^{FP} = \frac{\sum_{k\in(sc)} Parent_{k(sc)}}{n_{sc}^F} \quad \text{for boys} \\ Entrepr_{i,sc}^{MP} &= \frac{\sum_{k\in(sc)} Parent_{k(sc)}}{n_{sc}^M} \quad \text{for girls;} \quad Entrepr_{-i,sc}^{MP} = \frac{\sum_{k\neq i\in(sc)} Parent_{k(sc)}}{n_{sc}^M - 1} \quad \text{for boys} \end{aligned}$$

Under the assumptions discussed in Section 3.1, δ_1^a and δ_2^a identify the causal effect of exposure to a larger share of female and male peers with entrepreneur parents respectively, on the outcome of interest.

3.2 Support to the identification strategy

In this Section, we discuss the empirical tests we perform to lend support to the validity of our identification strategy and the proposed interpretation of the results.[28]

Residual Variation: A first-order concern for our ability to obtain precise estimates using our identification strategy is whether we have sufficient variation in the share of peers with entrepreneur parents once we condition on school and municipality-

the gender of the entrepreneur parent (see Section 6).

[28] In the main text we discuss the results obtained when considering variation in the overall share of peers with entrepreneur parents. Results obtained when separating between the share of male and female peers with entrepreneur parents are reported in Appendix Table A2, A3, and A4 and are similar to those in the main analysis.

by-cohort fixed effects. Table A1 reports variation in the share of peers with entrepreneur parents with and without conditioning on our set of fixed effects, i.e. school and municipality-by-cohort fixed effects. Conditioning on school and municipality-by-cohort fixed effects reduces the standard deviation in the share of peers with entrepreneur parents by 41 percent, from 7.1 percent to 4.2 percent. This residual variation is in line with other studies exploiting within-school across-cohorts variation (e.g. Olivetti et al., 2020; Bifulco et al., 2011), and is sufficient to obtain precise estimates as our results presented later will document.

Quasi-random variation: As discussed, a causal interpretation of our estimates rests on the assumption that within-school across-cohorts variation in the share of peers with entrepreneur parents results from random fluctuations rather than systematic selection. We provide evidence in favor of this assumption through two empirical checks. First, we investigate whether the residual variation in the share of peers with entrepreneur parents can be considered "as good as random" after conditioning on school and municipality-by-cohort fixed effects.[29] Figure A2 shows that the residuals closely follow a normal distribution, supporting the hypothesis that, conditional on school and municipality-by-cohort fixed effects, variation in exposure to peers with entrepreneur parents is as good as random.

We further test our identifying assumption by regressing a large set of predetermined student characteristics on the share of peers with entrepreneur parents, own parents' entrepreneurial status, and school and municipality-by-cohort fixed effects.[30] We display the results in Table 4: all estimates are small in magnitude and none of them is significantly different from zero at conventional levels. Thus, this evidence mitigates concerns regarding the possibility that, within a school, students sort across cohorts in a way that correlates with our exposure measure.[31]

Correlated Effects: Because of the quasi-random fluctuations in the share of peers with entrepreneur parents, the parameter of interest, β_1^a has a causal interpretation. However, there remains a final concern in interpreting β_1^a as solely reflecting the effect of exposure to more entrepreneurs during adolescence: if the cohorts with a higher proportion of peers with entrepreneur parents also differ in other aspects, then β_1^a might capture not only the influence of entrepreneurial exposure but also the effects of other parental characteristics that correlate with both our exposure measure and

[29] A similar test is present also in Brenøe and Zölitz (2020)

[30] Similar tests have been used to test for selection on observables in previous papers exploiting idiosyncratic within-school across-cohort variation (e.g. Olivetti et al., 2020; Lavy and Schlosser, 2011; Bifulco et al., 2011).

[31] We also conduct a test proposed by Oster (2019) to assess how important unobservable characteristics would have to be relative to observable characteristics to explain away our estimated effects. The results are in line with the evidence presented in this Section, as they show that our estimates are unlikely to be significantly influenced by the presence of unobservables (see discussion in Section 4.1 and estimates reported in Table A9).

the outcomes considered (i.e. correlated effects, as discussed in Manski, 1993).

We investigate how the share of entrepreneur parents correlates with other parental characteristics at the cohort level, conditional on school and municipality-by-cohort fixed effects and show the results in Table 5. We find that cohorts with a higher share of entrepreneur parents are characterized by a higher share of parents with vocational and higher education, a higher share of parents who are homeowners, parents' with higher income, and a lower share of parents who are unemployed. Instead, the relationship between the share of peers with entrepreneur parents and the share of parents who are immigrants, the share of parents with secondary academic education, or parents' average age are either insignificant or extremely small in magnitude.

To isolate the effect of early exposure to entrepreneurs from other potentially correlated characteristics, we condition on all the parental characteristics analyzed in Table 5 in our regressions (included in Z_{sc}). In addition, when we investigate whether the effect of exposure to entrepreneurs depends on the gender of the peers through which exposure arises, we can estimate specifications where we compare students who are exposed to the same share of peers with entrepreneur parents, but for whom the gender composition of their peers varies (see Section 4.1). This approach effectively addresses the potential concern of endogenous selection into cohorts and the potential confounding effects arising from correlated characteristics at the cohort level, thereby substantiating the validity of our proposed interpretation of the coefficients of interest.

4 Early exposure and female entrepreneurship

We first investigate the effect of early exposure to entrepreneurs on the likelihood of spending any time in entrepreneurship, as well as the number of years spent in entrepreneurship. Figure 2 plots estimates of β_1^a from estimating Equation (1) and estimates of δ_1^a and δ_2^a from estimating Equation (2) for women, while estimates for men are shown in Figure 3. In both Figures, the dependent variable is a dummy equal to one if the individual has entered entrepreneurship by age a in panels (a) and (b), and the number of years spent in entrepreneurship by age a in panels (c) and (d). To ease interpretation, coefficients are rescaled to reflect the effect of increasing exposure by the interquartile range (IQR) of the exposure distribution, in percent of the mean of the dependent variable.[32] Thus, the y-axis plots the percentage change in the outcome of interest resulting from moving students from a cohort with relatively low exposure

[32]Without this adjustment, the coefficients would capture the change in the outcome when the proportion of peers with entrepreneur parents moves from zero to one, which is less meaningful for interpretation. Cohorts at the 25th percentile of the exposure distribution have 6.4 percent of students with entrepreneur parents, while cohort at the 75th percentile have 15.8 percent of students with entrepreneur parents. Thus, the IQR corresponds to increasing exposure by 9.4 percentage points.

to one with relatively high exposure.

Panel (a) of Figure 2 shows that a higher share of peers with entrepreneur parents increases women's probability of entering entrepreneurship already from their early 20s. While the estimated effects become less precise at older ages, the positive effect of exposure on women's propensity to enter entrepreneurship appears to be persistent. In line with the hypothesis presented in Section 3.1, Panel (b) highlights the presence of gender-specific peer effects for women. Specifically, it shows that the average effects shown in Panel (a) is entirely attributable to variations in the share of *female* peers with entrepreneur parents. A larger share of male peers with entrepreneur parents, on the contrary, has no effect on women's future entrepreneurship. The positive effect driven by variations in the share of female peers with entrepreneur parents kicks in when girls are in their early 20s and persists thereafter.

In terms of magnitudes, our estimates imply that women who were enrolled in cohorts at the 75th percentile of the exposure distribution are 4 percent more likely to become entrepreneurs by their mid-30s than women enrolled in cohorts at the 25th percentile of the exposure distribution.[33] To provide a benchmark for these magnitudes, we compare our estimates to the effect of having a parent who is an entrepreneur, a factor that has been shown to have a strong influence on an individual's decision to pursue a career in entrepreneurship (see e.g. Parker, 2018). Consistent with prior evidence, we find that having an entrepreneur parent increases girls' probability of becoming entrepreneurs by age 35 by as much as 59.3 percent. Thus, the effects we estimate correspond to 6.5 percent of the increased propensity to enter entrepreneurship associated with having an entrepreneur parent. Considering the substantial influence of own parents' entrepreneurial status, this benchmarking exercise emphasizes the significant role that early exposure to entrepreneurs can play in fostering female entrepreneurship.

As we are interested in examining both the entry of women into entrepreneurship and their tenure in this occupation, we turn to investigate the persistence of previously documented effects by estimating how early exposure influences the number of years women spend in entrepreneurship by a specific age. We show the results in Panels (c) and (d) of Figure 2. In line with the evidence presented in Panels (a) and (b), Panels (c) and (d) show that early exposure to entrepreneurs significantly increases the number of years women spend in entrepreneurship (Panel c), and that this effect is entirely driven by exposure to entrepreneurship through female peers (Panel d). In terms of magnitudes, the figure shows that increasing the share of female peers with entrepreneur parents by the IQR results in a 6.4 percent increase in the number of years spent in entrepreneurship by age 40 for women.

We next turn to the effect of early exposure on men in Figure 3. Panel (a) shows a

[33]The IQR in the distribution of the share of female and male peers with entrepreneur parents are both equal to 11.4 percentage points. Appendix Tables A5 shows the raw coefficients at age 25, 30, 35, and 40.

positive effect of early exposure on men's probability to enter entrepreneurship which appears at the end of their 20s but fades away quickly after that. Panel (b) shows that this pattern holds irrespective of the gender of the peers through which exposure arises. These results indicate that while men exposed to a higher share of entrepreneurs during adolescence may enter entrepreneurship a few years earlier, their overall probability of pursuing entrepreneurship as a career remains unaffected. In contrast, the evidence presented in Figure 2 showed that such exposure is key for women, as they would not have entered this profession otherwise. Furthermore, consistent with the evidence presented in Panels (a) and (b), the estimates presented in Panels (c) and (d) of Figure 3 show that also the number of years men spend in entrepreneurship is unaffected by the share of peers with entrepreneur parents, a result that holds regardless of the gender of the peer through which exposure arises.

Taken together, these findings have important implications. Existing research indicates that stereotypes and social norms may lead girls to form biased beliefs about gender-specific roles and careers, deterring them from selecting into environments that can correct these expectations (Bertrand, 2020; Bordalo et al., 2016; Bertrand, 2011). Consistent with this, we find that as soon as compulsory school is over, the educational and labor market choices of women make them less likely than men to be exposed to entrepreneurship. Specifically, we calculate the average exposure to entrepreneurs in post-compulsory education and within the workplace, defined as the percentage of individuals from the same cohort and educational institution or workplace identified as entrepreneurs at any time during our sample period.[34] The results, presented in Table 1, reveal that due to differential educational and professional choices, boys are exposed to 16 percent to 42 percent more entrepreneurs than girls.

This disparity may explain why we do not find evidence of peer effects for boys, as their greater exposure to entrepreneurs throughout their lives could reduce the importance of early exposure in influencing their probability of becoming entrepreneurs. Instead, exposing girls to entrepreneurs before their educational and career trajectories diverge from that of boys can be instrumental in increasing female entrepreneurship by acting as an equalizer of opportunities for girls who would have not become familiar with this profession otherwise. The lack of peer effects for boys is also consistent with the presence of gender differences in the structure and nature of friendship during adolescence. Existing research in social psychology highlights that girls tend to privilege emotionally intimate relationships and show greater orientation towards social and relational aspects of their environment, while boys tend to form larger friendship groups centered around collective participation in games and activities (see Rose and Rudolph, 2006, for a review). In line with these friendship dynamics, recent papers

[34]Thus, this measure of exposure includes past, current, and future entrepreneurial status of peers in the same workplace or educational institution, allowing for a measure of exposure that can be assessed even at relatively young ages.

both in social psychology and economics have found evidence that peers' influence is stronger among girls than among boys (Aguirre et al., 2021; Mouganie and Wang, 2020; McMillan et al., 2018; Kretschmer et al., 2018; Fischer, 2017; Haynie et al., 2014; Schneeweis and Zweimüller, 2012; Mercken et al., 2010).[35]

4.1 Robustness and validation checks

In this section, we assess the robustness of our results and perform additional validation checks. To prevent duplication in the presentation of robustness tables and figures, we focus on the impact of early exposure on the total number of years girls spend in entrepreneurship, as this outcome combines the effects on entry and tenure.[36]

Cohort size: The increase in women's probability to enter entrepreneurship due to higher exposure to *female* peers with entrepreneur parents is consistent with the notion that exposure matters through repeated interactions. We further explore this hypothesis by considering heterogeneity of the effects by the size of an adolescent's cohort. Assuming that students in smaller cohorts have more frequent interactions with a larger share of their peers, we would expect our results to be concentrated in smaller cohorts. Panel A of Table A7 presents estimates separately for girls in large and small cohorts within their schools, defined by being respectively above and below the average cohort size. In line with the idea that frequent interaction matters for our results, we find that our average baseline estimates (reported in Panel B of Table B A5) are mostly driven by girls in smaller cohorts.

Conditioning on overall exposure: Equation (2) exploits within-school across-cohort variations in the share of male and female peers with entrepreneur parents. In doing so, this specification also leverages variation in the *overall* share of peers with entrepreneur parents for identification. An alternative strategy is to condition on the overall share of peers with entrepreneur parents at the cohort level, thereby exclusively exploiting within-school across-cohort variation in the gender *composition* of such peers. We thus replicate our analysis by running a specification that focuses on comparing students with equivalent levels of exposure to peers with entrepreneur parents but differing in their exposure to female peers with entrepreneur parents. As shown in Figure A4, our findings are robust to this alternative specification, with estimates that are quantitatively similar to those of our baseline analysis. Such similarity lends further support to the validity of our empirical strategy, as it alleviates concerns

[35] More closely related to our results, both Aguirre et al. (2021) and Mouganie and Wang (2020) find that women's educational and professional choices are positively affected by the share of high ability female peers during school. Instead, men's outcomes are unaffected by peers' ability, irrespective of peers' gender.

[36] Results on the probability of ever entering entrepreneurship are also robust to the tests discussed in this Section.

about the possibility that students within a school sort across cohorts in a way that correlates with our exposure measure, while also mitigating concerns about potential confounding effects arising from correlated differences in parental characteristics at the cohort level.

Measure of entrepreneurship: While we believe that our measure of entrepreneurs is the most appropriate one, we also show, in Panel A of Table A8, that our results are robust to an alternative definition of entrepreneurship, which includes the self-employed (defined as owners of businesses without employees). The effects we estimate using this alternative definition of entrepreneurs are similar to our main estimates, and if anything, they are larger and more precisely estimated, consistent with the fact that this is a less restrictive measure of entrepreneurship.

School time trends: While our main specification conditions on municipality-by-cohort fixed effects, school-specific trends could potentially bias our results. While our identification strategy does not allow us to control for school-by-cohort fixed effects, as a further robustness check we include in our baseline specification school-specific linear trends in addition to our set of baseline controls. The estimates from this specification, shown in Panel B of Table A8, remain large and statistically significant at the 5 percent level.

