Managing to Start a Firm?
Managerial Experience and Entrepreneurship

PRELIMINARY, ANY COMMENTS ARE EXTREMELY WELCOMED

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Abstract

This paper asks which jobs best prepare workers to become successful entrepreneurs. Using Portuguese matched employer–employee administrative data that track workers' occupational histories and link founders to the subsequent performance of their firms, we document a central role for managerial experience. Managers are substantially more likely to transition into entrepreneurship than other workers, and among founders, each additional year of prior managerial experience is associated with a 5% larger firm size. The relationship is heterogeneous: the association is roughly twice as large for non-college-educated entrepreneurs, consistent with managerial experience partly substituting for formal education, and it is stronger when the entrepreneur's managerial experience was accumulated in the same sector as the venture. Finally, by measuring experience at the occupation-by-firm-size level, we show that managerial experience remains the strongest predictor of entrepreneurial success within every firm-size category and is particularly valuable when gained in large firms.

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1 Introduction

How do entrepreneurs acquire the training and the skills necessary to create and operate successful, dynamic businesses? The answer to this question is not only important to policy-makers interested in spurring entrepreneurial activity, but it also informs how economists should characterize what entrepreneurs do and their role in the economy. That is, the more we understand which kind of training is valuable for entrepreneurs, the better idea we have of the actual activities that comprise entrepreneurship. Recent literature has focused on the role of human capital accumulated while participating in the labor market (e.g. Gendron-Carrier (2021), Indraccolo (2024), and Bhandari et al. (2024)), and there is evidence that prior white-collar labor experience and experience working for large firms is particularly valuable (Hincapié (2020) and Hamilton et al. (2025), respectively).

In this paper, we seek to shed light on which occupations provide the most valuable training for future entrepreneurs, while they are still accumulating labor-market experience. We do this by leveraging administrative matched employer-employee data from Portugal that both tracks workers' occupational histories in detail-—a feature that is rare for this type of administrative data—-and allows us to identify entrepreneurs and to follow the subsequent performance of their firms over time. We find evidence suggesting that working in managerial occupations provides the best form of labor market experience for entrepreneurs. First, we show that managers are far more likely to transition into entrepreneurship than members of other occupational groups. For instance, conditional on past earnings and demographics, a manager between the ages 34 and 36 is about 5 times more likely to become an entrepreneur in the next year than other highly skilled professional workers of the same age. Second, entrepreneurs with more managerial experience tend to operate more successful businesses: each additional year of prior managerial experience for the entrepreneur is associated with the entrepreneur's firm being larger by 5%. Furthermore, the relationship between prior managerial experience and entrepreneurial performance is roughly twice as large for non-college-educated entrepreneurs versus the college-educated. A potential explanation is that managerial-labor-market experience serves a substitute pathway for acquiring the fundamental level of business acumen that a formal education could provide.[1]

[1]This interpretation is consistent with standard models of human-capital accumulation in which workers build skills through post-school, on-the-job learning and investment over the life cycle (e.g., Ben-Porath, 1967). In this view, managerial experience may be especially valuable for entrepreneurs with less formal schooling, who begin

Third, we examine how the relationship between prior managerial experience and entrepreneurial performance varies with respect to the characteristics of the firm in which the entrepreneur gained the experience. We find that the semi-elasticity with respect to managerial experience is roughly twice as large when the sector in which the entrepreneur accumulated the managerial experience matches the sector in which the entrepreneur proceeds to operate their own business, in line with Azoulay et al. (2020). This suggests that much of what an entrepreneur learns while working as a manager is how to run a particular type of business, rather than how to run businesses in general.

An interesting nuance to this interpretation emerges when we further interact the education of the entrepreneur with the sectoral similarity between the firm in which the entrepreneur gains managerial experience and the entrepreneur's own firm. For the non-college-educated, the relationship between managerial experience and entrepreneurial performance is similar regardless of whether or not the entrepreneur gained the managerial experience in the same sector as their own firm. By contrast, for the college educated, greater managerial experience predicts better entrepreneurial outcomes *only* when it is acquired in the same sector as the entrepreneur's firm. This further points toward the idea that, while working as a manager, the non-college-educated are picking up more fundamental and general business skills, which are useful for a variety of different ventures, whereas the more-advanced marginal set of skills that the college-educated acquire while working as managers is narrower and more tailored to the particular type of business in which the entrepreneur gained their managerial experience.

