

Entrepreneurship and Gender Gaps in the Labor Market

Preliminary and Incomplete

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Abstract

There are large gender gaps in entrepreneurship rates, as well as the motives of entrepreneurship (necessity or opportunity-driven) within and across countries. We show that gender gaps in the perceptions and outcomes related to the labor market are correlated with these gender gaps in motives for entrepreneurship. In this paper, we build a theory in which gender gaps in labor market outcomes affect, directly and indirectly, the gender gaps in entrepreneurship. In a direct way, gender differences in the labor market prospects affect the selection and the motives for entrepreneurship differently between men and women. In addition, indirectly, discrepancies across genders in labor market trajectories (performance, job ladders, wages) affect entrepreneurship differences through a human capital accumulation channel. While the first channel is well-studied, we show that the second channel is also important quantitatively. Accordingly, our work highlights a novel –human capital– channel through which gender gaps in labor market prospects and outcomes lead to gender gaps in entrepreneurship rates and income prospects.

JEL Codes: J16, J24, J31, L26, M13

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1 Introduction

There are well-documented gaps between men and women in terms of their outcomes and prospects in salaried work. In particular, studies across countries have shown that men on average earn higher wages and income, move up the job ladders faster, and last longer, in their respective firms, which also persist after controlling for characteristics (Rosenfeld and Kalleberg (1990), Weichselbaumer and Winter-Ebmer (2005), Oostendorp (2009), Blau and Kahn (2017), Kunze (2005)).

In parallel, there are gender differences in entrepreneurship rates, motives, and outcomes that also favor men. Women tend to have lower entrepreneurship rates overall. Evidence from various studies indicates that women have lower levels of human capital than men, which limits their entrepreneurial capabilities (Bonaparte et al. (2023)). Their entry into business ownership tends to be more with necessity-related motives, which entails engaging in entrepreneurial activity due to not having any better choices for work (e.g. poor labor market outcomes), and less with opportunity-related motives, which entails engaging in entrepreneurial activity due to take advantage of business opportunity or to seek better opportunities (e.g. having a novel business idea) (Rietveld and Patel (2022)).

Women still lag behind men in terms of their engagement in entrepreneurial activity. In this paper, we pursue the role of gender differences in labor market outcomes on those in entrepreneurship. There are two main channels through which this role can be significant. First, dampened labor market prospects of women can alter the overall rates as well as the composition of motives in self-selection into entrepreneurship. This direct channel pushes towards a higher weight of necessity-based entrepreneurship among women than men. Second, gender differences in the quality or quantity of salaried work experiences can cause differences in the accumulation of tangible and intangible entrepreneurial capital, hence in the entry, motives, and performance of entrepreneurship.

In our paper, we first document motivating facts using a compilation of country-year-level data from the Global Entrepreneurship Monitor (GEM) and the Gender Statistics Dataset from the World Data Bank. GEM data is addressed to business owners in more than 50 countries since 1999. It incorporates information on individual-level characteristics of firm

owners (e.g. human capital) and is built to allow for cross-country comparison due to its harmonized nature. The data is based on entrepreneurs' own statements on their motives when starting a business as well as their perceived skills, perceived business opportunities, perceived fear of failure, and their contact with existing business owners. Gender Statistics Dataset allows us to enrich our data with macro-level variables to do a cross-country analysis.

The first set of motivating evidence includes correlations between gender gaps in perceived skills, opportunities and prospects and gender gaps in entrepreneurship rates and motives. We show that gender differences in perceived entrepreneurial skills, perceived business opportunities, and contact with business owners correlate positively (negatively) with the gender differences in the opportunity- (necessity-) driven entrepreneurship. On the other hand, fear of failure in business correlates negatively (positively) with the gender differences in the opportunity- (necessity-) driven entrepreneurship. This set of evidence suggests that gender differences in the entrepreneurial capital –tangible or intangible, as assessed by the own individual– matter for the self-selection into entrepreneurship.

The second set of empirical evidence focuses on the cross-country relationship between gender gaps in labor market outcomes and in entrepreneurship rates. We find that the gender differences (female relative to male) in employment, labor force participation, and wages are correlated positively with those in opportunity-driven entrepreneurship and negatively with necessity-driven entrepreneurship. This set of evidence points to a positive link between gender gaps in labor market outcomes and entrepreneurship rates and motives.

We then build our theoretical framework to capture the main mechanisms we think are at play in relating gaps in labor market outcomes to those in entrepreneurship. Our main building block is a standard entrepreneurship model where individuals are subject to exogenous shocks to their salaried work status (capturing wages, employment, and job ladders) and to their entrepreneurial skills. The non-standard features of our model are two-fold. First, entrepreneurial productivity also has a component that depends on past labor market experience. Second, the exogenous processes of labor market status are ex-ante different between men and women. Accordingly, our otherwise simple model is rich enough to capture the endogenous effects of dampened labor market outcomes of women on their entrepreneurship prospects.

While in this preliminary version of our draft, we only have the theoretical implications of one particular parameterization of the model, the objective of the paper is to discipline the labor market features of our model with data from each country from 1970 to 2020 and compute the implications of the cross-country differences in the gender gaps in the labor market on cross-country differences in the entrepreneurship patterns. We will then be able to compare these latter cross-country patterns in the model with those in the data and infer the fraction of these differences accounted for by the labor market outcomes alone.

In Section 2, we document our main motivating facts. In Section 3 we describe our theoretical setup. In Section 4 we present the preliminary results of our model for one particular parameterization.