Spillovers across cohort: Our main specification exploits variation within schools across cohorts, assuming therefore that variation in the share of peers with entrepreneur parents in adjacent cohorts have no effect on students' propensity to become entrepreneurs. However, if students frequently interact with peers from adjacent cohorts, the share of peers with entrepreneur parents in these cohorts may also influence the decision to become an entrepreneur. We test for this by adding the share of female peers with entrepreneur parents in the previous and subsequent cohorts as additional regressors. The estimates, reported in Panel C of Table A8, show that none of the adjacent cohorts have a significant impact on the number of years spent in entrepreneurship for women, suggesting that it is sufficient to focus on the effects of peers within the same cohort, as we do in our main specification.

Selection-on-unobservables: The balancing tests in Table 4 suggest that, within a school, students do not sort across cohorts in a way that correlates with our exposure measure. Consequently, it is unlikely that unobserved characteristics correlated both with the propensity to become an entrepreneur and variation in our exposure measure are the main drivers of our results. Nevertheless, we conduct a test suggested by Oster (2019) that allows for an assessment of how important unobservable characteristics would have to be relative to observable characteristics to explain away the estimated effect, a parameter we refer to as δ following the notation in Oster (2019). Oster argues that a value of δ of at least one suggests that the true estimate is bounded away from

zero, even in the case where all unobservable and observable characteristics of importance were included. The test studies the stability of the coefficient on the exposure variables and the movements in the R^2 jointly when observable controls are included. The test requires an assumption about the value of R^2 in a hypothetical specification that includes all observable and unobservable characteristics in a regression (R^2_{max}). Following Oster (2019) we set (R^2_{max}) equal to 1.3 times the R^2 from a specification that includes all observed controls. Appendix Table A9 shows that the estimated δ is always numerically larger than 1, suggesting therefore that our estimates are unlikely to be significantly influenced by the presence of unobservables.

Placebo tests: We also conduct a series of placebo tests, where we randomly assign children in our estimation sample to schools within their own cohort and municipality, reconstruct our exposure measures on these randomized students, and re-estimate our main specification. We conduct this exercise 1000 times and show the distribution of the estimated effect of exposure through female peers on the years women spent in entrepreneurship in Figure A5. Panel (a) shows that the placebo estimates are centered around zero, and that only 0.4 to 1.4 percent of the placebo estimates are more extreme than our baseline estimates (see Panel b). These tests lend further credibility to our baseline estimates not simply arising through spurious correlations.

5 Early exposure and allocative efficiency

Our baseline results point to early exposure to entrepreneurs as a way of promoting female entrepreneurship. This finding is important in its own right if we aim to increase the low rates of female entrepreneurship observed across all developed countries. However, whether steering women into entrepreneurship through early exposure entails a more efficient allocation of talent remains unclear. Answering this question requires both understanding whether early exposure leads to the entry of women who can start successful businesses and identifying what their counterfactual trajectories would have been had they not become entrepreneurs. We address these questions next.

5.1 Women's counterfactual outcomes

We first investigate how early exposure to entrepreneurs impacts the educational and professional trajectories of girls.[37] This analysis allows us to estimate both the private

[37]We perform these analyses on a balanced sample of individuals observed each year between age 18 and 40. This ensures that the estimated effects of exposure on mutually exclusive educational and professional categories add up to zero. Results are quantitatively and qualitatively similar if we use the overall sample. Importantly, estimates of the effect exposure on the probability to enter entrepreneurship and number of years spent in entrepreneurship are virtually the same when using

returns of early exposure to entrepreneurs for women in terms of their educational and professional attainments, as well as to shed light on aspects of the social returns associated with reallocating these women to entrepreneurship through early exposure. Indeed, both the private and the social returns associated with steering women into entrepreneurship can greatly vary depending on whether we are redirecting women from low- or high-impact careers.

5.1.1 Educational trajectories

We start by investigating whether women who were exposed to a higher share of female peers with entrepreneur parents make different educational choices at the end of compulsory school. Specifically, we analyze the effect of exposure on the probability of pursuing one of the three possible paths students can take after the end of compulsory schooling: (i) discontinuing education; (ii) completing upper secondary vocational education; (iii) completing upper secondary academic education.[38]

Table 6 shows that exposure to a higher share of female peers with entrepreneur parents significantly increases girls' probability of enrolling in and completing upper-secondary vocational education. This increase is almost entirely driven by a reduction in girls' propensity to discontinue education after compulsory schooling, while we find no significant effects of early exposure on girls' probability of enrolling in upper-secondary academic schooling. Because vocational schooling is conducive to entrepreneurship (see Table 3) and less common among women (see Table 2), these results suggest that exposing women to entrepreneurship before they make educational choices that are hard to reverse could be instrumental to foster entrepreneurship among women. We validate this interpretation of the results in two ways. First, we can rule out that the increase in girls' probability of completing vocational education is driven by exposure to peers whose parents have vocational education, rather than to peers whose parents are entrepreneurs. This is because we control for peers' parents type and level of education in all our regressions (see Section 3 for our full list of controls). Furthermore, our results are unlikely to be simply explained by girls' desire to attend the same school as their female peers with entrepreneur parents, as the estimates presented in the last row of Table 6 imply that daughters of entrepreneurs are more likely to enroll in upper-secondary academic rather than vocational education.

the balanced sample (see column (1) of Table 7 versus column (4) in Panel B of Table A5).

[38] See Figure A1 for a representation of the Danish educational system. To allow for enough time for students to make and complete their educational choices after finishing compulsory school, we measure the educational outcomes mentioned above 10 years later.

5.1.2 Career trajectories

We next investigate the impact of early exposure to entrepreneurship on women's careers. To do so, we analyze how the increase in women's tenure into entrepreneurship relates to changes in the number of years women spend between ages 18 and 40 being (i) employed as wage earners; (ii) unemployed; (iii) outside the labor force; (iv) self-employed; (v) being employed as contributing family workers.[39]

The results, presented in Table 7, show that the increased number of years women spent in entrepreneurship due to early exposure (Column 1) is not associated with a reduction in the number of years spent being self-employed, unemployed, outside the labor force, or working as an employed spouse (see Columns 2-5). Notably, the small and insignificant effect of early exposure to entrepreneurs on the number of years women spend in self-employment implies that early exposure does not simply convert women from being a business owner without employees to a business owner with employees. Instead, it implies that the labor market profile of women who become entrepreneurs due to early exposure would have been very different from entrepreneurship. In particular, the results shown in Column 6 suggest that absent early exposure women would have been employed as wage earners, although these estimates are imprecise. To shed more light on this result, we differentiate between the effects of early exposure on the number of years spent in high- and low-paid employment. We classify employment as high-paid if earnings are above the age- and gender-specific median, and as low-paid if earnings are below this median. Column 8 shows that early exposure steers women away from low-paid employment.

Taken together, the results on the impact of early exposure to entrepreneurs on women's educational and career choices suggest that early exposure could benefit women by leading them to acquire more years of vocational training and transition away from lower-pay positions. At the same time, our analysis indicates that promoting female entrepreneurship through early exposure is unlikely to come at the cost of diverting women from pursuing high-impact careers, as these women would have otherwise been employed in low-paying jobs. These findings highlight the potential advantages of steering women into entrepreneurship, which we further explore in Section 5.2 by investigating whether the increase in female entrepreneurship driven by early exposure is associated with the creation of successful businesses.

5.1.3 Marriage and fertility outcomes

We complete the analysis on women's counterfactual choices by investigating whether early exposure to entrepreneurs during adolescence influences women's marriage and fertility outcomes later in life. A growing literature emphasizes how women's labor

[39]These categories correspond to the ILO classification of *Status in Employment*. See https://ilostat.ilo.org/resources/concepts-and-definitions/classification-status-at-work/.

market engagement impacts these personal outcomes (see e.g. Bertrand et al., 2021; Petrongolo and Ronchi, 2020; Adda et al., 2017; Blau et al., 2000). This suggests that, by influencing women's educational and career trajectories, early exposure to entrepreneurs could potentially also impact their fertility and marriage rates. We explore this possibility by estimating the effects of early exposure on women's probability of having children, the total number of children, the age at first birth among those with children, and the probability of having ever married. We measure all outcomes at age 40, when most women have completed their fertility, and show the results in Table 8. We find little evidence of any strong impacts of early exposure to entrepreneurs on the fertility and marriage outcomes of women in our sample.[40]

5.2 Firm Performance

To better understand whether steering women into entrepreneurship via early exposure entails an efficient reallocation of talent, we complement the analysis presented in Section 5.1 by investigating if the increase in female entrepreneurship documented in our baseline results leads to the creation of successful businesses. The answer to this question is ex-ante ambiguous: if gender-specific barriers keep talented female entrepreneurs from entering and thriving in this profession, lowering such barriers through early exposure could foster the creation of successful businesses. However, if early exposure lowers the cost of entering entrepreneurship for women who do not have a comparative advantage in this profession, which requires a specific set of skills and abilities (Levine and Rubinstein, 2017; Lazear, 2004), it could lead to the creation of unproductive firms. To answer this question, we use the cumulative number of jobs created by each entrepreneur as a measure of entrepreneurial success. This metric combines two widely used measures of firm performance in the entrepreneurship literature (e.g. Hacamo and Kleiner 2020a,b; Hombert et al. 2020; Nanda and Sørensen 2010): the size of the firm, as measured by the number of employees, and the number of years the firm survives in the market.[41]

We then estimate regressions of the same form as Equation (2), where the dependent variable is the cumulative number of jobs created by woman i as an entrepreneur by age a.[42] Because variation in the share of peers with entrepreneur parents is conditionally random (see Section 3.2), these reduced form estimates, which are measured at ages 25, 30, 35, and 40, have a causal interpretation. The estimated effects of early

[40] We find a significant effect of early exposure through male peers on women's probability of marrying. However, this effect is very small, implying that increasing exposure to male peers with entrepreneur parents with the IQR increases women's probability to marry by just 0.6 percent.

[41] Thus, the cumulative number of jobs created by an entrepreneur at any given age is calculated as the sum of the number of workers employed at the entrepreneurial firm every year up until that age.

[42] Consequently, in this reduced form analysis, the firm characteristics of non-entrepreneurs are always zero.

exposure on the cumulative number of jobs created by women are reported in Panel A of Table 9 and indicate that increasing early exposure to entrepreneurs through female peers by the IQR increases the cumulative number of jobs created by women between age 18 and 40 by 0.07 percentage points, which correspond to a 12 percent increase (see Column 4). These estimates are highly policy-relevant. Taken at face value and abstracting from general equilibrium effects, they suggest that increasing early exposure to entrepreneurs by the IQR would increase the cumulative number of jobs created by female entrepreneurs by 27,590 at age 40.[43] This corresponds to a nearly 3 percent increase in the total number of jobs created by entrepreneurs over our sample period. Another potential reason to promote female entrepreneurship is the impact it could have on the composition of jobs available in the economy. Female-led entrepreneur firms tend to employ more women and offer more flexible positions (see Table 3). Consequently, increasing female entrepreneurship through early exposure may enhance job diversity and inclusivity by creating more female-friendly firms. In line with this, we find that 68% of the jobs created through early exposure to entrepreneurs go to women, and 30% go to part-time female employees.[44] Instead the corresponding shares in the overall population of entrepreneurial firms are 45%, and 20% respectively.

The reduced form estimates do not directly provide information about the quality of the pool of firms resulting from the increase in female entrepreneurship driven by early exposure (i.e., the firms created by the compliers). However, assuming that early exposure affects the characteristics of female-led entrepreneurial firms *only* by increasing the stock of female entrepreneurs (i.e. assuming the exclusion restriction holds), we can identify this parameter by dividing the reduced form estimates by the first-stage coefficient shown in Panel B of Table A5, which reports the change in the number of years women spend in entrepreneurship due to early exposure.[45] We display our age-specific two-stage least squares (2SLS) estimates below the reduced form estimates in Panel A of Table 9.[46] We find that female compliers create firms

[43]This calculation is given by the estimated effect of early exposure on the cumulative number of jobs created by women (0.646), multiplied by the IQR (0.114), times the number of women (374,641).

[44]These estimates are obtained from the same reduced form regression as in Table 9 with the following outcomes: the cumulative number of jobs employing women and the cumulative number of part-time jobs employing women. To obtain the percentages reported above, we then divide these results by the reduced form coefficient obtained for the cumulative number of jobs.

[45]The first stage specification in Table A5 shows that the instrument is relevant, with the associated F-tests ranging between 7.1 and 11. Because these 2SLS specifications are just identified, statistical inference should only be affected by weak instruments if the degree of endogeneity is high (Angrist and Kolesár, 2024). Estimates of the degree of endogeneity (ρ) discussed in Angrist and Kolesár (2024) in our setting suggest that this is not the case, as our values of ρ range between 0.25 and 0.36, thus being well below the critical threshold of $\rho < |0.76|$ identified in Angrist and Kolesár (2024). Nonetheless, in Table 9 we also report p-values from the Anderson-Rubin test, which are fully robust to weak instruments (Keane and Neal, 2023).

[46]In addition to the exclusion restriction and relevance of the instrument, we also need to assume that exposure never decreases the number of years spent in entrepreneurship (monotonicity) for these

that have an average of 6 employees by age 25 and an average of 9.8 employees by age 40. Such firm sizes position the firms of compliers in the top 10 percent among all entrepreneurial firms.[47] As an additional measure of firm performance, we also investigate how long the firms created by compliers survive in the market, using a similar strategy to the one used when the dependent variable is the cumulative number of jobs created.[48] These 2SLS estimates, displayed in Panel B of Table 9, show that female compliers create firms that survive on average 6.3 years by age 25 and 8.6 years by age 40. Again these survival rates position the firms created by female compliers in the top 20 percent among all entrepreneurial firms.[49]

These results challenge the view that the most productive female entrepreneurs succeed in starting and growing their business regardless of early exposure, as it would be predicted by economic models that attribute women's under-representation in male-dominated occupations solely to differences in entry costs (e.g. Hsieh et al., 2019), because the marginal entrants should be of lower ability in these models.[50] Instead, our findings are consistent with women facing higher barriers both in entering entrepreneurship and in achieving success after starting their firms, and suggest that early exposure can simultaneously increase the representation and performance of female entrepreneurs by lowering both entry and operational barriers. This aligns with previous work by Guiso et al. (2021) and Guiso and Schivardi (2011) which, although not specifically focusing on female entrepreneurs, shows that the social context and other environmental factors can shift the distribution of entrepreneurs' productivity, for instance by providing learning opportunities, resulting in a positive relationship between the propensity of individuals to become entrepreneurs and their average firm productivity.[51] To shed more light on these mechanisms, we explore the potential channels through which early exposure may increase both women's probability of entering

estimates to identify the firm characteristics of compliers. These assumptions are discussed in more detail in Appendix B, where we also explore how potential violations of the exclusion restriction could bias our estimates of the characteristics of compliers-led firms.

[47]By age 40, the 95th and 90th percentiles of the firm size distribution are equal to 11.5 and 8.3 for women, and 11.9 and 8 for men.

[48]Notice that because survival is defined as the longest-living firm the entrepreneur works in, we instrument whether the individual has ever entered entrepreneurship by a given age, rather than the number of years spent in entrepreneurship by a given age.

[49]By age 40, the 90th and 75th percentiles of the maximum number of years of firm survival are 9 and 5 years for female entrepreneurs, and 10 and 6 years for male entrepreneurs.