Lastly, given the existing evidence, discussed above, that the prior labor-market experience entrepreneurs gain while working at large firms is more valuable than experience at small firms, and given that there is evidence that managers comprise a larger share of the workforce at large firms (e.g. Akcigit et al. (2021)), one might be concerned about the degree to which the above results are driven by firm-size effects rather than occupational effects. To account for this possibility, we examine the relationship between entrepreneurial outcomes and prior labor-market experience characterized by *occupation-by-firm-size* pairs. Consistent with Hamilton et al. (2025), we find that, occupation held constant, more experience working in larger firms versus smaller firms is predictive of better subsequent entrepreneurial outcomes. However, conditional on working for firm of a given size, it is still managerial experience that is most positively associated with better entrepreneurial outcomes, across all firm sizes. Taken

from a lower baseline stock of human capital.

together, our evidence suggests that the form of labor-market experience that appears to provide the best training for future entrepreneurs is working as a manager for a large firm.

Literature. This project contributes to three separate strands of literature. First, our work is related to the large body of work documenting the importance of previous labor market experience for entrepreneurial entry and success (Azoulay et al., 2020; Liang et al., 2018; Lazear, 2005; Hamilton et al., 2025; Humphries, 2024). Using similar data sources, Acabbi et al. (2025) study entrepreneurial teams, and show that pairs of entrepreneurs with complementary skill sets outperform single-owner firms. Our work is close to Gendron-Carrier (2024), who studies the importance of experience accumulated at low versus high paying firms for Canadian young entrepreneurs, and finds that experience at high paying firms is particularly valuable for individuals with a comparative advantage in entrepreneurship. While this literature has documented that the places in which individuals gain work experience matters for future entrepreneurship, it has not identified what it is about certain work environments makes them valuable. We contribute by documenting that the association between experience and entrepreneurial performance varies sharply across occupations, and that this occupational gradient interacts with firm size. Our findings are consistent with the idea that paid employment, and managerial roles in particular, serve as a learning ground where prospective entrepreneurs acquire skills that are later deployed in their own firms.

Our emphasis on managerial occupations brings us closer to the empirical literature on management and firm organization (Nicholas Bloom and John Van Reenen, 2007; Bloom et al., 2013; Caliendo et al., 2015, 2020). A central finding in this literature is that structured managerial practices are a key driver of firm performance (Bloom et al., 2013, 2022), yet the origins of variation in these practices across firms remain poorly understood. A strand of this literature links firm performance to the characteristics of top executives (Bertrand and Schoar, 2003; Bandiera et al., 2020), but there is scarce evidence linking entrepreneurs' previous work histories to the managerial practices of the firms they create. Our finding that former managers create better-performing firms suggests that entrepreneurs acquire managerial human capital by working as paid managers in other firms. Moreover, since larger firms tend to adopt more sophisticated managerial practices and more complex organizational hierarchies (Nicholas Bloom and John Van Reenen, 2007; Caliendo et al., 2015), our result that large-firm experience is particularly valuable for managers is consistent with the idea that these firms serve as richer learning environments for prospective entrepreneurs.

Finally, our findings have significant implications for the literature linking differences in managerial practices to cross-country differences in productivity. A strand of this literature studies how the relative scarcity of the human capital required by modern and large organizations hinders their growth (Engbom et al., 2025; Hjort et al., 2022; Cox, 2025). In turn, our findings suggest that the scarcity of modern organizations may additionally hurt aggregate productivity by inhibiting prospective entrepreneurs from acquiring valuable knowledge. This human capital channel can amplify the output losses stemming from frictions discouraging the growth of large firms, such as size dependent distortions (Guner et al., 2018).