2 Evidence

In this section, we provide our motivating facts. To this end, we provide two main datasets. First is the Adult Population Survey provided by the Global Entrepreneurship Monitor, which provides information on the overall and gender-specific entrepreneurship rates, as well as the distribution of motives, ambitions, and perceptions on entrepreneurship from the population of entrepreneurs or the overall population. The data is harmonized across the country-level pairs from 2002 to 2018. Our second main data source is the Gender Statistics dataset from the World DataBank. In particular, we use this source for information on gender-specific employment and educational outcomes, for each country-year pair and also for 2002-2018. We supplement these datasets with the gender-specific average wages from the International Labor Organization dataset, and the GDP per capita from the Penn World Tables.

Our motivating facts are split into two sets. The first set highlights the relationship between gender gaps in individuals' own assessment of their entrepreneurial skills and prospects and the gender gaps in motives for entrepreneurship in a cross-country context. The second set does a similar exercise between gender gaps in labor market outcomes and those in the motives for entrepreneurship.

2.1 Gender Gaps in Perceptions and Motives for Entrepreneurship

In the first set, we relate gender gaps in individual perceptions of the motives for entrepreneurship. For the former group of variables, we use how self-assessment of own entrepreneurial skills, business opportunities, entrepreneurial prospects, and their entrepreneurial network. For the second set, we use the rate of opportunity-driven entrepreneurship (fraction of the overall population becoming an entrepreneur for opportunity-related reasons) and the rate of necessity-driven entrepreneurship (fraction of the overall population becoming entrepreneurs for necessity-related reasons). For each variable of interest, x , in country i , year t , we compute the gender gap as:

$$\Delta x_{it} = x_{it}^f - x_{it}^m,$$

where f and m refer to averages over females and males, respectively. We then regress the gender gaps in opportunity-driven and necessity-driven entrepreneurship on gender gaps in perceived entrepreneurial skills, perceived business opportunities, contacts with business owners, and fear of failure. We run Ordinary Least Squares estimations including log-GDP per capita and the year fixed effects as additional control variables in our regressions.¹

Our results are documented in 1. First, we find that gender differences in the perceived entrepreneurial skills, correlate positively (negatively) with the gender differences in the opportunity-(necessity-)driven entrepreneurship. Second, gender differences in the perceived business opportunities, correlate positively (negatively) with the gender differences in the opportunity-(necessity-)driven entrepreneurship. Third, gender differences in the contact with business owners, correlate positively (negatively) with the gender differences in the opportunity-(necessity-)driven entrepreneurship. Finally, gender differences in the fear of failure in business, correlate negatively (positively) with the gender differences in the opportunity-(necessity-)driven entrepreneurship.

¹While we find these controls necessary to isolate the role of aggregate variations in the country and year dimension on the results, taking them out of the regressions leads to qualitatively similar results. In Appendix figures A.1 and A.2, we show the raw scatter plots that correspond to the regressions in this section when not controlling for these extra variables.

Table 1: Gender Gaps in Entrepreneurial Motives and Perceptions

Panel A Gender Gaps in Opportunity Driven Entrepreneurship

	(1)	(2)	(3)	(4)	(5)
Gender Gaps in:					
Perceived Skills	0.142*** (0.015)	-	-	-	0.075*** (0.019)
Perceived Business Opportunities	-	0.118*** (0.020)	-	-	0.031 (0.020)
Contact with Business Owners	-	-	0.170*** (0.017)	-	0.104*** (0.022)
Fear of Failure	-	-	-	-0.085*** (0.023)	-0.064*** (0.019)
log GDP per capita	0.249* (0.131)	0.623*** (0.128)	0.245** (0.124)	0.111 (0.123)	0.467*** (0.132)
Year FE	Y	Y	Y	Y	Y
<i>N</i>	643	643	643	643	643
<i>R</i> ²	0.142	0.067	0.126	0.044	0.184

Panel B Gender Gaps in Necessity Driven Entrepreneurship

	(1)	(2)	(3)	(4)	(5)
Gender Gaps in:					
Perceived Skills	-0.162*** (0.021)	-	-	-	-0.131*** (0.025)
Perceived Business Opportunities	-	-0.080*** (0.025)	-	-	0.029 (0.026)
Contact with Business Owners	-	-	-0.169*** (0.027)	-	-0.086*** (0.033)
Fear of Failure	-	-	-	0.048 (0.030)	0.011 (0.026)
log GDP per capita	0.517*** (0.196)	0.039 (0.190)	0.510** (0.200)	0.616*** (0.199)	0.174 (0.198)
Year FE	Y	Y	Y	Y	Y
<i>N</i>	643	643	643	643	643
<i>R</i> ²	0.087	0.094	0.133	0.087	0.168

Notes: The table reports the correlations between gender gaps in entrepreneurship by motive and gender gaps in perceptions related to skills, business opportunities, contact with other business owners, and fear of failure. Panel A reports correlations with gender gaps in opportunity-driven entrepreneurship while Panel B reports considerations of gender gaps in necessity-driven entrepreneurship. Gender gaps are measured as the difference between female and male values.

2.2 Gender Gaps in Labor Market Outcomes and Motives for Entrepreneurship

In the second set of results, we relate the gender gaps in the motives for entrepreneurship to the gaps in labor market outcomes. For the latter group, we use gender gaps in (un)employment rates, labor force participation, and wages. Our regressions are of the same type as in Section 2.1, and the results are given in Table 2.

Our findings are as follows. First, gender differences (female-male) in the unemployment rate, correlate negatively (positively) with the gender differences in the opportunity-(necessity-)driven entrepreneurship. Second, the gender wage gap correlates positively with gender differences in necessity-driven entrepreneurship. Third, gender differences (female-male) in the employment rate correlate positively with the gender differences in opportunity-driven entrepreneurship. Fourth, gender differences (female-male) in the labor force participation rate correlate positively with the gender differences in opportunity-driven entrepreneurship.