[50]Specifically, this class of models would lead to the following empirical predictions, both of which contradict our empirical evidence: (i) female-led firms should outperform male-led firms, whereas Table 3 shows that male-led firms are larger and survive for longer than female-led firms; (ii) infra-marginal female entrepreneurs should be more productive than marginal female entrepreneurs, while our calculations indicate the opposite.

[51]In particular, Guiso et al. (2021) show that individuals who grew up in locations with higher firm density are more likely to become entrepreneurs and, at the same time, create more successful firms by adopting better managerial practices. This result indicates that social contact and exposure to entrepreneurs can facilitate the acquisition of entrepreneurial skills rather than merely reducing the cost of entering entrepreneurship.

entrepreneurship and their performance in Section 6.

If early exposure reduces operational barriers for compliers, it may also improve the performance of female *always-takers*. This would violate the exclusion restriction and introduce a bias in the 2SLS estimates reported in Table 9. In this case, our estimation would reflect a weighted average of the firm characteristics of compliers and any changes in the characteristics of firms led by always-takers. We discuss and investigate the sensitivity of our estimates to such violation of the exclusion restriction in Appendix B. This analysis shows that the effect of early exposure on the performance of the firms led by the always-takers would have to be substantial in order for the compliers to be considered unsuccessful entrepreneurs. For instance, the cumulative number of jobs created by always-takers would need to increase by more than 99% due to early exposure before the performance of compliers falls into the bottom half among firms created by men. Furthermore, this analysis reveals that even if early exposure leads to the same increase in the cumulative number of jobs created by the compliers and the always takers, the compliers would still be positioned in the top half of the cumulative number of jobs distribution among male entrepreneurs.

Thus, taken together, our results suggest that the marginal entrepreneurs create firms that outperforming most of the firms created by both male and female incumbents in terms of their size and survival. This implies that early exposure can be instrumental in improving the allocation of entrepreneurial talent by encouraging potentially talented female entrepreneur to pursue and succeed in this career.

6 Plausible mechanisms and the nature of barriers

We finally investigate the plausible mechanisms explaining the impact of early exposure to female peers with entrepreneur parents on women's propensity to pursue and succeed in entrepreneurship. Because our identification strategy compares students enrolled in the same school and living in the same municipality, we can rule out explanations relying on neighborhood effects, such as the quality of schools or the overall firm density in the area. Furthermore, the results on firm performance (see Section 5.2) suggest that the positive effect of early exposure on women's propensity to become entrepreneurs is unlikely to work through mechanisms that only reduce the cost of entering entrepreneurship, as such channels would predict women entering entrepreneurship due to exposure to create worse performing firms. Instead, as discussed in the previous Section, our results point to the presence of mechanisms through which early exposure shifts the distribution of women's productivity, thereby positively affecting both their entry probability and their performance (Guiso et al., 2021).

While several mechanisms may be at play, we focus on those that have the poten-

tial to reduce some of the major constraints that women have been shown to face in entrepreneurship: (i) access to specific human capital and information; (ii) changes in girls' aspirations and goal; (iii) increasing girls' awareness or consideration of entrepreneurship as a potential career; (iv) role modeling and mentoring; and (v) joint-ownership dynamics.[52] While registry data does not naturally lend itself to definitively distinguishing between all of these potential mechanisms, we perform an additional set of analyses that provide some empirical support for the first three channels, suggesting that the barriers women face in entrepreneurship tend to be both informational and cultural in nature.

(i) Transmission of specific human capital/information: To assess the role played by the transmission of specific human capital and information, we follow the intuition of papers such as Guiso et al. (2021) and Bell et al. (2019) and investigate whether women exposed to entrepreneurs working in a specific sector are more likely to specialize as entrepreneurs in that specific sector themselves. If sectors have idiosyncratic features, finding that our effects are sector-specific would suggest that early exposure may foster girls' entry and success in entrepreneurship through the transmission of industry-specific information that they would not learn otherwise.

To test this hypothesis, we investigate whether the likelihood of women operating in a given sector increases when they have higher early exposure to that sector through the parents of their female peers. To do so, we estimate the following model

$$Y_{i(hsc),a} = \sum_{g\in\{FP,MP\}} \left(\beta^a_{1,g} Entrepr^g_{-i(hsc)} + \beta^a_{2,g} Entrepr^g_{-i(-h,sc)}\right) + \beta^a_3 Parent_{i(hsc)} + \beta^a_4 Parent_{i(-h,sc)} + \gamma^a_s + \gamma^a_{m,c} + \theta^a X_i + \eta^a Z_{sc} + D_h + \epsilon_{i(hsc),a} \tag{3}$$

where $Y_{i(hsc),a}$ is the probability of (number of years in) entrepreneurship in sector h by age a; $Entrepr^{FP}_{-i,hsc}$ and $Entrepr^{FP}_{-i,-h,sc}$ are the share of female peers with parents entrepreneur in sector h and in all other sector, respectively; $Entrepr^{MP}_{-i,hsc}$ and $Entrepr^{MP}_{-i,-h,sc}$ are the share of male peers with parents entrepreneur in sector h and in all other sector, respectively; and D_h is a set of sector dummies to exploit within sector variation in exposure across cohorts.[53] All other variables are defined as in (1). The results from this exercise lend support to this hypothesis. Figure 4 shows that increased exposure to entrepreneurs working in a given sector increases both the prob-

[52]For example, the two most recent OECD reports on women's entrepreneurship, identify as major constraints to women's entry and success in this field the greater barriers in acquiring skills, unsupportive social norms that may reduce women's consideration and ambitions in entrepreneurship, fewer mentoring opportunities, and smaller professional networks (OECD, 2019; Halabisky, 2018).

[53]We consider the same sector classification as in Figure 1 which defines 14 distinct industries that can be consistently identified over our sample period.

ability of becoming an entrepreneur (panel a) and the time spent in entrepreneurship (panel b) in *that* sector. This is in line with the idea that the positive effect of early exposure on women's representation and performance in entrepreneurship may work by facilitating the transmission of (sector-)specific human capital and information.

(ii) Girls' aspirations: Understanding whether early exposure changes girls' goals and aspirations is very challenging since our data does not record such information directly. Yet, we can leverage our analysis on the effects of early exposure on girls' educational choices (see Section 5.1) to gain some indirect insights about the role of aspirations in driving our findings. If early exposure only matters for the entrepreneurial success of women who *already aspired* to become an entrepreneur (for example by facilitating the process of actually setting-up a business and hiring employees), we should not observe any change in the educational trajectory of these girls. Instead, the results presented in Table 6 show that early exposure to entrepreneurs changes the educational choices girls make at the end of compulsory school, suggesting that one potential mechanism through which exposure affects girls' trajectories in entrepreneurship is by changing their goals and aspirations.

(iii) Girls' awareness of entrepreneurship as a viable career path: Mechanisms such as transmission of specific information or changes in girls' aspirations may in principle be at work any time girls are exposed to male-dominated professions. Instead, one channel that could be especially relevant when considering entrepreneurship is that early exposure to entrepreneurs could increase girls' awareness about entrepreneurship as a potential career path. Indeed, compared to most other professions, it is less clear what the most appropriate educational and professional choices are to eventually succeed in setting up a good firm. Because of the "less-conventional" nature of entrepreneurship and girls' lower likelihood of being exposed to entrepreneurs throughout their lives (see Table 1), one possibility is that early exposure acts as an equalizer for girls who would not otherwise become familiar with entrepreneurship.

To understand the importance of this channel for our results, we extend our analysis to study the impact of early exposure to engineers, a more "conventional" male-dominated occupation that girls might be more aware of during their adolescence. The results, displayed in Column (1) of Table 10, show that exposure to female peers whose parents are engineers does not affect the probability that girls become engineers. Because engineering is a field where women are also highly under-represented, this result suggests that early exposure does not lead to an increase in women's representation in *any* male-dominated occupation.[54] To further test the idea that increased awareness about an "unconventional" male-dominated profession may be a relevant mechanism behind our results, we also investigate if exposure to university professors increases girls' probability of entering academia, since this is likely to be another

[54]Women represent just 8 percent of college graduates in engineering.

profession that young girls are unaware of.[55] As displayed in column (2) of Table 10, exposure to university professors yields similar results to those observed for exposure to entrepreneurs. Given the "less conventional" nature of both entrepreneurship and academia as professions, these results support the hypothesis that one mechanism through which exposure to entrepreneurs may affect women's entry into this profession is by increasing their awareness of a male-dominated profession they might not have otherwise considered. This exposure thereby could expand their consideration set of viable career paths.

An alternative possibility is that exposure to entrepreneurs captures exposure to more successful individuals more broadly. Specifically, if exposure to successful parents makes girls more ambitious, and if more ambitious girls are more likely to start a firm, the observed increase in female entrepreneurship may not reflect exposure to entrepreneurs per se but rather exposure to successful professionals more generally. This hypothesis is however not supported by the data, since we find no evidence of exposure to peers whose parents are top managers (arguably successful individuals) impacting the probability of entering entrepreneurship during adulthood (see column (3) of Table 10). This result therefore confirms that it is exposure to entrepreneurs specifically that drives our results.

(iv) Role models: Motivated by existing work highlighting the role of successful women in male-dominated fields as role models to girls (see, among others, Porter and Serra, 2020; Bell et al., 2019; Carrell et al., 2010; Beaman et al., 2009), we further investigate if young women respond more to exposure to entrepreneurship arising from the mothers rather than the fathers of their peers. Table 11 shows the estimated effect of being exposed to female and male peers with an entrepreneur mother or father on the probability of becoming an entrepreneur (Panel A) and on the number of years spent in entrepreneurship (Panel B). Women do not seem to respond more when exposed to female rather than male entrepreneurs, as the coefficients on female peers with father entrepreneurs and mother entrepreneurs are not statistically different from one another. While the low share of mothers who are entrepreneurs limits the precision of our estimates, making it difficult to detect statistically significant differences depending on the gender of the entrepreneur parents, the results do show large and statistically significant effects from the fathers of female peers.[56] This suggests that gender-specific role models alone are unlikely to be the sole factors behind our findings. Instead, we

[55] We are partially constrained in selecting alternative professions as we start observing individuals occupations only in 2008. We therefore proxy occupations with detailed data on university degrees which are available for earlier years and we choose occupations that have a strong connection to the degree obtained. In particular, using data from later periods, we find that 74 percent of individuals studying engineering actually become engineers. We instead proxy for exposure to university professors by using the share of parents with a PhD and, using data from later periods, we find that 50 percent of those with a Ph.D. are professors and researchers in a University or equivalent institution.

[56] In our sample only 1.7 percent of mothers are entrepreneurs compared to 10.2 percent of fathers.

do find that women are more likely to enter and spend more years in entrepreneurship when their own mother is an entrepreneur.

(v) Joint-ownership: Given that children of entrepreneur parents are more likely to start firms themselves, one possible mechanism explaining the increase in female entrepreneurship we observe is that girls with more female peers who have entrepreneurial parents are more likely to co-own firms with their school peers. We investigate this mechanism in Table 12 and find that girls enrolled in cohorts with a higher share of peers with entrepreneur parents are not more likely to engage in joint ownership of firms with their cohort peers, not even with those of the same gender.

7 Conclusions

This paper uses administrative data on the entire population of individuals in Denmark, combined with an identification strategy that leverages quasi-random variation in the share of a student's peers with entrepreneur parents at the end of compulsory schooling, to address three key questions: Can early exposure to entrepreneurs increase female representation in entrepreneurship? How does early exposure affect the quality of firms created by female entrepreneurs? And is steering women into entrepreneurship through early exposure associated with a more efficient allocation of talent in the economy?

We show that early exposure to entrepreneurs can foster female entrepreneurship by increasing women's entry and tenure in this profession. Consistent with the notion that the frequency and type of interaction play a crucial role in mediating the impact of exposure, we find that these effects are entirely driven by girls exposed to entrepreneurship through the parents of their *female* peers. In contrast, early exposure does not influence boys' propensity to enter this profession, regardless of peer gender, aligning with research suggesting that peer influence is generally stronger among girls than boys (e.g. Aguirre et al., 2021; Mouganie and Wang, 2020; McMillan et al., 2018). These findings suggest that early exposure to entrepreneurship can be key for women who might not otherwise enter this profession and underscore the potential of early interventions to promote female entrepreneurship, which is particularly important for a gender equality standpoint given the low representation of women in entrepreneurship across all developed countries (OECD, 2021).

In the second part of the paper, we investigate the implications of steering women into entrepreneurship through early exposure for allocative efficiency. We proceed in a series of steps. First, we analyze the private and social returns associated with an increase in female entrepreneurship by investigating the counterfactual education and career paths women would have pursued absent early exposure to entrepreneurs. We show that early exposure decreases girls' probability of discontinuing education after

compulsory school and increases their probability of completing a vocational education, a path that is highly conducive to entrepreneurship which women are less likely to undertake. Furthermore, we show that early exposure to entrepreneurship reduces women's probability of being employed in low-paying jobs. Taken together, these results not only indicate that women could benefit from early exposure by acquiring more education and transitioning away from lower-paying positions, but also that promoting female entrepreneurship through early exposure is unlikely to come at the cost of diverting women away from high-impact careers.

Second, we show that the increase in female entrepreneurship driven by early exposure is associated with the creation of firms that are larger and survive for longer than the majority of entrepreneurial firms in the economy. This result is consistent with the notion that women face higher entry and operational barriers in entrepreneurship and suggests that early exposure can reduce both types of barriers, thereby positively affecting women's probability of entering entrepreneurship and enhancing their performance as entrepreneurs. In line with this, our analysis of mechanisms suggests that early exposure may work by facilitating the transmission of sector-specific information, by increasing girls' awareness about entrepreneurship as a possible career path, and by changing girls' goals and aspirations. Furthermore, we show that the increase in the number of jobs resulting from the rise in female entrepreneurship is mostly allocated to female workers and flexible work options for women. Consequently, increasing female entrepreneurship can enhance the diversity and inclusivity of job opportunities in the economy by leading to the creation of female-friendly firms.

Taken together, our analysis point to early exposure to entrepreneurship as a way of increasing the number of female entrepreneurs in the economy, and that there could be high societal returns from doing so. It highlights that environment and social context influence women's likelihood to become entrepreneurs through narrower channels than those at play in the context of broad-based investments in schools or neighborhoods. Moreover, our results underscore the importance of exposing women to entrepreneurship early in life, before they make educational and career decisions that might limit their ability to transition into entrepreneurship. While we cannot pinpoint the exact policies that would be successful at increasing female entrepreneurship, early interventions addressing both entry and operational barriers faced by women in this field could benefit not only individual women but also the broader economy.