The remainder of the paper is organized as follows. Section (2) describes the data and sample construction. Section (3) presents the main empirical patterns linking managerial experience to entrepreneurial outcomes. Section (4) examines how these relationships vary with founders' prior experience at firms of different sizes. Section (5) discusses potential sources of endogeneity or selection biases that may be influencing our empirical results, and may make one hesitant to adopt a causal interpretation. Section (6) concludes and outlines directions for future research.

2 Data

2.1 Quadros De Pessoal

Our main source of data is the Portuguese matched employer–employee dataset *Quadros de Pessoal* (hereafter: QP), provided by Statistics Portugal (INE), which contains information on roughly 4 million individual–firm matches per year from 1985 to 2022.[2] QP is a mandatory administrative survey of all private firms, collected every October, that reports the workforce composition of each firm in the reference month. The data are very rich on the worker side, including age, gender, education, occupation codes, earnings, and hours (both contractual and overtime). On the firm side, QP reports industry, location, legal status, total employment, sales, and founding year.

A key feature for our setting is that individuals are classified as either 'employees' or 'employers', which allows us to observe the owner(s) of privately held firms. Combined with QP's long time horizon, this structure makes the dataset uniquely suited to our analysis: we can

[2]INE (Instituto Nacional de Estatística) is the Portuguese National Statistical Institute, which is responsible for the production and dissemination of official statistics in Portugal.

identify entrepreneurial spells, follow the subsequent performance of the associated firms over their life cycle, and reconstruct individuals' pre-entrepreneurship labor-market histories—including occupational choices and earnings trajectories. Throughout the paper, we adopt two alternative definitions of entrepreneurs, following Acabbi et al. (2025). We define *owners* as individuals who are classified as 'employers' in a firm at any point in the firm's life cycle. In turn, *founders* are individuals classified as 'employers' in a firm within the first three years of that firm's birth, which corresponds to the first year that its unique firm identifier appears in the data. For both categories, we focus on entrepreneurs that hire at least one employee.

2.2 Occupation Classification

Given the focus of the paper, it is crucial to track entrepreneurs' occupational histories before they begin an entrepreneurial spell. We therefore use the occupational codes reported in QP to classify each worker-year observation into four broad groups: *Managerial* occupations, *Skilled-Professional* occupations, *Medium-Skill* occupations, and *Low-Skill* occupations. In our setting, separating *Managers* from other high- and mid-skilled white-collar occupations is especially relevant because they typically perform different tasks and accumulate different types of on-the-job skills that may differentially influence entrepreneurial ability (Guner et al., 2018). For instance, managerial roles more often involve coordinating people and projects, allocating resources, and making strategic decisions under uncertainty, whereas skilled-professional jobs rely primarily on specialized technical expertise with less direct exposure to leadership and organizational decision-making (Garicano and Rossi-Hansberg, 2006).

Our approach relies on the detailed occupation codes reported in QP. A key challenge is that, over our sample period, QP adopts three different occupation classification systems, corresponding to successive versions of the ISCO framework.[3] Starting from ISCO-88, each occupation is assigned a skill level (ranked from 1 to 4), and managerial positions are identified unambiguously through a dedicated major group. For the years covered by ISCO-88 and ISCO-08 (1995–2022), we map QP occupation codes into our four macro-groups using the scheme summarized in Table 1. In practice, we define *Managerial* occupations as those that fall under ISCO's managerial major group, as well as a small set of additional codes whose official titles clearly indicate supervisory or advisory responsibilities.[4] Among non-managerial

[3]The dataset employs CNP-85 (equivalent to ISCO-68) from 1985 to 1994, CNP-94 (equivalent to ISCO-88) from 1995 to 2009, and CPP-10 (equivalent to ISCO-08) from 2010 onwards.