Table 2: Gender Gaps in Entrepreneurial Motives and Labor Market Outcomes

Panel A Gender Gaps in Opportunity Driven Entrepreneurship

	(1)	(2)	(3)	(4)	(5)
Gender Gaps in:					
Unemployment Rate	-0.050*	-	-	-	-0.284**
	(0.028)	-	-	-	(0.116)
Employment Rate	-	0.017	-	-	0.019
	-	(0.011)	-	-	(0.095)
LFPR	-	-	0.015**	-	-0.046
	-	-	(0.008)	-	(0.082)
Wages	-	-	-	0.017	0.023
	-	-	-	(0.030)	(0.036)
log GDP per capita	0.096	0.036	0.058	0.043	-0.300
	(0.126)	(0.172)	(0.132)	(0.320)	(0.384)
Year FE	Y	Y	Y	Y	Y
<i>N</i>	771	684	771	114	112
<i>R</i> ²	0.020	0.020	0.022	0.056	0.125

Panel B Gender Gaps in Necessity Driven Entrepreneurship

	(1)	(2)	(3)	(4)	(5)
Gender Gaps in:					
Unemployment Rate	0.103***	-	-	-	-0.200
	(0.038)	-	-	-	(0.504)
Employment Rate	-	0.011	-	-	0.736***
	-	(0.014)	-	-	(0.189)
LFPR	-	-	-0.018*	-	0.591***
	-	-	(0.010)	-	(0.137)
Wages	-	-	-	0.137***	0.130***
	-	-	-	(0.037)	(0.047)
log GDP per capita	0.481**	0.168	0.489**	-0.912**	-0.200
	(0.192)	(0.230)	(0.203)	(0.377)	(0.504)
Year FE	Y	Y	Y	Y	Y
<i>N</i>	771	684	771	114	112
<i>R</i> ²	0.094	0.088	0.090	0.222	0.384

Notes: The table reports the correlations between gender gaps in entrepreneurship by motive and gender gaps in labor market outcomes as measured by the unemployment rate, employment rate, labor force participation rates (LFPR) and the gender wage gap. Panel A reports correlations with gender gaps in opportunity driven entrepreneurship while Panel B reports considerations gender gaps in necessity driven entrepreneurship. Gender gaps are measured as the difference between female and male values.

Moving from the facts to the model. The existing literature shows that women suffer worse labor market outcomes in employment, job hierarchy, and wages than men. Moreover, our findings document that in countries in which these gaps are more severe, women have more limited entrepreneurial activity, which is also more necessity-based than aspiration-based.

The mechanism we put forward in this paper is that the worse labor market outcomes of women alter their entrepreneurial activity by (i) affecting the selection into entrepreneurship by worsening the salaried work (standard), (ii) affecting the selection into entrepreneurship by worsening the entrepreneurship option (novel). With this in mind, we move on to describe our model setup.

3 Model

In this section, we develop a model of occupational choice along the lines of Lucas (1978) that features worker heterogeneity. We use this model to quantitatively assess the impact of a gender differences in labor market opportunities on gender differences in entrepreneurship.

Setup Time is discrete, and the model economy is populated with a unit mass of agents that are heterogeneous in their gender and their ability as entrepreneurs and as workers. Gender (g) can take two values with $g = f$ and $g = m$ representing female and male agents, respectively. Both entrepreneurial and worker ability evolve over time and depend on the occupation of agents and their gender. Entrepreneurial ability (z) has continuous support and follows a gender- and occupation-specific distribution $\Lambda_{g,o}(h)$ where $g \in \{f, m\}$ and $o \in \{W, E\}$ indicates gender and occupation (either worker or entrepreneur) respectively. The dependence of the entrepreneurial productivity distribution on gender allows for, say, female agents to be relatively less productive entrepreneurs on average. The dependence on occupation allows for the possibility that an individual's current occupation has a larger impact on their productivity in that occupation.

Ability as a worker, h represents the efficiency of workers and is also assumed to be stochastic and evolves following $\Gamma_{g,o}(h)$. As with entrepreneurial ability, worker efficiency

follows a gender- and occupation-specific distribution allowing for, say, females agents to have worse labor market outcomes. The population share of females is denoted by λ .

Agents choose between earning a wage as a worker (W) or operating a production technology as an entrepreneur (E) where workers are employed by entrepreneurs.

After making an occupational choice, production takes place and agents consume their earnings which yields utility following a CRRA utility function $u(c) = \frac{c^{1-\gamma}}{1-\gamma}$. Future utility is discounted with a discount factor β and with probability δ , agents are replaced by offspring that draw an initial value of ability (h, z) from the invariant distribution corresponding to the occupation of their parent. Agents are perfectly altruistic and value the utility of their offspring as their own.

Production Function As workers, agents supply their efficiency units h of labor to either the entrepreneurial or non-entrepreneurial sector and earn a market-clearing wage w so that total worker earnings as a worker are wh . As workers, labor market efficiency and entrepreneurial ability continues to evolve following $\Gamma_{g,W}(h)$ and $\Lambda_{g,W}(z)$, respectively. Thus, stochastic draws of worker and entrepreneurial efficiency will impact the occupational choice of workers.

Entrepreneurs produce a homogeneous good by hiring workers and utilizing a decreasing returns to scale production function,

$$F(l) = f(h, z)^{1-\eta} l^\eta \quad (1)$$

where $f_g(h, z)$ is the effective productivity of entrepreneurs and depends on their entrepreneurial ability z and labor market efficiency h . The total labor hired by entrepreneurs (in efficiency units terms) is l . The parameter $\eta \in (0, 1)$ governs the degree of decreasing returns to scale in production. As in Lucas (1978), η captures the limited span of control of entrepreneurs. Notice that gender (g) does not directly impact the productivity of a given entrepreneur. That is, given the same ability (h, z) both male and female entrepreneurs produce the same output.