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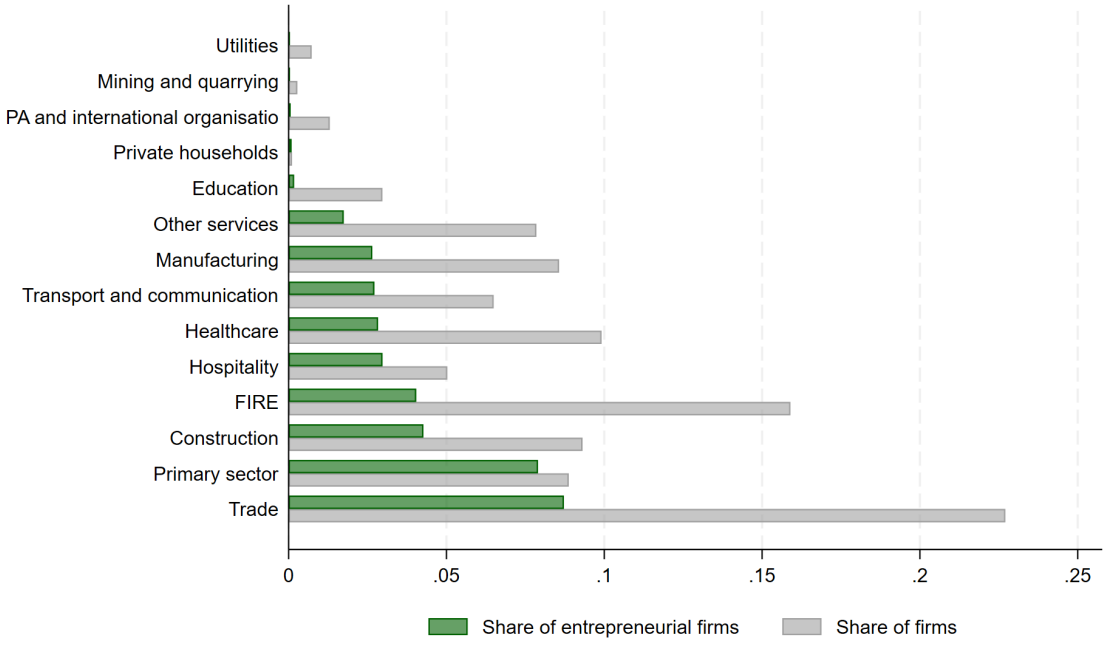
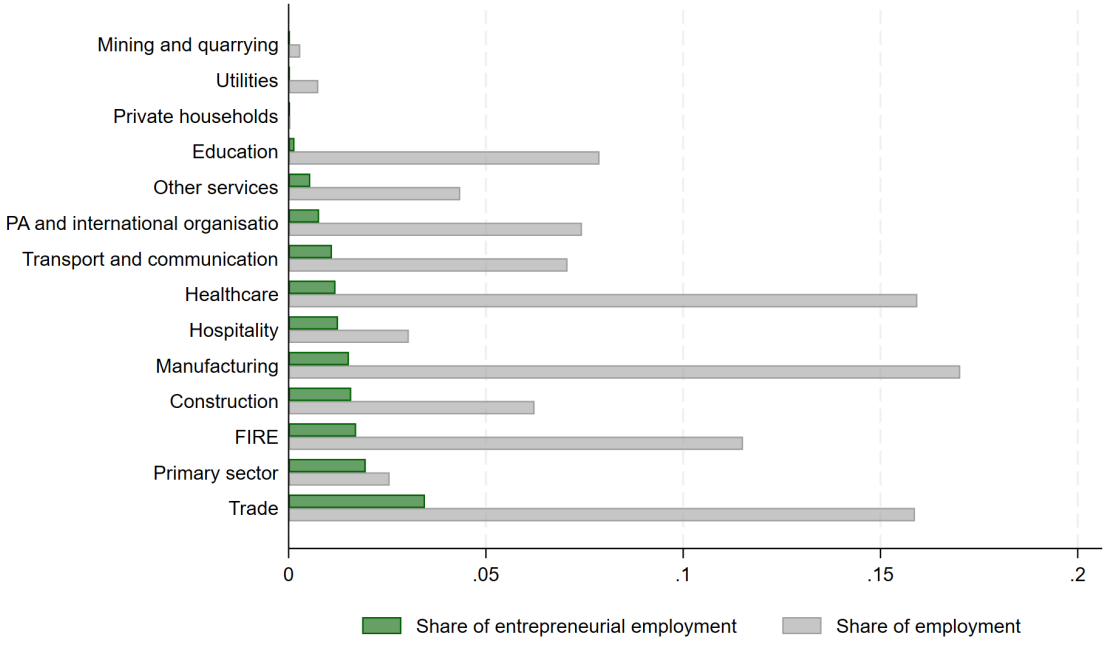
Figures

Figure 1: Firms distribution across industries



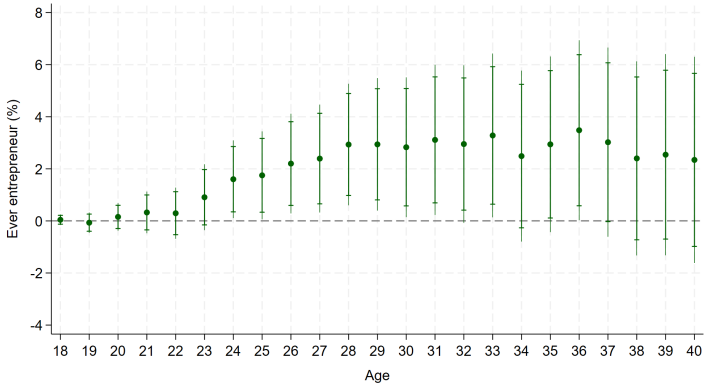
(a) Number of firms



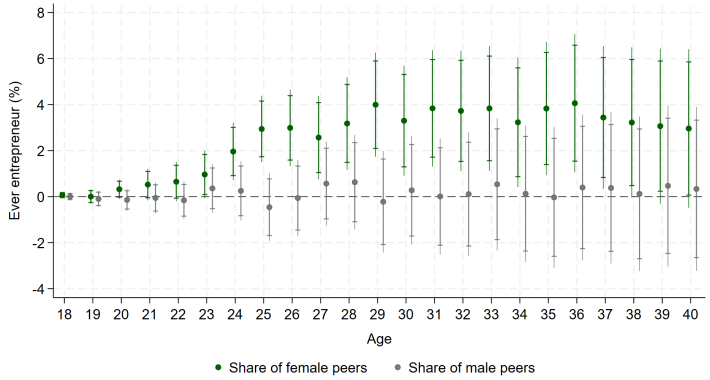
(b) Employment

Notes. This figure plots the distribution of entrepreneurial firms and all firms across 14 industries. Panel (a) illustrates the share of entrepreneurial firms and the total share of firms across industries. Panel (b) shows the share of employment in entrepreneurial firms compared to the share of total employment across industries. Entrepreneurial firms are defined as those in which we observe entrepreneurs, identified as individuals who either start or own a business with employees (see definition in Section 2.2).

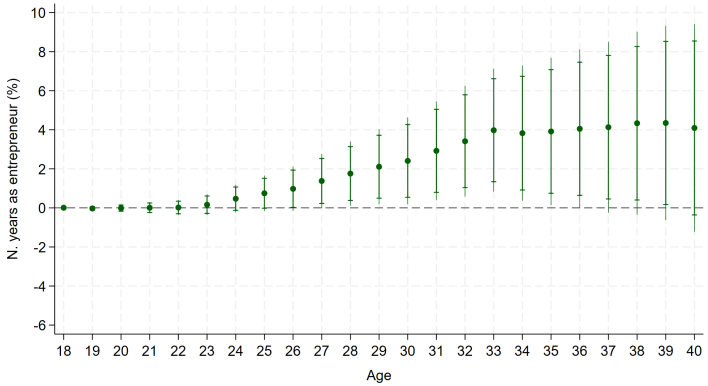
Figure 2: Effect of exposure by age - Women's sample



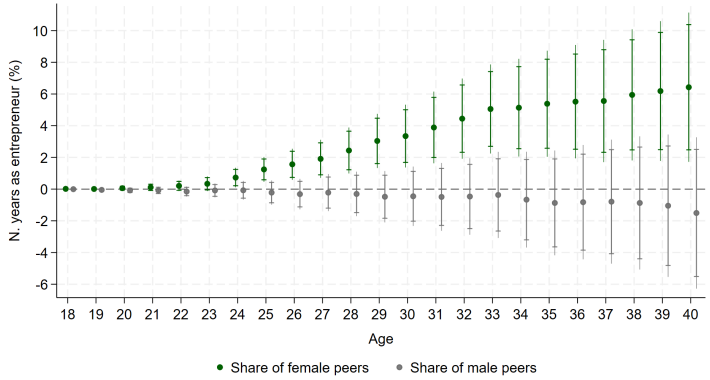
(a) Probability of ever being entrepreneur



(b) Probability of ever being entrepreneur by gender of peers



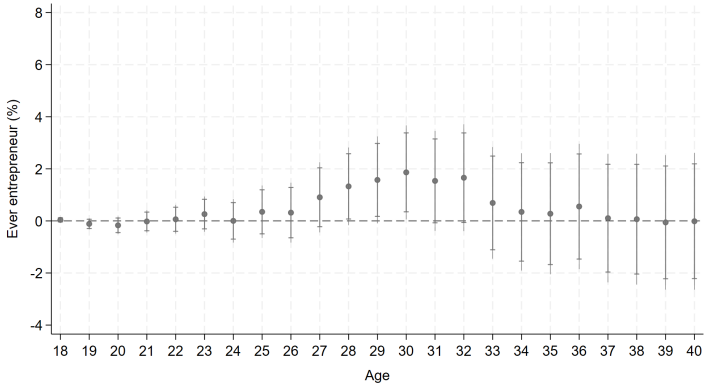
(c) Cumulative number of years as entrepreneur



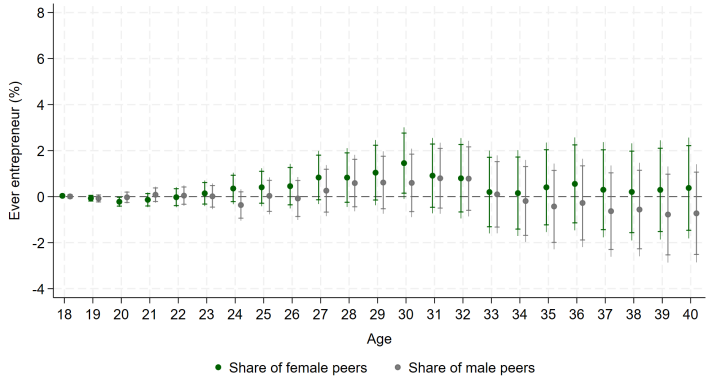
(d) Cumulative number of years as entrepreneur by gender of peers

Notes. This figure plots the regression coefficients as well as 90 and 95% confidence intervals from estimating equation (1) and (2) for the women in our sample at each age. The dependent variables of interest are the probability of ever being entrepreneur by that age in panel (a) and (b), and the cumulative number of years spent in entrepreneurship until that age in panel (c) and (d). ideEntrepreneurs are defined as individuals who either start or own a business with employees. The y-axis plots the percentage change in the outcome of interest resulting from moving a student from a cohort with relatively low exposure to one with relatively high exposure. We obtain this number by multiplying each coefficient by the interquantile range of the exposure distribution (times one hundred) and dividing the result by the gender-specific mean of the outcome variable. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors are clustered at the school level.

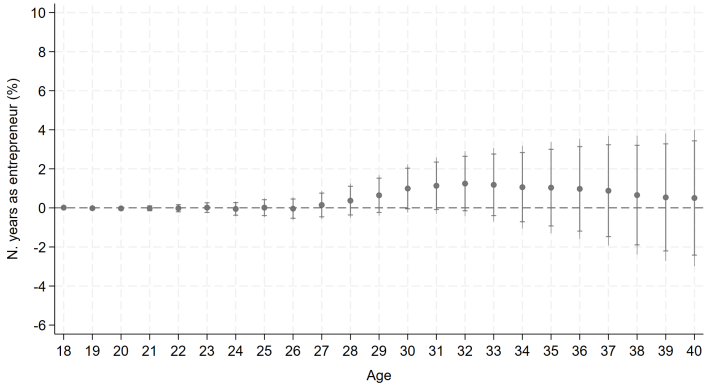
Figure 3: Effect of exposure by age - Men's sample



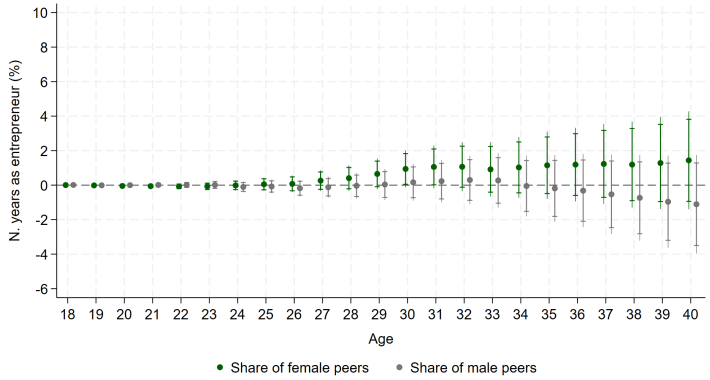
(a) Probability of ever being entrepreneur



(b) Probability of ever being entrepreneur by gender of peers



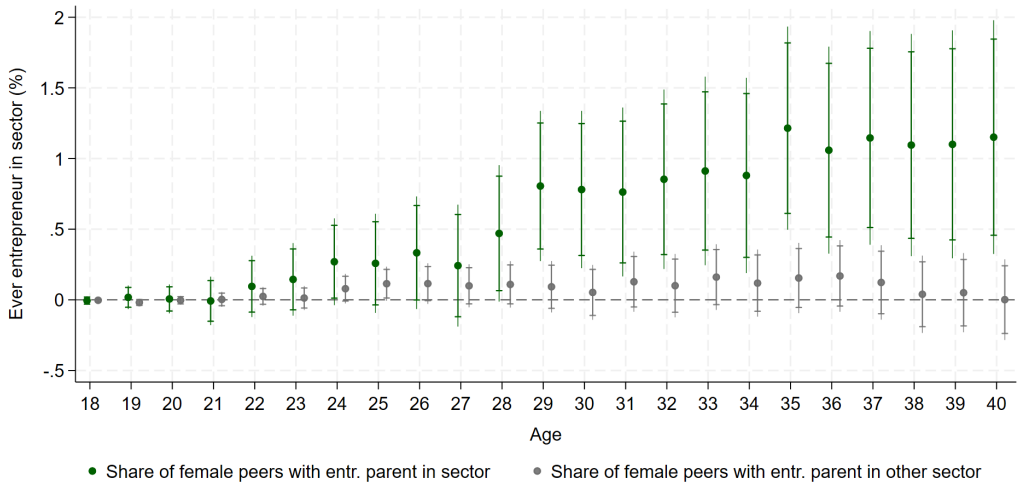
(c) Cumulative number of years as entrepreneur



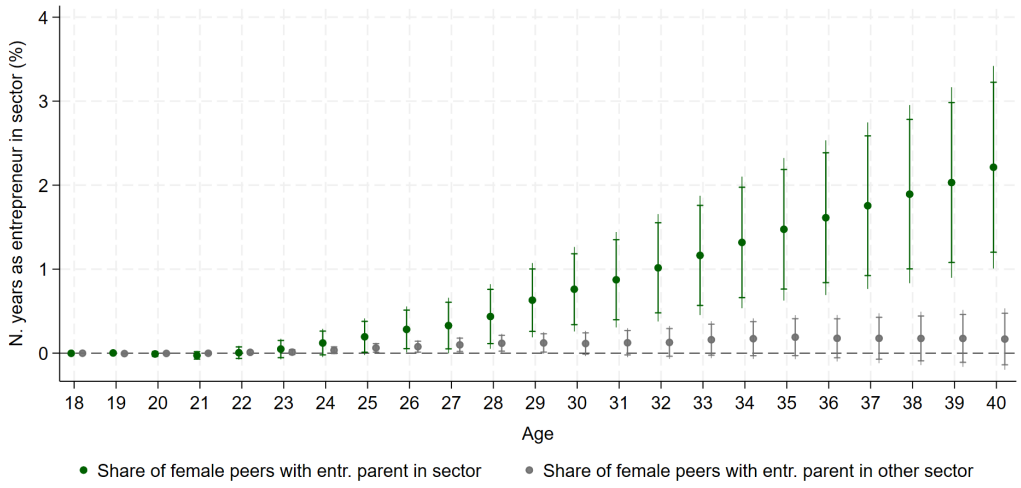
(d) Cumulative number of years as entrepreneur by gender of peers

Notes. This figure plots the regression coefficients as well as 90 and 95% confidence intervals from estimating equation (1) and (2) for the men in our sample at each age. The dependent variables of interest are the probability of ever being entrepreneur by that age in panel (a) and (b), and the cumulative number of years spent in entrepreneurship until that age in panel (c) and (d). ideEntrepreneurs are defined as individuals who either start or own a business with employees. The y-axis plots the percentage change in the outcome of interest resulting from moving a student from a cohort with relatively low exposure to one with relatively high exposure. We obtain this number by multiplying each coefficient by the interquantile range of the exposure distribution (times one hundred) and divide the result by the gender-specific mean of the outcome variable. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors are clustered at the school level.