[4]Examples of additional codes we treat as managerial include *Business adviser* and *Office efficiency adviser* (ISCO-

Table 1: Worker Classification Based on ISCO

Category	Skill level	1-digit ISCO
Managers	–	1 + *advisors*, *supervisors*
Skilled Professionals	4	2
Medium-Skill	3	3
Low-Skill	2-3	4–9

occupations, we exploit the ISCO skill-level ranking to form the remaining groups: we classify as *Skilled-Professional* all occupations with the highest skill level (4), as *Medium-Skill* those with intermediate skill level (3), and as *Low-Skill* those with lower skill levels (1–2). Engbom et al. (2025) implement a similar approach, classifying as *white collar* all occupations with 1-digit ISCO codes from 1–4. We build on this classification by separating managerial positions from other white-collar jobs, and show that this distinction is empirically meaningful for entrepreneurial performance.

Earlier years (1985–1994) of QP occupations rely on ISCO-68, which does not provide skill-level assignments. To extend our classification to this early period, we assign each ISCO-68 occupation the skill level of the closest corresponding ISCO-88 occupation, based on the occupational description. Figure 6 in Appendix A shows that the resulting broad occupational categories remain relatively stable across classification regimes, and also documents a progressive decline over time in the share of observations with missing occupation codes.

Table 2 presents summary statistics for the different occupational categories over the period 2010-2022.[5] Managers comprise around 5.8% of the workforce, a comparable share to middle skill occupations (8%) and a notably smaller share than professionals (11%). Relative to the other categories, managers are older, disproportionately male, and have significantly higher earnings. Two other dimensions of heterogeneity are worth highlighting. First, managers exhibit a relatively low rate of college education (38.4%), only slightly larger than medium-skill occupations (34.7%). In contrast, college graduates comprise the vast majority of professionals (85.1%), consistent with our definition based on ISCO skill levels. Second, managers are substantially more likely to engage in entrepreneurship. Indeed, the share of managers that at some point in their careers are entrepreneurs is quite high at 11.48%, more than twice that of professionals, the second highest entrepreneurial occupation group. This disparity is sim-

08 Unit Group 2421), which typically involve advising on organizational design, processes, and strategy, and *Construction supervisor* (unit group 3123).

[5]For simplicity, in Table 2 we restrict to the period after the most recent change in occupation system in the QP. The results are robust to whether we include the entire sample period (1985-2022).

ilar when we look into the subset of workers that are classified as founders, as around 6.2% of managers appear as founders at some point in their work histories, whereas this number is near 3% for professionals. Overall, these findings suggest that managerial occupations are strongly associated with entrepreneurship.

Table 2: Summary Statistics by Occupation

	Occupation			
Variable	**Manager**	**Skilled-Professional**	**Medium-Skill**	**Low-Skill**
Proportion (%)	5.79	11.02	8.12	75.08
Women (%)	36.12	53.64	43.63	47.54
College (%)	38.42	85.26	34.71	6.72
Age	45.00	37.61	39.44	40.12
Monthly Wage	2340.32	1919.64	1578.47	885.43
Ever Owner	11.48	5.42	5.36	4.12
Ever Founder	6.20	3.10	3.15	2.38

Notes: The sample includes all workers observed in *Quadros de Pessoal* (QP) between 2010 and 2022. Monthly wages are expressed in real 2012 euros, deflated using the CPI (2012=100). For each year, we compute the statistics by occupation; the reported values are averages of these yearly statistics over 2010–2022.

2.3 Sample Construction

For our results that track the performance of entrepreneurs' businesses, we restrict attention to *first-time founders*—founders observed during their first entrepreneurial spell—because our main object of interest is the occupational experience individuals accumulate before entry. Prior entrepreneurship is itself a salient form of experience and may shape both selection into subsequent ventures, occupations, and later firm outcomes through learning, reputation, and access to resources (see, e.g., Gompers et al. (2010)). In this paper, we deliberately abstract from this channel and isolate experience accumulated on the job by excluding founders with any earlier entrepreneurial spell in the QP panel.