As entrepreneurs, agents labor market efficiency and entrepreneurial ability continues to evolve following $\Gamma_{g,E}(h)$ and $\Lambda_{g,E}(z)$, respectively. Stochastic draws of worker and en-

trepreneurial efficiency will impact the occupational choice of entrepreneurs.

Occupational Choice At the beginning of each period t , agents face an occupational choice and decide whether to work for a wage or to pursue entrepreneurship. This decision is the focus of our analysis and involves comparing the value in entrepreneurship $V_g^E(h, z)$ to the value in employment $V_g^W(h, z)$.

Importantly, we assume that workers cannot become entrepreneurs each period and it is only with probability s that they have the opportunity to make an occupational choice.

Agents that were entrepreneurs in a given period observe their current idiosyncratic ability shocks (h', z') and then decide whether to continue in entrepreneurship with effective productivity $f(h', z')$ or exit and work as an employee for total earnings wh' .

Then the value at the beginning of a period for incumbent entrepreneurs solves,

$$E_g(h, z) = \max_{o_g^E(h, z) \in \{0, 1\}} \{V_g^E(h, z), V_g^W(h, z)\}$$

where $o_g^E(h, z)$ denotes the occupational choice of incumbent entrepreneurs and is given by,

$$o_g^E(h, z) = \begin{cases} 0 & \text{if } V_g^E(h, z) < V_g^W(h, z) \\ 1 & \text{if } V_g^E(h, z) > V_g^W(h, z) \end{cases} \quad (2)$$

Existing entrepreneurs will remain operational if the returns to doing so are greater than the returns to wage employment.

Agents that were workers in the previous period observe their new current idiosyncratic ability (h', z') and decide whether to continue as workers or to enter as entrepreneurs. Then, the value at the beginning of period t for existing workers is,

$$W_g(h, z) = \max_{o_g^W(h, z) \in \{0, 1\}} \{V_g^E(h, z), V_g^W(h, z)\}$$

where $o_g^W(h, z)$ denotes the occupational choice of workers and is given by,

$$o_g^W(h, z) = \begin{cases} 0 & \text{if } V_g^E(h, z) < V_g^W(h, z) \\ 1 & \text{if } V_g^E(h, z) > V_g^W(h, z) \end{cases} \quad (3)$$

In equilibrium, equations (2) and (3) will pin down productivity threshold above and below which individual of type (h, z) will switch into (or out of) entrepreneurship.

Having described the production function and occupational choice problem of agents, we now characterize the value in entrepreneurship and employment.

Worker's Problem Following their occupational choice, workers earn skill specific wages w which they consume before entering the next period to make another occupational choice. So, the value in employment is given by,

$$V_g^W(h, z) = u(wh) + \beta \left[\delta (s\bar{W}_g(h, z) + (1-s)V_g^W(h, z)) + (1-\delta)\tilde{W}(h, z) \right]$$

where $\bar{W}_g(h, z) = \int_{h'|h} \int_{z'|z} W_g(h', z') d\Lambda_{g,W}(z') d\Gamma_{g,W}(h')$ is the expected continuation value in the following period. Notice, this involves taking expectations using the relevant distributions $\Lambda_{g,W}(\cdot), \Gamma_{g,W}(\cdot)$. Similarly, the term \tilde{W} represents the expected continuation value of offspring where an additional expectation is taken with respect to the gender of offspring so that $\tilde{W}(h, z) = \frac{1}{2} [\bar{W}_f(h, z) + \bar{W}_m(h, z)]$.

Entrepreneur's Problem Entrepreneurs decide how many workers to hire by maximizing their per-period profits $\pi(h, z\kappa)$,

$$\pi(h, z) = \max_l f(h, z)^{1-\eta} l^\eta - wl$$

Their optimal labor is given by,

$$l^*(h, z) = f(h, z) \left(\frac{\eta}{w} \right)^{\frac{1}{1-\eta}}$$

and profits are given by,

$$\pi(h, z) = f(h, z) \left(\frac{\eta}{w} \right)^{\frac{\eta}{1-\eta}} (1 - \eta) \quad (4)$$

The value in entrepreneurship includes flow profits and the future utility from either remaining in entrepreneurship or exiting to become a worker. Thus, the value of entrepreneurship is,

$$V_g^E(h, z) = u(\pi(h, z)) + \beta \left[\delta \bar{E}_g(h, z) + (1 - \delta) \tilde{E}(h, z) \right]$$

where the consumption total profits and $\bar{E}_g(h, z) = \int_{h'|h} \int_{z'|z} E_g(h', z') d\Lambda_{g,E}(z') d\Gamma_{g,E}(h')$ is the expected continuation value in the following period. Notice, this involves taking expectations using the relevant distributions $\Lambda_{g,E}(\cdot), \Gamma_{g,E}(\cdot)$. Similarly, the term \tilde{E} represents the expected continuation value of offspring where an additional expectation is taken with respect to the gender of offspring so that $\tilde{E}(h, z) = \frac{1}{2} [\bar{E}_f(h, z) + \bar{E}_m(h, z)]$.