Figure 4: Effects on sector choice by age for women exposed to entrepreneurship through their female peers



(a) Ever entrepreneur



(b) Cumulative number of years as entrepreneur

Notes. This figure plots the regression coefficients and the 90% and 95% confidence intervals from a version of estimating equation (2), where a full set of sector dummies has been included. The dependent variable for each age-regression is the probability of ever being entrepreneur in a sector by that age in panel (a) and the cumulative number of years spent in entrepreneurship in a sector until that age in panel (b). Each observation is an entrepreneur-sector combination. Entrepreneurs are defined as individuals who either start or own a business with employees. The y-axis plots the percentage change in the outcome of interest resulting from moving a student from a cohort with relatively low exposure to one with relatively high exposure. We obtain this number by multiplying each coefficient by the interquantile range of the exposure distribution (times one hundred) and divide the result by the gender-specific mean of the outcome variable. All regressions include school and municipality-by-cohort fixed effects, sector dummies, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors are clustered at the school level.

Tables

Table 1: Exposure to entrepreneurship over the lifetime by gender

	Exposure in education		Exposure in workplace				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Compulsory	Post compulsory	Age 20	Age 25	Age 30	Age 35	Age 40
Women	0.056***	0.048***	0.068***	0.056***	0.046***	0.039***	0.035***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Men	0.056***	0.068***	0.079***	0.071***	0.060***	0.052***	0.045***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Men/Women	1.01***	1.42***	1.16***	1.28***	1.31***	1.32***	1.31***
	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	800993	731249	542656	554253	590091	588052	587478

Notes. This table reports exposure to "entrepreneurial" peers for men and women at different phases of their lives. Exposure to entrepreneurial peers is defined as the share of peers who will ever enter entrepreneurship during our sample period, allowing us to measure exposure even at very young ages. Entrepreneurs are defined as individuals who either start or own a business with employees. Column (1) focuses on exposure during compulsory schooling, defining peers as individuals in the same school and cohort. Column (2) focuses on exposure in post-secondary education, defining peers as students enrolled in the same program, school, and cohort in the next educational stage after compulsory schooling. Columns (3) to (7) focus on exposure while working at ages 20, 25, 30, 35, and 40, respectively, defining peers as individuals employed in the same workplace. The last row reports the ratio of female to male exposure. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 2: Descriptive statistics

	All	Men	Women	Difference
A: Outcome variables				
Ever entrepreneur	0.048	0.069	0.027	0.041***
Ever entrepreneur by 25	0.008	0.011	0.005	0.006***
Ever entrepreneur by 30	0.023	0.034	0.012	0.022***
Ever entrepreneur by 35	0.038	0.056	0.020	0.035***
Ever entrepreneur by 40	0.050	0.071	0.028	0.043***
N. of years as entrepreneur	0.219	0.319	0.115	0.204***
N. of years as entrepreneur (cond.)	4.519	4.646	4.188	0.458***
B: Cohort variables				
Share of peers with parent entrepreneur	0.116	0.116	0.116	-0.000
Share of female peers with parent entrepreneur	0.115	0.115	0.116	-0.001**
Share of male peers with parent entrepreneur	0.117	0.117	0.117	-0.000
Share of first-generation immigrants	0.008	0.008	0.008	-0.000
Share of second-generation immigrants	0.007	0.007	0.008	-0.000*
C: Individual characteristics				
Female	0.489	0.000	1.000	-1.000
Parent is entrepreneur	0.116	0.117	0.116	0.001
Is a first-generation immigrant	0.008	0.009	0.008	0.001***
Is a second-generation immigrant	0.007	0.008	0.007	0.000*
Discontinued education after compulsory school	0.176	0.194	0.157	0.037***
Completed academic education	0.464	0.380	0.551	-0.170***
Completed vocational education	0.473	0.511	0.434	0.077***
Completed higher education	0.404	0.349	0.461	-0.113***
Observations	786660	401716	384944	786660

Notes. This table reports descriptive statistics for the whole sample and for men and women separately. Our unbalanced sample includes adolescents in grades 7 through 9 between 1980 and 1992. Entrepreneurship is defined as individuals who either start or own a business with employees. *Ever entrepreneur*=1 if the individual ever entered entrepreneurship. *Share of peers with parents entrepreneur* is the share of peers in a given school-cohort with at least one parent who is an entrepreneur. *Share of female (male) peers with parents entrepreneur* is the share of female (male) peers in a given school-cohort with at least one parent who is an entrepreneur. *Parents is entrepreneur*=1 if at least one of the individual's parents is an entrepreneur. IQR denotes the inter-quantile range.

Table 3: Descriptive statistics - entrepreneurs' sample

	All	Men	Women	Difference
A: Individual characteristics				
Parent is entrepreneur	0.220	0.231	0.193	0.037***
Discontinued education after compulsory school	0.183	0.189	0.167	0.022***
Completed secondary academic education	0.276	0.236	0.381	-0.145***
Completed secondary vocational education	0.619	0.639	0.565	0.074***
Completed higher education	0.218	0.197	0.273	-0.076***
Is a first-generation immigrant	0.020	0.021	0.015	0.006***
Is a second-generation immigrant	0.011	0.012	0.009	0.003*
Age when first entrepreneur	30.9	30.8	31.2	-0.4***
Ever created an incorporated firm	0.168	0.181	0.135	0.046***
N. of firms	1.277	1.299	1.221	0.078***
N entrepreneurs	38131	27582	10549	38131
B: Firm characteristics				
Number of employees	5.059	5.123	4.880	0.243
Survival	3.656	3.699	3.535	0.164***
Tenure	2.103	2.126	2.041	0.085***
Earnings	195664	202373	176019	26354***
Share of female employees	0.448	0.327	0.774	-0.446***
Share of part-time employees	0.367	0.334	0.455	-0.120***
N entrepreneurs-firms	48709	35825	12884	48709

Notes. This table reports descriptive statistics for the sub-sample of adolescents who become entrepreneurs at least once before they are 40 years old, and for male and female entrepreneurs separately. Entrepreneurship is defined as individuals who either start or own a business with employees. Panel A contains individual-level characteristics: whether the individual's parents are entrepreneurs; whether the individual has ever completed academic secondary/ vocational secondary/ higher education; whether the individual is first-/second-generation immigrant; the individual's age when first becoming entrepreneur; whether the individual ever created an incorporated firm; and number of firms created. Panel B contains firm-level characteristics: number of employees; firm's survival (years); employee's tenure (years); employees earnings (DKK); share of female employees and share of female part-time employees.

Table 4: Balancing tests

	Share of peers with parents entrepr.	
	Estimate	St.Error
Dependent variable:		
Age in 7th grade	0.001	(0.001)
Female	0.002	(0.001)
N. peers	-0.199	(0.146)
Mother has secondary (academic) educ	0.000	(0.000)
Mother has secondary (vocational) educ	-0.000	(0.001)
Mother has higher educ	0.001	(0.000)
Father has secondary (academic) educ	-0.000	(0.000)
Father has secondary (vocational) educ	-0.001	(0.001)
Father hashigher educ	0.001	(0.001)
Mother's age	0.007	(0.012)
Father's age	-0.004	(0.014)
Parents are home owners	0.000	(0.002)
Parents' income (log)	0.001	(0.001)
Mother is unemployed	0.001	(0.001)
Father is unemployed	0.001	(0.001)
Lives with mother	-0.001	(0.001)
Lives with father	0.000	(0.000)
First-generation immigrant	-0.000	(0.000)
Second-generation immigrants	0.000	(0.000)

Notes. This table reports the coefficients of separate regressions of each individual characteristic on the share of peers with parents entrepreneur. The coefficients are rescaled to reflect the effect of increasing exposure by the IQR of the exposure distribution. All regressions include school and municipality-by-cohort fixed effects and control for an indicator for whether the individuals' parents are entrepreneurs. Entrepreneurs are defined as individuals who either start or own a business with employees. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 5: Correlated characteristics at the cohort level

	Share of peers with parents entrepreneur	
	Estimate	St. Error
Dependent variable:		
Share of par. with secondary academic educ.	0.001	(0.001)
Share of par. with secondary vocational educ.	0.006***	(0.002)
Share of par. with higher educ.	0.007***	(0.001)
Share of par. unemployed	-0.007***	(0.001)
Share of par. first-gen immigrants	0.000	(0.001)
Share of par. second-gen immigrants	-0.000	(0.000)
Share of par. home owners	0.011***	(0.002)
Average par. age	0.045***	(0.016)
Average par. income (log)	0.013***	(0.002)

Notes. This table reports the coefficients of separate regressions of the share of peers with entrepreneur parents on the share of parents whose higher education is vocational secondary education, academic secondary education, or a university degree; the share of parents who are unemployed; the share of parents who are first- or second-generation immigrants; the share of parents who are home-owners; parents' average age; and average parental income (log). All variables are computed at the cohort level. The coefficients are rescaled to reflect the effect of increasing exposure by the IQR of the exposure distribution. All regressions include school and municipality-by-cohort fixed effects. Entrepreneurs are defined as individuals who either start or own a business with employees. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 6: Effects on educational choices after compulsory school

	Education decision after compulsory school		
	(1)	(2)	(3)
	Discontinued education	Upper secondary academic	Upper secondary vocational
Share of female peers with parent entrepreneur	-0.023**	-0.008	0.031**
	(0.011)	(0.013)	(0.012)
Share of male peers with parent entrepreneur	0.009	0.004	-0.014
	(0.012)	(0.014)	(0.013)
Parent is entrepreneur	-0.027***	0.023***	0.005*
	(0.002)	(0.003)	(0.002)
Observations	328632	328632	328632
School and municipality x cohort FE	X	X	X
Individual controls	X	X	X
Cohort controls	X	X	X
Mean dep. var	0.232	0.512	0.256

Notes. The dependent variables in columns (1)-(3) are mutually exclusive indicators for the first choice made after the end of compulsory schools. Specifically, the dependent variable is an indicator for whether the individual has discontinued education after compulsory school in column (1); has enrolled in an upper secondary academic school in column (2); and has enrolled in an upper secondary vocational school in column (3). These regressions are run on a balanced sample, so that columns (1)-(3) sum up to zero. *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is an entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 7: Effect on number of years spent in a given employment status

	N. of years as							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Entrepreneur	Self-employed	Unemployed	Not in labor force	Employed spouse	Employed	Employed high pay	Employed low pay
Share of female peers with parent entrepreneur	0.067**	0.003	0.022	-0.006	-0.002	-0.083	0.203	-0.287**
	(0.027)	(0.037)	(0.049)	(0.121)	(0.012)	(0.144)	(0.154)	(0.124)
Share of male peers with parent entrepreneur	-0.012	-0.038	-0.056	-0.144	-0.013	0.264*	0.195	0.069
	(0.028)	(0.036)	(0.050)	(0.124)	(0.014)	(0.144)	(0.162)	(0.133)
Parent is entrepreneur	0.114***	0.128***	-0.184***	-0.328***	0.014***	0.257***	0.297***	-0.040
	(0.007)	(0.009)	(0.009)	(0.022)	(0.003)	(0.028)	(0.035)	(0.027)
Observations	328632	328632	328632	328632	328632	328632	328632	328632
School and municipality x cohort FE	X	X	X	X	X	X	X	X
Individual controls	X	X	X	X	X	X	X	X
Cohort controls	X	X	X	X	X	X	X	X
Mean dep. var	0.123	0.272	1.335	3.743	0.0257	17.50	8.749	8.753

Notes. The dependent variables in columns (1)-(6) are the numbers of years spent in entrepreneurship, self-employment, unemployment, outside the labor force, as an employed spouse, or employment, respectively, between ages 18 and 40. The dependent variable in columns (7) and (8) is the number of years spent in employment within the top half of the earnings distribution, and within the bottom half of the earnings distribution, respectively. These regressions are run on a balanced sample, so that columns (1)-(6) sum up to zero, and columns (7) and (8) sum up to column (6). *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is an entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 8: Effects on women's marriage and fertility outcomes

	(1) Have children	(2) N. of children	(3) N. of children (cond.)	(4) Age at first child (cond.)	(5) Ever married
Share of female peers with parent entrepreneur	-0.007	-0.004	0.013	-0.003	-0.000
	(0.009)	(0.026)	(0.022)	(0.138)	(0.011)
Share of male peers with parent entrepreneur	0.015*	0.032	-0.001	0.069	0.037***
	(0.009)	(0.028)	(0.023)	(0.133)	(0.012)
Parent is entrepreneur	0.008***	0.035***	0.020***	0.293***	0.005**
	(0.002)	(0.005)	(0.004)	(0.028)	(0.002)
Observations	384944	384944	331744	331744	384944
School and municipality x cohort FE	X	X	X	X	X
Individual controls	X	X	X	X	X
Cohort controls	X	X	X	X	X
Mean dep. var	0.862	1.880	2.182	29.25	0.710

Notes. The dependent variables in columns (1)-(5) are indicators for whether the individual had children (column 1); the number of children (column 2); the number of children, conditional on having any (column 3); the age at which the first child was born, conditional on having children (column 4); and an indicator for whether the individual was ever married (column 5). *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is an entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual- and cohort-level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. *p< 0.1, ** p< 0.05, *** p< 0.01.