In addition, we restrict the sample to founders for whom we observe the 10 years of prior work history in QP that immediately precedes the beginning of their entrepreneurial spell,[6] which is necessary to construct consistent measures of pre-entry occupational experience. Workers may be missing from QP in a given year for several reasons: they may be unemployed in October, employed in sectors not covered by QP (e.g., the public sector), or

[6]We do not apply this restriction to founders who are too young to have 10 years of prior work history. For such founders, we require that we observe their history consistently since they were age 23.

abroad. Since we do not observe the reason for missingness, we focus on workers who appear consistently in the QP data.[7]

For each entrepreneur in the final sample, we then compute occupational experience in each broad category as the number of years in which the individual was employed in that category over the previous 10 years.[8] When individuals hold multiple jobs within a year, we keep the main contract, defined as the job with the largest number of contractual hours. Our final sample comprises 11,143 entrepreneurs for whom we observe the 10 years of previous labor market experience. On average, we follow these founders' firms for an average of 6.5 years.[9]

The first and second columns of Table 3 report summary statistics for our founder sample and the broader population of QP entrepreneurs. Founders in our sample are comparable to the overall population in terms of demographics, labor market earnings, and the industry composition of their businesses. Figure 1 further shows that firms created by founders in our sample exhibit similar lifecycle dynamics in employment and revenue. Taken together, these patterns suggest that our founder sample is broadly representative of the population of entrepreneurs in Portugal.

The third column of Table 3 reports summary statistics for the subset of founders with at least one year of managerial experience, who comprise 20% of our sample. Consistent with Table 2, these founders are older, more likely to be male, and have higher labor market earnings. Table 3 also shows the overall composition of occupational experience across our sample. Entrepreneurs accumulate a broad range of occupational experience: on average, founders with managerial experience spend more than 50% of the 10 years preceding entrepreneurship in non-managerial occupations. Relative to the full sample, their additional managerial experience comes primarily at the expense of time in low-skill occupations.

[7] Within the 10-year window, we allow for 1-year gaps so as to not limit our sample-size too severely.

[8] Restricting experience to the most recent decade is consistent with standard human-capital frameworks in which skills depreciate and can become obsolete over time (e.g., Ben-Porath (1967); Ljungqvist and Sargent (1998)).

[9] See last two rows of Table 3.

Table 3: Summary statistics of entrepreneurs (1985–2022)

		Founder sample	
Variable	**Population**	**All**	**Managers**
Age at founding	38	36	39
Women (%)	31	28	24
College (%)	31	32	47
Avg. Monthly Wage	1009	1162	1947
Manager Exp. (%)	–	8.7	45
Prof. Exp. (%)	–	7.8	8.4
Med-Skill Exp. (%)	–	13	12
Unskill Exp. (%)	–	70	35
Manufacturing (%)	14	15	13
Utilities (%)	0	0	0
Services (%)	67	71	73
Construction (%)	16	12	12
Agriculture (%)	2.0	2.0	2.0
N	337,911	11,143	2,204
Years Observed After	5.7	6.4	6.5

Notes: The table reports characteristics measured prior to entrepreneurs' first observed entrepreneurial spell in QP, pooling all entry cohorts from 1985–2022. "Population" refers to all first-time founders in QP; "Founder sample" applies the baseline sample restrictions; "Managers" restricts the founder sample to entrepreneurs with at least one year of managerial experience in the ten years prior to entry. Avg. monthly wage is in real 2012 euros (CPI-deflated). Experience shares report the fraction of the previous ten years spent in each occupation group; sector shares refer to the industry of the entrepreneur's firm at entry. "Years Observed After" is the average number of post-entry years the firm is observed in QP.

3 Occupational Experience and Entrepreneurship

3.1 Entry into Entrepreneurship

We begin by asking: from which occupations do entrepreneurs tend to transition at different stages of life? To answer this, we construct yearly transition-rate age-profiles that track the probability that workers exit wage employment and enter entrepreneurship,[10] separately for

[10]Here, unlike in the subsequent subsections, we do not restrict attention to transitions into entrepreneurship that coincide with the founding of a brand new business. That is, we include entrepreneurs who becomes owners of a previously existing business.