Random Processes We assume that ability as a worker and entrepreneur evolves following an AR1 process which depends on gender and occupation. In particular, the labor market efficiency of an agent of gender g in occupation o is given by,

$$h' = \rho_{g,o} h + \epsilon_{g,o}$$

where $\epsilon_{g,o} \sim N(\bar{h}_{g,o}, \sigma_{g,o}^h)$

Similarly, entrepreneurial ability evolves according to,

$$z' = \theta_{g,o} z + \mu_{g,o}$$

where $\mu_{g,o} \sim N(\bar{z}_{g,o}, \sigma_{g,o}^z)$

Stationary Equilibrium The stationary equilibrium of the economy consists of a market clearing wage w , value functions $V_g^W(h, z)$ and $V_g^E(h, z)$ for each gender g , and occupational choices $\{o_g^E(h, z), o_g^W(h, z)\}$ and the stationary distribution $\Psi_g(h, z)$ of agents such that the

following conditions hold,

- (i) Given the wage w , value functions and occupational choice functions solve the individual's optimization problem.
- (ii) The labor market clears,

$$\sum_{g \in \{m, f\}} \left(\lambda_g \int \int o_m^W(h, z) h d\Psi_g(h, z) \right) = \sum_{g \in \{m, f\}} \left(\lambda_g \int \int o_m^E(h, z) l(h, z) d\Psi_g(h, z) \right),$$

- (iii) The stationary distribution $\Psi(h, z)$ satisfies the law of motion of the random processes.

4 A Numerical Example

To illustrate the mechanisms in the model, we will consider a simple numerical example of the model where male and female agents are identical (and have equal share in the market) with the only exception that their average labor market productivity differs by Δ . That is, $\Delta = \bar{h}_m - \bar{h}_f$. We solve this version of the model where $\Delta = 0.05$ and $\bar{h}_f = 0$.

Figure 1 shows the distribution of male and female entrepreneurs. Panel (a) shows the CDF of effective productivity $h^{1-\psi} x^\psi$ for both male and female entrepreneurs. It shows that the average entrepreneurial quality of females is lower than for males. Part of this reflects the worse labor market opportunities available to women. That is the direct effect of having worse labor market options. However, Panel (b) which shows the joint distribution of z and h , shows that female entrepreneurs tend to be less selective in entrepreneurial productivity z – which is common across genders. This selection effect is a key contribution of our framework and consistent with our empirical facts.

To see this selection effect more clearly, Figure 2 shows the occupational choices function $o_g(h, z)$ of male and female agents. Notice, since the random processes are identical for both occupations, the occupation choices of agents will not depend on their current occupation. Panel (a) reports $o(\cdot, \underline{z})$ while Panel (b) reports $o(\underline{h}, \cdot)$ for a fixed level of \underline{z} and \underline{h} .

Naturally, only those with the worst labor market draws and those with highest entrepreneurial productivity will pursue entrepreneurship. However, compared to men, women

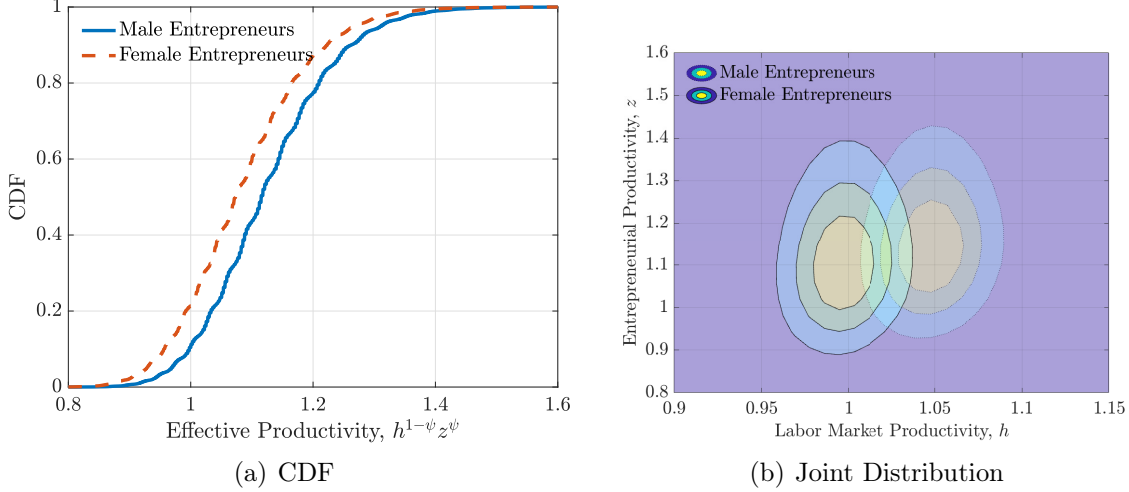


Figure 1: Distribution of Entrepreneurs

Notes: The figure plots the distribution of male and female entrepreneurs. Panel (a) shows the cumulative density function (CDF) of effective productivity $h^{1-\psi}x^\psi$. Panel (b) reports the joint distribution of h and z with the dashed lines representing the joint distribution of male entrepreneurs. Lighter colors represent a greater density.

tend to wait for higher draws of h before switching into being workers and are more willing to tolerate lower values of z and enter or remain as low productivity entrepreneurs.