Table 9: Effects on firm size and survival

	(1) by age 25	(2) by age 30	(3) by age 35	(4) by age 40
A: Dep. var. Cumulative number of jobs				
RF: Share of female peers with parent entrepreneur	0.076***	0.264***	0.385***	0.646**
	(0.025)	(0.083)	(0.128)	(0.280)
2SLS: Number of years as entrepreneur	6.005***	7.668***	7.302***	9.767**
	(1.140)	(1.907)	(1.739)	(4.106)
Anderson-Rubin p-val	0.002	0.001	0.003	0.022
Observations	384944	380881	377509	374641
Mean of dep. var	0.0351	0.146	0.325	0.595
B: Dep. var. Survival				
RF: Share of female peers with parent entrepreneur	0.045***	0.057***	0.067***	0.065***
	(0.013)	(0.020)	(0.023)	(0.023)
2SLS: Ever entrepreneur	6.330***	6.978***	7.514***	8.613**
	(1.419)	(1.813)	(2.023)	(3.463)
Anderson-Rubin p-val	0.001	0.004	0.004	0.006
Observations	384944	380881	377509	374641
Mean of dep. var	0.0227	0.0598	0.0930	0.111
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X

Notes. The dependent variable is the cumulative number of jobs created by age 25, 30, 35 and 40 in Panel A. The dependent variable is the total number of years the longest surviving firm of each individual survives by age 25, 30, 35 and 40 in Panel B. *Share of female peers with parent entrepreneur* is the share of female peers with at least one parent who is entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. The table reports estimates of the effect of exposure to female peers with entrepreneur parents on firm measures (reduced form), and estimates of the firm characteristics of women who enter or increase their tenure in entrepreneurship due to early exposure to entrepreneurs (compliers). We instrument number of years spend in entrepreneurship (Panel A) and entry into entrepreneurship (Panel B) by early exposure to entrepreneurs. Estimates are reported for women at age 25, 30, 35 and 40. All regressions include school and municipality-by-cohort fixed effects, as well as individual- and cohort-level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 10: Effects on other occupations by gender of peers for women

	Ever in occupation		
	(1) Engineer	(2) Professor (PhD)	(3) Top manager
Share of female peers with parent engineer	-0.000		
	(0.003)		
Share of male peers with parent engineer	0.005		
	(0.003)		
Parent is engineer	0.010***		
	(0.001)		
Share of female peers with parent professor		0.059**	
		(0.029)	
Share of male peers with parent professor		-0.031	
		(0.030)	
Parent is professor		0.051***	
		(0.013)	
Share of female peers with parent top manager			0.003
			(0.013)
Share of male peers with parent top manager			0.012
			(0.013)
Parent is top manager			0.019***
			(0.003)
Observations	384944	384944	384944
School and municipality x cohort FE	X	X	X
Individual controls	X	X	X
Cohort controls	X	X	X
Mean dep. var	0.0208	0.00929	0.0481

Notes. The dependent variable in columns (1)-(3) is an indicator for whether the individual has ever been an engineer, a professor, or a top manager within the observation period, respectively. While we can observe an individual's managerial status over the entire sample period, we are partially constrained in looking at other professions as we start observing individuals' occupations only in 1980. We therefore proxy occupations with detailed data on university degree and employment status and we choose occupations that tend to have a strong connections to the degree obtained. Thus an individual is recorded as an engineer if she studied engineering and she is employed, while an individual is recorded as a university professor if she has a PhD and she is employed. *Share of female (male) peers with parent engineer/professor/top manager* is the share of female (male) peers with at least one parent who is an engineer/professor/top manager during the exposure period. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table 11: Effects on women's number of years as entrepreneur by gender of parents

	(1) by age 25	(2) by age 30	(3) by age 35	(4) by age 40
A: Dep. var. Ever entrepreneur				
Share of female peers with father entrepreneur	0.008***	0.007**	0.007*	0.006
	(0.002)	(0.003)	(0.004)	(0.005)
Share of female peers with mother entrepreneur	0.001	0.012*	0.013	0.013
	(0.004)	(0.007)	(0.009)	(0.010)
Share of male peers with father entrepreneur	-0.002	0.000	0.000	-0.001
	(0.002)	(0.003)	(0.004)	(0.005)
Share of male peers with mother entrepreneur	0.008	0.004	0.002	0.008
	(0.005)	(0.007)	(0.009)	(0.011)
Father is entrepreneur	0.003***	0.008***	0.013***	0.017***
	(0.000)	(0.001)	(0.001)	(0.001)
Mother is entrepreneur	0.009***	0.022***	0.028***	0.037***
	(0.001)	(0.002)	(0.003)	(0.003)
Observations	384944	380881	377509	374641
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.00470	0.0124	0.0204	0.0282
B: Dep. var. N. years as entrepreneur				
Share of female peers with father entrepreneur	0.014***	0.034***	0.048***	0.063**
	(0.004)	(0.011)	(0.018)	(0.026)
Share of female peers with mother entrepreneur	0.004	0.028	0.064	0.069
	(0.009)	(0.023)	(0.041)	(0.056)
Share of male peers with father entrepreneur	-0.005	-0.010	-0.016	-0.026
	(0.004)	(0.010)	(0.018)	(0.026)
Share of male peers with mother entrepreneur	0.019*	0.037	0.045	0.047
	(0.010)	(0.023)	(0.040)	(0.058)
Father is entrepreneur	0.006***	0.024***	0.053***	0.089***
	(0.001)	(0.003)	(0.005)	(0.007)
Mother is entrepreneur	0.018***	0.067***	0.126***	0.182***
	(0.003)	(0.008)	(0.014)	(0.019)
Observations	384944	380881	377509	374641
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.00905	0.0342	0.0720	0.118

Notes. The dependent variable in all columns in Panel A is an indicator for whether the individual ever entered entrepreneurship by the age considered; the dependent variable in all columns in Panel B is the number of years spent in entrepreneurship by the age considered. *Share of female (male) peers with mother/father entrepreneur* is the share of female (male) peers with mother/father who is entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. The table reports estimates for women only. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

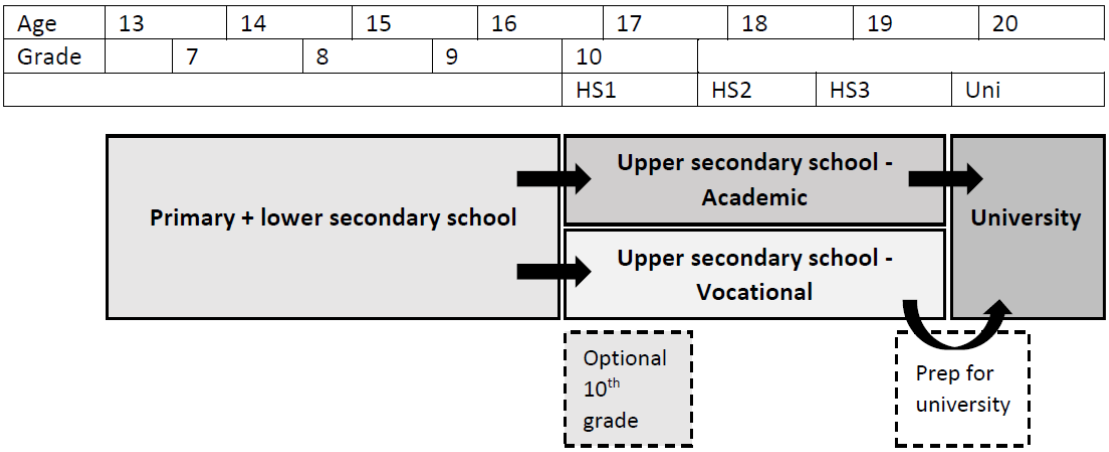
Table 12: Effects on women's probability of firm co-ownership with peers

	Cofounded first firm	
	(1)	(2)
	With peers	With same gender peers
Share of female peers with parent entrepreneur	-0.000	-0.000
	(0.000)	(0.000)
Share of male peers with parent entrepreneur	0.001	0.001
	(0.000)	(0.000)
Parent is entrepreneur	0.000	0.000
	(0.000)	(0.000)
Observations	384944	384944
School and municipality x cohort FE	X	X
Individual controls	X	X
Cohort controls	X	X
Mean dep. var	0.0000883	0.0000520

Notes. The dependent variable in all columns is an indicator for whether the individual has ever co-owned a firm with her peers. *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. The table reports estimates for women only. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

A Other Tables and Figures

Figure A1: Schooling in Denmark



Notes. This figure illustrate the Danish education system from age 7 to higher education. Our treatment period goes from grade 7 to grade 9, when students are between 13-14 years old and 15-16 years old.

Table A1: Raw and residual variation in share of parents who are entrepreneurs

	Mean	St.Dev
Share of peers with at least one entrepreneur parent		
Raw cohort variable	0.116	0.071
Residuals after removing School and municipality x cohort FE	-0.000	0.042

Notes. This table reports the raw and residual (net of school and municipality-by-cohort fixed effects) variation in the share of peers' parents who are entrepreneurs. Entrepreneurs are defined as individuals who either start or own a business with employees.

Figure A2: Year-to-year variation in the share of peers' parents who are entrepreneurs within schools

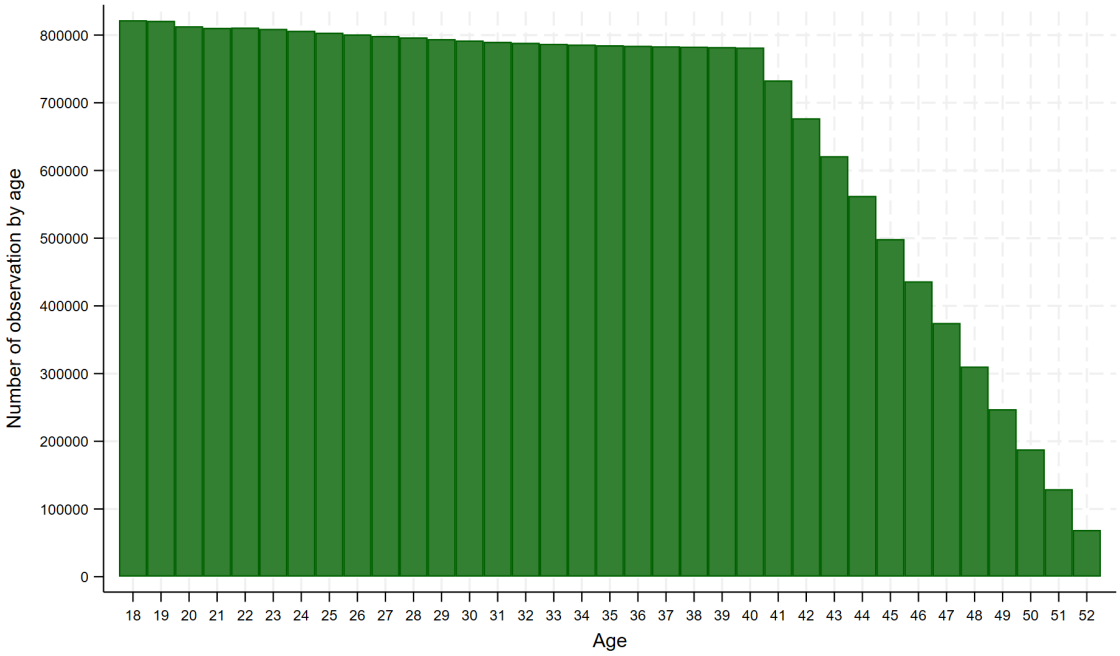
Notes. The figure plots the predicted share of peers' with entrepreneur parents at the school-cohort level from a regression of the share of peers' with entrepreneur parents on school and municipality-by-cohort fixed effects. The graph also features a normal distribution for comparison. Entrepreneurs are defined as individuals who either start or own a business with employees.

Table A2: Raw and residual variation in share of parents who are entrepreneurs by gender of peers

	Mean	St.Dev
A. Share of female peers with at least one entrepreneur parent		
Raw cohort variable	0.115	0.088
Residuals after removing School and municipality x cohort FE	-0.000	0.061
B. Share of male peers with at least one entrepreneur parent		
Raw cohort variable	0.117	0.087
Residuals after removing School and municipality x cohort FE	-0.000	0.059

Notes. This table reports the raw and residual (net of school and municipality-by-cohort fixed effects) variation in the share of female (panel A) and male (panel B) peers' parents who are entrepreneurs. Entrepreneurs are defined as individuals who either start or own a business with employees.

Figure A3: Number of observation by age



Notes. The figure plots the number of observation per age, from 18 to 52.

Table A3: Balancing tests by gender of peers

	Share of female peers with par. entr.		Share of male peers with par. entr.	
	Estimate	St. Error	Estimate	St. Error
Dependent variable:				
Age in 7th grade	0.001*	(0.001)	-0.000	(0.001)
Female	0.002*	(0.001)	-0.000	(0.001)
N. students	-0.154	(0.113)	-0.090	(0.114)
Mother has secondary (academic) educ	-0.000	(0.000)	0.000	(0.000)
Mother has secondary (vocational) educ	-0.000	(0.001)	0.000	(0.001)
Mother has higher educ	0.000	(0.000)	0.001	(0.000)
Father has secondary (academic) educ	-0.000	(0.000)	0.000	(0.000)
Father has secondary (vocational) educ	0.001	(0.001)	-0.001	(0.001)
Father has higher educ	0.000	(0.001)	0.001*	(0.001)
Mother's age	0.005	(0.010)	0.004	(0.010)
Father's age	0.003	(0.012)	-0.008	(0.012)
Parents are home owners	-0.002	(0.001)	0.002	(0.001)
Parents' income (log)	0.000	(0.001)	0.001	(0.001)
Mother is unemployed	0.001	(0.001)	-0.000	(0.001)
Father is unemployed	0.001**	(0.000)	-0.000	(0.000)
Lives with mother	-0.001	(0.001)	-0.000	(0.001)
Lives with father	0.001	(0.000)	-0.000	(0.000)
First-generation immigrant	-0.000	(0.000)	-0.000**	(0.000)
Second-generation immigrant	0.000**	(0.000)	-0.000	(0.000)

Notes. This table reports the coefficients of separate regressions of each individual characteristic on the share of female and male peers with parents entrepreneur. The coefficients are rescaled to reflect the effect of increasing exposure by the IQR of the exposure distribution. All regressions include school and municipality-by-cohort fixed effects and control for an indicator for whether the individuals' parents are entrepreneur. Entrepreneurs are defined as individuals who either start or own a business with employees. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table A4: Correlated characteristics at the cohort level by gender of peers

	Share of female peers with par. entr.		Share of male peers with par. entr.	
	Estimate	St. Error	Estimate	St. Error
Dependent variable:				
Share of par. with secondary academic educ.	-0.000	(0.001)	0.001*	(0.001)
Share of par. with secondary vocational educ.	0.007***	(0.002)	0.007***	(0.002)
Share of par. with higher educ.	0.007***	(0.001)	0.010***	(0.001)
Share of par. unemployed	-0.007***	(0.002)	-0.009***	(0.001)
Share of par. first-gen immigrants	-0.000	(0.001)	-0.001	(0.001)
Share of par. second-gen immigrants	0.000	(0.000)	0.000	(0.000)
Share of par. home owners	0.017***	(0.003)	0.013***	(0.002)
Average par. age	0.091***	(0.023)	0.023	(0.020)
Average par. income (log)	0.016***	(0.002)	0.017***	(0.002)