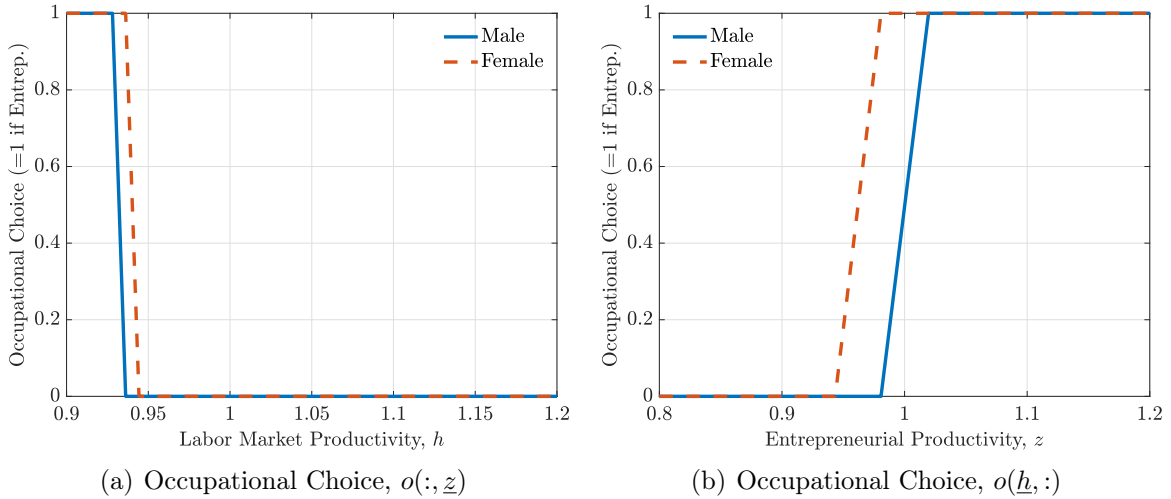


Figure 2: Occupational Choice of Agents

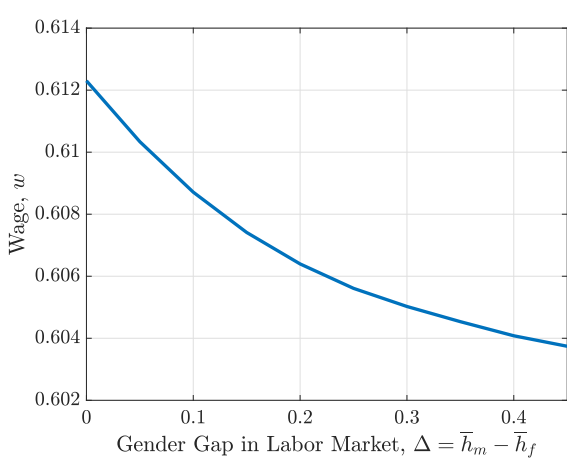
Notes: Panel (a) reports $o(\cdot, \underline{z})$ while Panel (b) reports $o(\underline{h}, \cdot)$ for a fixed level of \underline{z} and \underline{h} .

Changes in Δ Next, we explore how changes in Δ impact the equilibrium. In particular, we are interested in how the occupational shares of agents changes and how the average productivity's of agents changes.

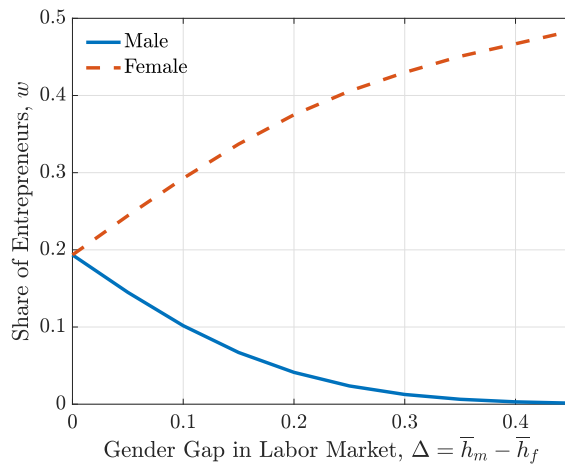
Figure 3 reports various outcomes of the model as the gap $\Delta = \bar{h}_m - \bar{h}_f$ between male

and female average labor market draws grows. Panel (a) shows that wage decline as Δ increase. This decline in wage is driven exclusively by the increase in labor supply that results from the increase in labor supply as \bar{h}_m grows. Panel (b) shows that the share of female (male) entrepreneurs is increasing (decreasing) in Δ . As females face worse outcomes as employees they optimally choose to become entrepreneurs when Δ increases. At the same time, male entrepreneurs face increasing better outcomes as employees and switch into become employees. This change in selection is also reflected in the average labor market and entrepreneurial productivity shown in panels (c) and (d), respectively. In particular, the average level of both h and z declines for female entrepreneurs as Δ increases. The decline is much more pronounced for entrepreneurial productivity z suggested that the worsening of selection based on z is crucial for understanding the impact of worse labor market outcomes for women. On the other hand, as males become more selective, their average entrepreneurial ability increases. Males also experience a large increase in the average human capital, this is mechanical as increase in Δ are operationalized via increases in \bar{h}_m . Finally, Panel (e) shows the average effective productivity $h^{1-\psi} z^\psi$. Mirroring the impact on h and z effective productivity for females (males) is decreasing (increasing) in Δ .

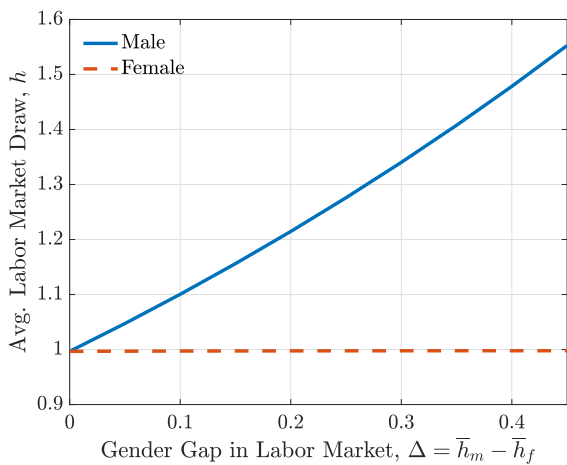
Taken together, this simple numerical exercise provides encouraging results that showcase the main mechanisms featured in our theoretical framework.