Notes. This table reports the coefficients of separate regressions of the share of female peers and male peers with entrepreneur parents on the share of parents whose higher education is vocational secondary education, academic secondary education, or a university degree; the share of parents who are unemployed; the share of parents who are first- or second-generation immigrants; the share of parents who are home-owners; parents' average age; and average parental income (log). The coefficients are rescaled to reflect the effect of increasing exposure by the IQR of the exposure distribution. All regressions include school and municipality-by-cohort fixed effects. Entrepreneurs are defined as individuals who either start or own a business with employees. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table A5: Effects on entry and tenure in entrepreneurship by age for women

	(1) by age 25	(2) by age 30	(3) by age 35	(4) by age 40
A. Ever entrepreneur				
Share of female peers with parent entrepreneur	0.007***	0.008***	0.009**	0.008*
	(0.002)	(0.003)	(0.004)	(0.004)
Share of male peers with parent entrepreneur	-0.001	0.000	0.000	0.001
	(0.002)	(0.003)	(0.004)	(0.005)
Parent is entrepreneur	0.005***	0.011***	0.016***	0.021***
	(0.000)	(0.001)	(0.001)	(0.001)
Observations	384944	380881	377509	374641
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.00470	0.0124	0.0204	0.0282
B. Number of years as entrepreneur				
Share of female peers with parent entrepreneur	0.013***	0.034***	0.053***	0.066***
	(0.004)	(0.010)	(0.017)	(0.025)
Share of male peers with parent entrepreneur	-0.002	-0.005	-0.007	-0.015
	(0.004)	(0.010)	(0.017)	(0.025)
Parent is entrepreneur	0.009***	0.033***	0.067***	0.108***
	(0.001)	(0.003)	(0.004)	(0.006)
Observations	384944	380881	377509	374641
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.00905	0.0342	0.0720	0.118

Notes. The dependent variable in all columns is an indicator for whether the individual ever entered entrepreneurship by the age considered in Panel A; and the number of years spent in entrepreneurship by the age considered in Panel B. Results are reported for the subsample of women. *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table A6: Effects on entry and tenure in entrepreneurship by age for men

	(1) by age 25	(2) by age 30	(3) by age 35	(4) by age 40
A. Ever entrepreneur				
Share of female peers with parent entrepreneur	0.002	0.009*	0.002	0.003
	(0.003)	(0.005)	(0.006)	(0.007)
Share of male peers with parent entrepreneur	-0.000	0.003	-0.002	-0.005
	(0.003)	(0.005)	(0.006)	(0.007)
Parent is entrepreneur	0.014***	0.046***	0.066***	0.076***
	(0.001)	(0.001)	(0.002)	(0.002)
Observations	401716	396374	390848	385805
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.0105	0.0341	0.0557	0.0715
B. Number of years as entrepreneur				
Share of female peers with parent entrepreneur	0.001	0.028*	0.034	0.043
	(0.006)	(0.016)	(0.029)	(0.042)
Share of male peers with parent entrepreneur	-0.003	0.003	-0.007	-0.032
	(0.006)	(0.016)	(0.029)	(0.042)
Parent is entrepreneur	0.031***	0.155***	0.353***	0.554***
	(0.002)	(0.005)	(0.010)	(0.016)
Observations	401716	396374	390848	385805
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.0197	0.0917	0.207	0.332

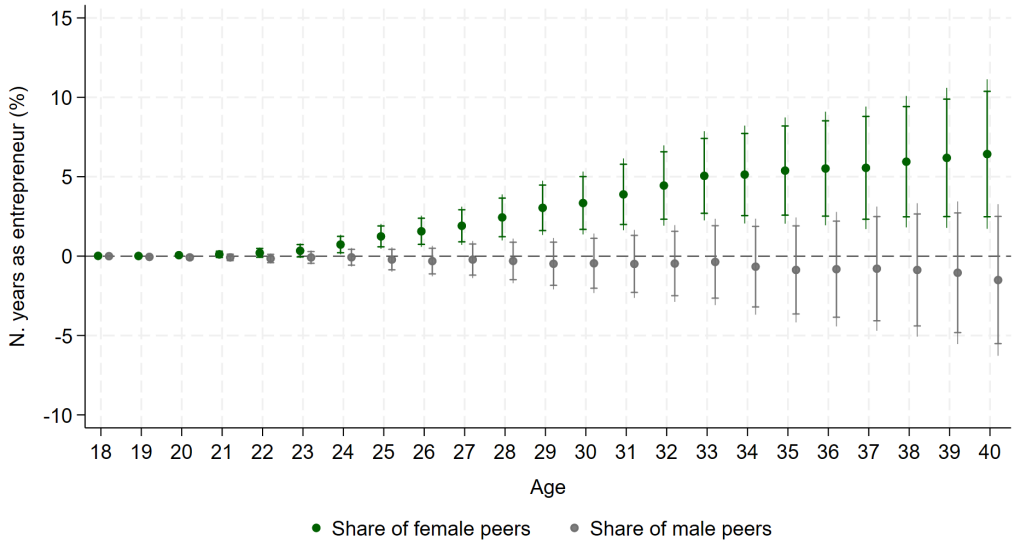
Notes. The dependent variable in all columns is an indicator for whether the individual ever entered entrepreneurship by the age considered in Panel A; and the number of years spent in entrepreneurship by the age considered in Panel B. Results are reported for the subsample of men. *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Table A7: Effects on the number of years as entrepreneur by cohort size for women

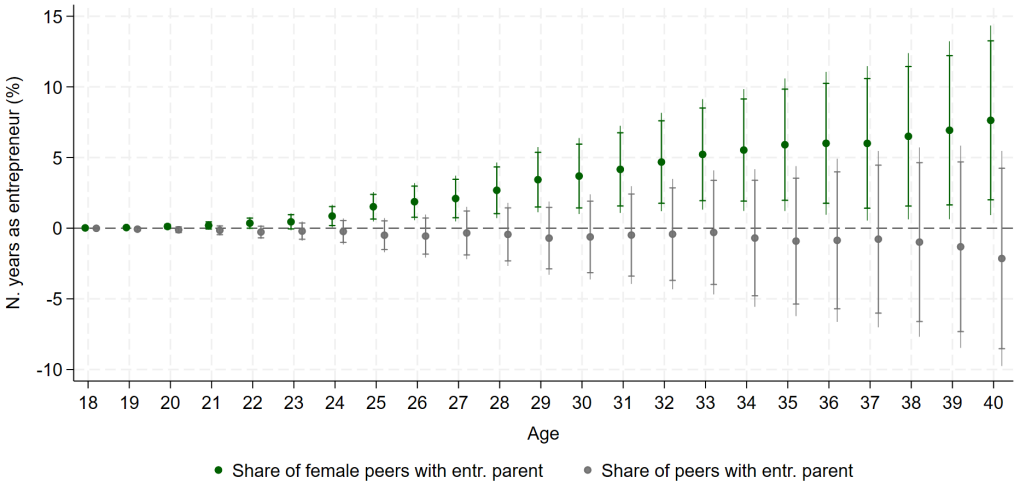
	N. years as entrepreneur			
	(1) by age 25	(2) by age 30	(3) by age 35	(4) by age 40
A. Small cohorts				
Share of female peers with parent entrepreneur	0.017***	0.049***	0.093***	0.128***
	(0.006)	(0.015)	(0.027)	(0.038)
Share of male peers with parent entrepreneur	-0.004	-0.005	-0.009	-0.017
	(0.006)	(0.015)	(0.027)	(0.040)
Parent is entrepreneur	0.011***	0.039***	0.074***	0.113***
	(0.002)	(0.004)	(0.007)	(0.011)
Observations	166413	164697	163259	161980
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.00921	0.0356	0.0737	0.119
B. Large cohorts				
Share of female peers with parent entrepreneur	0.008	0.016	0.012	0.015
	(0.006)	(0.015)	(0.026)	(0.039)
Share of male peers with parent entrepreneur	0.006	0.021	0.038	0.042
	(0.007)	(0.016)	(0.027)	(0.039)
Parent is entrepreneur	0.007***	0.028***	0.062***	0.104***
	(0.001)	(0.003)	(0.006)	(0.008)
Observations	218238	215890	213948	212360
School and municipality x cohort FE	X	X	X	X
Individual controls	X	X	X	X
Cohort controls	X	X	X	X
Mean dep. var	0.00892	0.0331	0.0707	0.117

Notes. The dependent variable in all columns is an indicator for whether the individual ever entered entrepreneurship by the age considered. *Share of peers with parent entrepreneur* is the share of peers with at least one parent who is entrepreneur during the exposure period. Panel A reports the results for individuals enrolled in cohorts below the average cohort size within their school. Panel B reports the results for individuals enrolled in cohorts above the average size. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Figure A4: Effects on the number of years as entrepreneur with tighter specification - Women's sample



(a) Baseline specification



(b) Tighter specification

Notes. Panel (a) of this figure plot the regression coefficients as well as 90 and 95% confidence intervals from estimating equation (1), while Panel (b) displays the coefficients from an alternative specification that exploits variation in the gender mix in the share of peers with entrepreneur parents while keeping the total share of peers with entrepreneur parents constant. Entrepreneurs are defined as individuals who either start or own a business with employees. The y-axis plots the percentage change in the outcome of interest resulting from moving a student from a cohort with relatively low exposure to one with relatively high exposure. We obtain this number by multiplying each coefficient by the interquantile range of the exposure distribution (times one hundred) and divide the result by the gender-specific mean of the outcome variable. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors are clustered at the school level.

Table A8: Number of years as entrepreneur - robustness checks for women

	N. years as entrepreneur			
	(1)	(2)	(3)	(4)
	by age 25	by age 30	by age 35	by age 40
A. Including the self-employed				
Share of female peers with parent entrepreneur	0.018***	0.040***	0.063***	0.082**
	(0.006)	(0.013)	(0.022)	(0.033)
Share of male peers with parent entrepreneur	0.002	-0.006	-0.014	-0.033
	(0.007)	(0.014)	(0.023)	(0.035)
Parent is entrepreneur	0.029***	0.075***	0.140***	0.227***
	(0.002)	(0.003)	(0.006)	(0.008)
Observations	384944	380881	377509	374641
School and municipality x cohort FE	X	X	X	X
Individual & cohort controls	X	X	X	X
Mean dep. var	0.0346	0.108	0.228	0.395
B. Including school-time trends				
Share of female peers with parent entrepreneur	0.010**	0.029***	0.042**	0.060**
	(0.004)	(0.010)	(0.018)	(0.025)
Share of male peers with parent entrepreneur	-0.002	-0.003	-0.016	-0.021
	(0.004)	(0.010)	(0.018)	(0.026)
Parent is entrepreneur	0.008***	0.032***	0.067***	0.108***
	(0.001)	(0.003)	(0.004)	(0.006)
Observations	384944	380881	377509	374641
School and municipality x cohort FE	X	X	X	X
Individual & cohort controls	X	X	X	X
School linear trend	X	X	X	X
Mean dep. var	0.00905	0.0342	0.0720	0.118
C. Adjacent cohorts				
Share of female peers with parent entrepreneur: Lag 1	-0.001	-0.000	0.000	0.006
	(0.004)	(0.010)	(0.018)	(0.024)
Share of female peers with parent entrepreneur	0.010***	0.029***	0.041**	0.045*
	(0.004)	(0.010)	(0.018)	(0.025)
Share of female peers with parent entrepreneur: Lead 1	-0.002	-0.001	0.000	0.001
	(0.004)	(0.010)	(0.018)	(0.026)
Parent is entrepreneur	0.009***	0.033***	0.067***	0.107***
	(0.001)	(0.003)	(0.005)	(0.007)
Observations	353100	349377	346269	343616
School and municipality x cohort FE	X	X	X	X
Individual & cohort controls	X	X	X	X
Mean dep. var	0.00905	0.0342	0.0720	0.118

Notes. The dependent variable in all columns is an indicator for whether the individual ever entered entrepreneurship by the age considered. In panel A, entrepreneurship includes also the self-employed. In panel B, we include school linear trends. In panel C, we include exposure from adjacent cohorts. *Share of female (male) peers with parent entrepreneur* is the share of female (male) peers with at least one parent who is entrepreneur during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees (in Panel B and C), and include the self-employed in Panel A. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

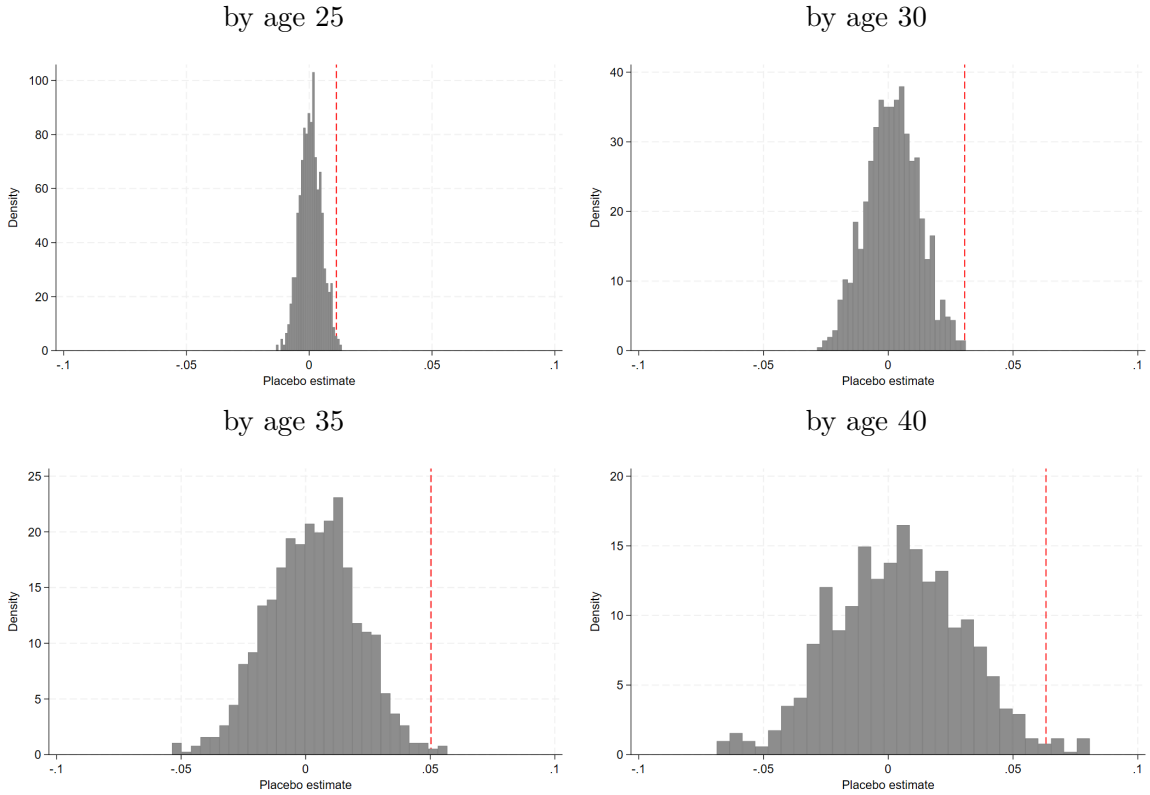
Table A9: Oster test on the number of years as entrepreneur for women

	Years as entr.	
	(1)	(2)
	No controls	Controls
A. By age 25		
Share of female peers with entr. parents	0.012***	0.013***
	(0.004)	(0.004)
Observations	384944	384944
R_max		0.019
$\hat{\delta}$ for $\beta = 0$ given *R_max*		1.367[a]
B. By age 30		
Share of female peers with entr. parents	0.033***	0.034***
	(0.010)	(0.010)
Observations	380881	380881
R_max		0.020
$\hat{\delta}$ for $\beta = 0$ given *R_max*		2.622[a]
C. By age 35		
Share of female peers with entr. parents	0.051***	0.053***
	(0.017)	(0.017)
Observations	377509	377509
R_max		0.021
$\hat{\delta}$ for $\beta = 0$ given *R_max*		2.724[a]
D: by age 40		
Share of female peers with entr. parents	0.064***	0.066***
	(0.025)	(0.025)
Observations	374641	374641
R_max		0.022
$\hat{\delta}$ for $\beta = 0$ given *R_max*		3.626[a]

Notes. The dependent variable in all columns is the number of years spent as an entrepreneur by age 25 (Panel A), 30 (Panel B), 35 (Panel C) or 40 (Panel D). Column (1) reports the results of a specification with no controls. Column (2) reports the results of the full specification. The table reports estimates of the effect of exposure to entrepreneurs via female peers and of the coefficient of proportionality (δ), indicating how important unobservable characteristics would have to be relative to observable characteristics to explain away the effect of exposure to entrepreneurs on outcomes for a given maximum R^2, R_{max}. We set R_{max} equal to $1.3 \times R^2$ from the model including controls as suggested in Oster (2019). Superscript *a* indicates that the estimated $\delta < 0$. *Share of female peers with parents entrepreneur* is the share of female peers with parents who are entrepreneurs during the exposure period. Entrepreneurs are defined as individuals who either start or own a business with employees. All regressions include school and municipality-by-cohort fixed effects, as well as individual and cohort level controls. Individual level controls include age; indicators for living with parents; indicators for being a first- or second-generation immigrant; parents' income; parents' age; indicators for parents' unemployment and home-ownership statuses; and indicators for parents' highest education level (upper secondary academic, upper secondary vocational, higher education), all computed at the beginning of the exposure period. Cohort level controls include cohort size; share of female peers; share of first- and second-generation immigrant peers; average peers' parental income; share of peers with parents whose highest educational level is upper secondary academic education, upper secondary vocational education, or higher education; share of peers with parents unemployed; and share of peers with parents that are home-owners. Standard errors clustered at the school level in parentheses. * p< 0.1, ** p< 0.05, *** p< 0.01.

Figure A5: Placebo tests on the number of years as entrepreneur for women

(a) Panel A



(b) Panel B

	$b \leq \hat{b}$			
	(1) Age 25	(2) Age 30	(3) Age 35	(4) Age 40
Share of placebo estimates	0.006	0.003	0.004	0.014

Notes. Panel A of the figure plots the distribution of estimates from 1000 placebo regressions of the effect of exposure to entrepreneurs via female peers on the number of years girls spend in entrepreneurship by age 25, 30, 35 or 40. Each placebo regressions randomly assigns students to schools within their true school cohort and municipality. The vertical red dashed line indicates the estimated effect using the true exposure level. Panel B reports the share of placebo estimates that are more extreme than the estimated effect of early exposure to entrepreneurs on the number of years spend in entrepreneurship using our estimation sample.

B Firm Performance

We are interested in measuring the characteristics of the pool of firms resulting from the increase in female entrepreneurship arising due to higher levels of early exposure to entrepreneurs (i.e. the firm led by the *compliers*). As mentioned in Section 5.2, we can identify these firm characteristics using 2SLS if we are willing to assume that early exposure has no direct effect on the firm performance of always takers (the exclusion restriction). However, if the exclusion restriction is violated, these 2SLS estimates will be biased. Specifically, they will capture a combination of the characteristics of firms led by compliers, and changes to the characteristics of firms led by *always-takers*. In this section, we investigate the sensitivity of our estimates to violations of the exclusion restriction. To simplify derivations, we focus on the firm characteristics of women who enter entrepreneurship due to early exposure (i.e., the extensive margin of entrepreneurship), rather than the firm characteristics of women who enter or increase their tenure in entrepreneurship due to early exposure (i.e., changes to the extensive and intensive margin of entrepreneurship).[57]

Specifically, let Z_i indicate exposure to entrepreneurs, which we also assume to be binary (high/low) for simplicity. Let D_i be an indicator for being an entrepreneur, let $D_i(Z_i)$ denote the entrepreneurship status for a given value of Z_i, and let $Y_i(D_i, Z_i)$ denote potential outcomes of i for different combinations of D_i and Z_i. With this notation, we can divide the population into four mutually exclusive groups: compliers (C: $D_i(Z_i)) = Z_i$), always-takers (AT: $D_i(Z_i) = 1$), never takers (NT: $D_i(Z_i) = 0$) and defiers (DF: $D_i(Z_i) = 1 - Z_i$). As is standard in the IV framework, we assume that there are no defiers (monotonicity), that is, there are no individuals who would avoid becoming an entrepreneur due to early exposure to entrepreneurship ($Pr(D_i(Z_i) = 1 - Z_i) = 0$). Using this notation, we can write the 2SLS Wald estimator as:

$$\beta_{2SLS} = \frac{E[Y_i|Z_i = 1] - E[Y_i|Z_i = 0]}{E[D_i|Z_i = 1] - E[D_i|Z_i = 0]} \tag{4}$$

Focusing first on the reduced form estimate expressed in the numerator, notice that it

[57] As documented in Figure 2, early exposure to entrepreneurs through female peers leads to a large and persistent increase in the probability that women become entrepreneurs. Because we focus on the extensive margin of entrepreneurship, the interpretation of the 2SLS estimates changes slightly compared to when we focus on changes to the number of years spent in entrepreneurship. Specifically, when instrumenting for entry into entrepreneurship using early exposure, the compliers are women who enter entrepreneurship due to early exposure, while always takers are women who would enter entrepreneurship regardless of early exposure. Instead, when instrumenting for the number of years spent in entrepreneurship, the compliers are women who either enter or extend their tenure in entrepreneurship due to early exposure, while the always takers are female entrepreneurs whose tenure in entrepreneurship is unaffected by early exposure. Note that the results from this exercise are qualitatively and quantitatively similar if we use the number of years spent as an entrepreneur as the endogenous variable, in line with changes to the extensive margin of entrepreneurship being the most relevant margin.

can be written as:

$$
\begin{aligned}
&E[Y_i|Z_i=1]-E[Y_i|Z_i=0] \\
&=\Big[E[Y_i|Z_i=1,D_i=1]P(D_i=1|Z_i=1)+E[Y_i|Z_i=1,D_i=0]P(D_i=0|Z_i=1)\Big] \\
&-\Big[E[Y_i|Z_i=0,D_i=1]P(D_i=1|Z_i=0)+E[Y_i|Z_i=0,D_i=0]P(D_i=0|Z_i=0)\Big] \\
&=\Big[E[Y_i(1,1)|C]P(C)+E[Y_i(1,1)|AT]P(AT)+E[Y_i(0,1)|DF]P(DF)+E[Y_i(0,1)|NT]P(NT)\Big] \\
&-\Big[E[Y_i(1,0)|AT]P(AT)+E[Y_i(1,0)|DF]P(DF)+E[Y_i(0,0)|C]P(C)+E[Y_i(0,0)|NT]P(NT)\Big] \\
&=E[Y_i(1,1)|C]P(C)+E[Y_i(1,1)-Y_i(1,0)|AT]P(AT)
\end{aligned}
$$

where the final step removes defiers, according to the monotonicity assumption and exploits that firm outcomes are zero for individuals who never become entrepreneurs ($Y_i(0,Z_i)=0$). Focusing next on the first stage estimate expressed in the denominator, notice that it can be written as:

$$
\begin{aligned}
&E[D_i|Z_i=1]-E[D_i|Z_i=0] \\
&=\Big[E[D_i|Z_i=1,D_i=1]P(D_i=1|Z_i=1)+E[D_i|Z_i=1,D_i=0]P(D_i=0|Z_i=1)\Big] \\
&-\Big[E[D_i|Z_i=0,D_i=1]P(D_i=1|Z_i=0)+E[D_i|Z_i=0,D_i=0]P(D_i=0|Z_i=0)\Big] \\
&=P(D_i=1|Z_i=1)-P(D_i=1|Z_i=0)=P(C)
\end{aligned}
$$

Therefore, the Wald estimator becomes:

$$\beta_{2SLS}=E[Y_i(1,1)|\mathrm{C}]+E[Y_i(1,1)-Y_i(1,0)|\mathrm{AT}]\times\frac{P(\mathrm{AT})}{P(\mathrm{C})} \tag{5}$$

which allows us to identify the characteristics of firms created by compliers under different assumptions about the impact of early exposure to entrepreneurs on the firms created by always-takers using the following relationship:

$$E[Y_i(1,1)|\mathrm{C}]=\beta_{2SLS}-E[Y_i(1,1)-Y_i(1,0)|\mathrm{AT}]\times\frac{P(\mathrm{AT})}{P(\mathrm{C})} \tag{6}$$

If we assume that exposure has no influence on the firms created by always-takers (i.e.,

the exclusion restriction holds), the 2SLS estimate will capture the characteristics of firms created by compliers. If this assumption does not hold, Equation 6 shows that we can investigate how the estimated characteristics of firms led by compliers change when we allow the effect of early exposure on the firms of always-takers ($E[Y_i(1,1)|\text{AT}]$) to vary. Indeed, because early exposure is conditionally random, we can estimate $P(\text{AT})$ as the proportion of women who become entrepreneurs when exposure is low.[58] Similarly, we can estimate $E[Y_i(1,0)|\text{AT}]$ as the average characteristics of firms led by female entrepreneurs who were exposed to a low share of entrepreneurs among their female peers. Thus, the only unknown parameters in Equation 6 are the characteristics of firms created by compliers ($E[Y_i(1,1)|C]$) and the characteristics of firms created by always-takers exposed to a high share of entrepreneurs ($E[Y_i(1,1)|AT]$).

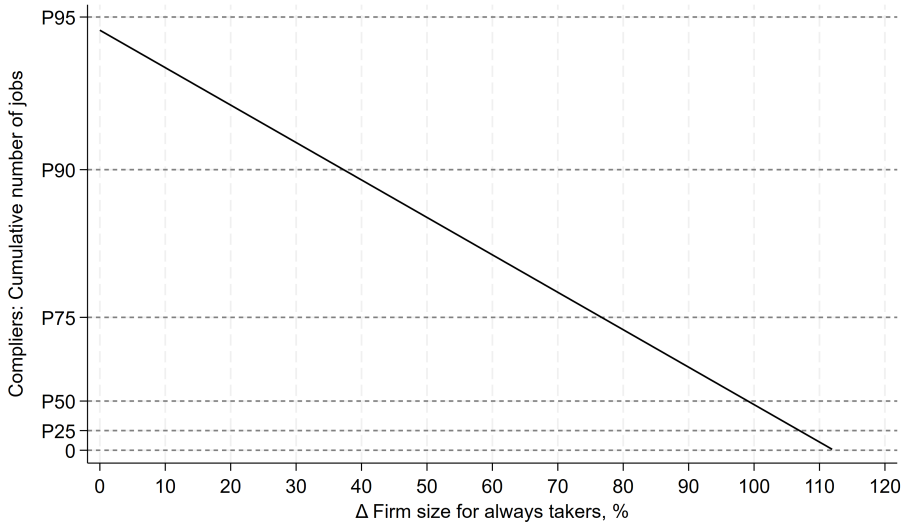
Figure A6 illustrates the relationship between the characteristics of firms led by compliers and always-takers, with the dependent variable being the cumulative number of jobs created by age 40. Specifically, the figure reports how the estimates of $E[Y_i(1,1)|C]$ vary when the effect of early exposure on always-takers range from zero – where the exclusion restriction is satisfied – to a situation where the effect on compliers is zero, in which case the effect of early exposure on the cumulative number of jobs created by always-takers would have to result in an increase of more than 110%. To facilitate interpretation, the y-axis indicates the values corresponding to the 95th, 90th, 75th, 50th, and 25th percentiles of the cumulative number of jobs distribution of firms created by men.

As discussed in Section 5.2, the figure shows that if the exclusion restriction is satisfied, meaning there is no effect of early exposure on the performance of the firms of the always-takers, then the cumulative number of jobs created by female compliers would place them between the 90th and the 95th percentile of the male distribution (the 2SLS estimate). However, if we assume that early exposure also improves the performance of firms created by always-takers, for example by reducing operational barriers through the transmission of specific information or human capital (see discussion in Section 5.2 and 6), the position of compliers in the distribution of cumulative jobs created decreases, as implied by Equation 6. Importantly, however, the figure shows that early exposure to entrepreneurs would have to increase the cumulative number of jobs created by always-takers by more than 99 percent for the cumulative number of jobs created by compliers to position them in the bottom half of the distribution of cumulative number of jobs created by male entrepreneurs by age 40. As an alternative benchmark, we also calculate the cumulative number of jobs compliers would need to create for the change in the cumulative number of jobs created by them to equal the change in the cumulative number of jobs created by always takers due to higher early

[58] We define exposure as being low when its value is in the bottom decile of the exposure distribution, after we have conditioned out the relationship between early exposure and all other covariates and fixed effects in our usual regression specifications (see Section 3.1 for more information).

exposure to entrepreneurs (i.e., $E[Y(1,1)|C] = E[Y(1,1) - Y(1,0)|AT]$). Even in this case, the compliers would be positioned in the top half of the cumulative number of jobs distribution of male entrepreneurs by age 40. This analysis shows that the impact of exposure on always takers must be substantial in order for the quality of firms created by compliers to be considered low. Thus, taken together, our results suggest that early exposure can be instrumental in improving the allocation of entrepreneurial talent by encouraging potentially talented female entrepreneur to pursue and succeed in this career.

Figure A6: Cumulative Number of Jobs Created by Compliers and Effects of Early Exposure on the Firms Size of Always-Takers



Notes. This figure shows estimates of the cumulative number of jobs created by women entering entrepreneurship due to early exposure to female peers with entrepreneur parent (compliers), under different assumptions about the effect of early exposure to entrepreneurs on women who would have become entrepreneurs irrespectively of exposure (always-takers). The y-axis indicates the cumulative number of jobs created by female compliers, relative to different parts of the distribution of male entrepreneurs (the 95th, 90th, 75th, 50th and 25th percentile). The x-axis indicates the assumed effect on always-takers in percent. Let $Y_i(1,1)$ and $Y_i(1,0)$ denote the potential outcomes with and without early exposure and let AT indicate always-takers. Then the x-axis indicates $\frac{E[Y_i(1,1)-Y_i(1,0)|AT]}{E[Y_i(1,0)|AT]}$.