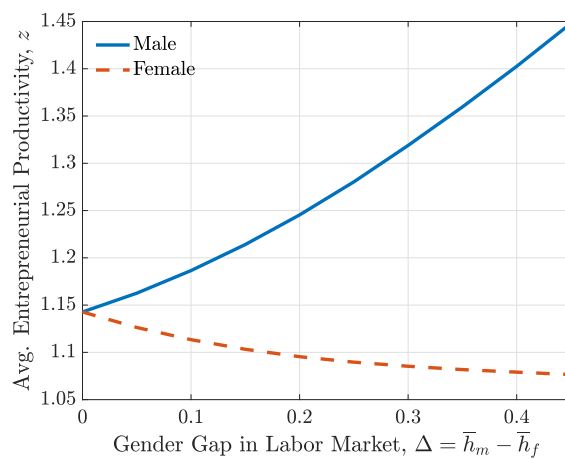
(a) Wage, w



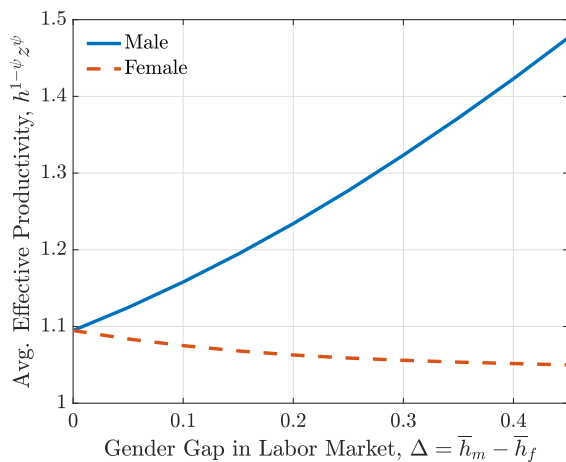
(b) Share of Entrepreneurs



(c) Average Labor Market Draw, h



(d) Average Entrepreneurial Productivity, z



(e) Average Effective Productivity, $h^{1-\psi} z^\psi$

Figure 3: Model Outcomes as Δ increases

Notes: Each subpanel of the figure reports an outcome of the model as the difference Δ between male and female average labor market draws in the labor market grows.

5 Further Remarks

In this paper, we explore the implications of gender gaps in labor markets on entrepreneurship. We begin by showing that the gender gaps in the perceptions and outcomes related to the labor market are correlated with these gender gaps in motives for entrepreneurship. Motivated by this, we develop a model in which gender differences in labor market outcomes results in gender difference in entrepreneurship. A simple numerical example shows that worse labor market outcomes push lower-productivity females into entrepreneurship lowering the quality of female entrepreneurship. As a next step, we plan to calibrate the parameters of the model economy and to use this calibrated version of the model to quantitatively assess the impact of labor market outcome on entrepreneurship.

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A Additional Tables and Figures

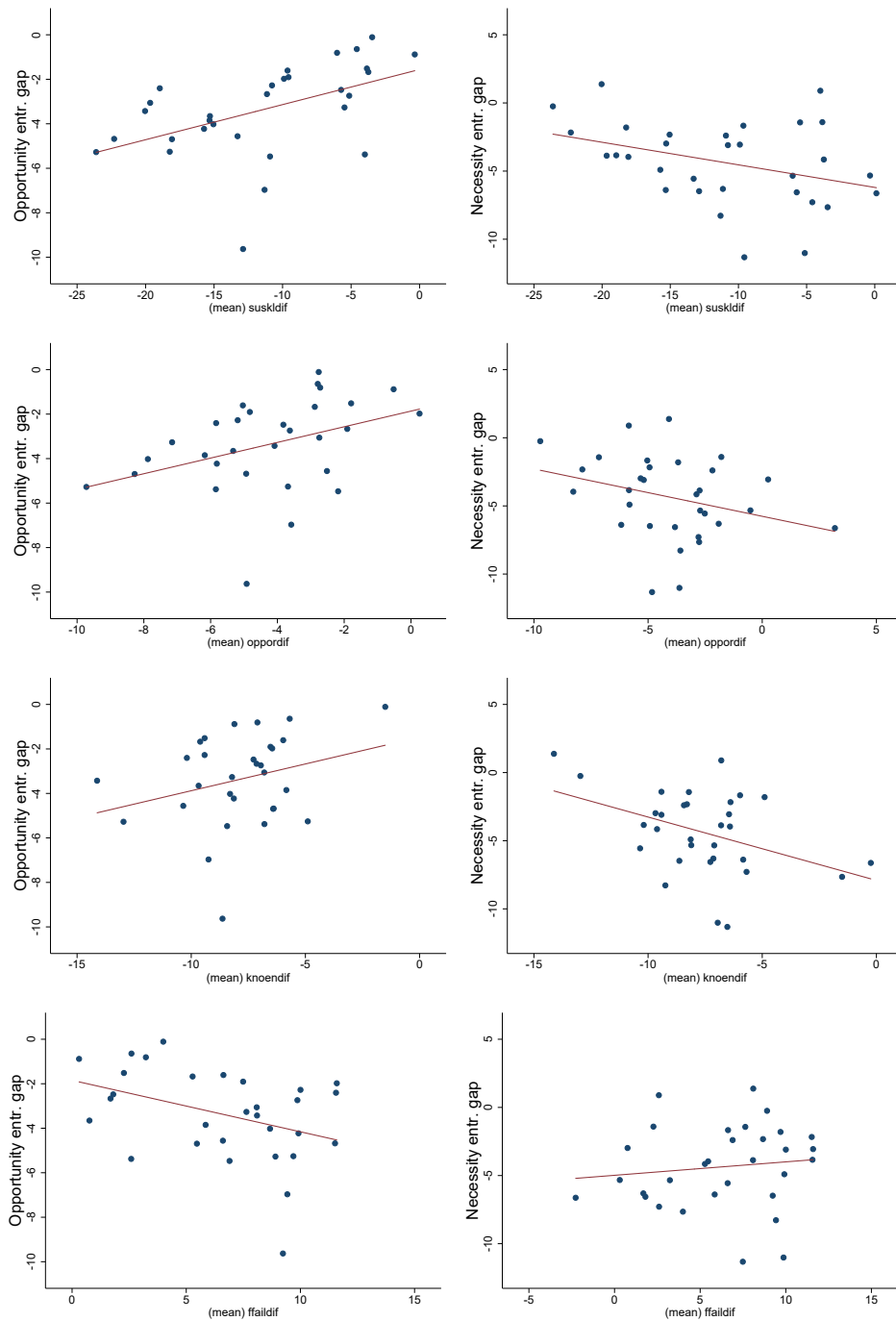


Figure A.1: Entrepreneurship motive and entrepreneurial perceptions

Notes: The indicators in the y-axis for the left (right) panels are the differences (female-male) in the opportunity (necessity) driven entrepreneurship in percentage points. The variables in the x-axis are the differences (female-male) in (i) perceived skills to start a business, (ii) perceived opportunities to start a business, (iii) knowing someone who started a business in last two years and (iv) fear of failure in business.

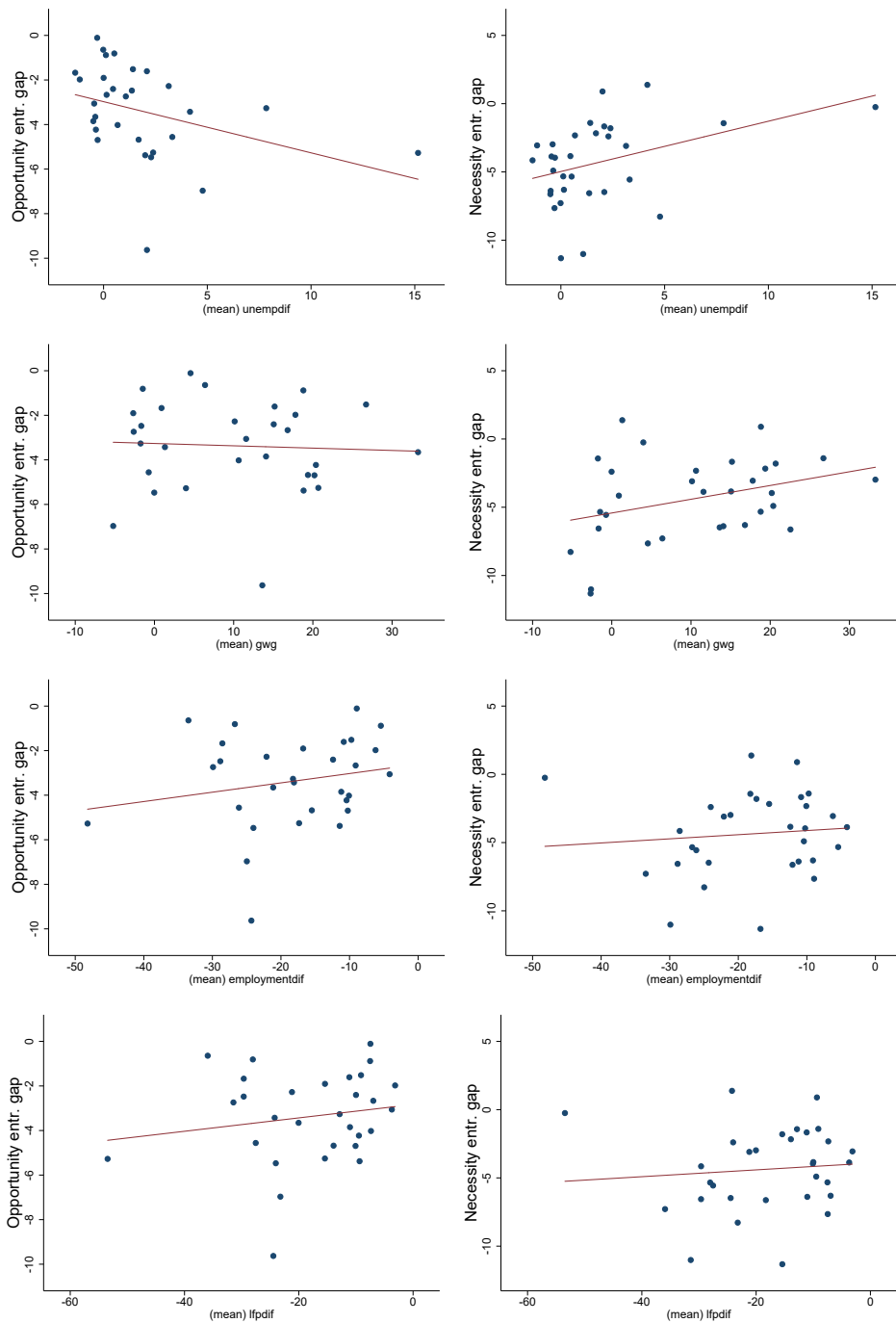


Figure A.2: Entrepreneurship motive and labor market outcomes

Notes: The indicators in the y-axis for the left (right) panels are the differences between the opportunity (necessity) driven entrepreneurship in percentage points. The variables in the x-axis are the...