Figure 1: Founder sample: life-cycle evolution of revenues and employment



Notes: The figure plots mean log employment for Portuguese firms over the first 10 years of operation (firm age on the x-axis). "Population" includes all firms for which we can observe the founder; "Founders – All" includes firms founded by individuals in our founder sample; "Founders – Managers" restricts to founders in our sample with at least some previous managerial experience. Means are computed by firm age within each group.

each occupation group. Specifically, for the population of individuals i who were classified as workers in year $t-1$, we run the following regression:

$$\underbrace{\text{Ent}_{i,t}}_{\text{Becomes Entrepreneur in } t} = \alpha + \sum_j \underbrace{\sum_k \beta_k^j \times \text{AgeBin}_{i,t}^k \times \text{Occ}_{i,t-1}^j}_{\text{Age Profile Occupation } j} + \Gamma X_{i,t} + \gamma_t + \varepsilon_{i,t}, \tag{1}$$

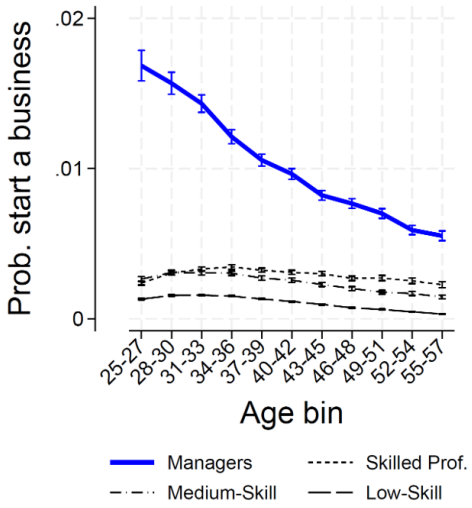
where $\text{Ent}_{i,t}$ is an indicator that takes the value 1 if individual i transitioned from being a worker in year $t-1$ to starting an entrepreneurial spell in year t;[11] $\text{AgeBin}_{i,t}^k$ and $\text{Occ}_{i,t-1}^j$ are indicators that equal 1 if individual i is in age bin k in year t, or is a member of occupation group j in year $t-1$, respectively; $X_{i,t}$ is a vector of controls, and γ_t are year fixed-effects. The control vector includes indicators for college education, gender, and previous labor income, which we include to control for both the strength of the outside option of remaining a wage laborer, as well as to proxy for wealth.

To present the results of this regression, the panel (a) of Figure 2 plots the coefficient vector $\left(\beta_k^j\right)_k$ for the different occupation groups depicted in Table 1. The primary pattern that stands out in panel (a) is that, across all ages, managers have much higher rates of transitioning into entrepreneurship than other occupations; compared to the next highest occupation group (skilled-professions) transition rates are greater by a factor ranging from about 2 to 4, depending on the age. Along the age dimension, rates of entry into entrepreneurship decrease

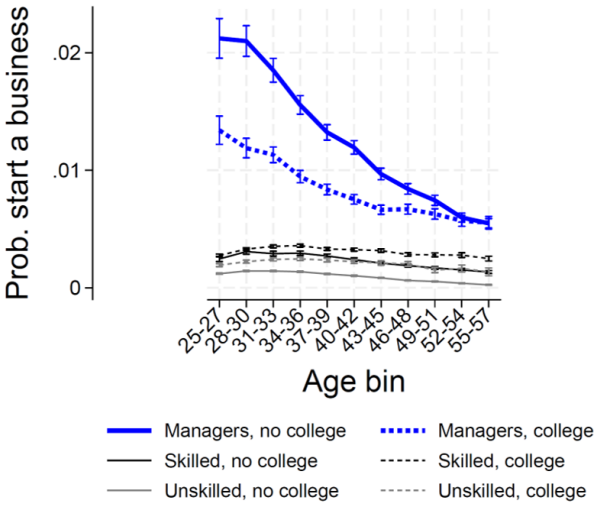
[11] We here classify an individual as an entrepreneur if they are classified as an employer, or are at a firm for which they had at any point in the past been classified as an employer; an individual is a worker otherwise. We do this to account for potentially spurious yearly changes in the way in which an owner of a firm reports their employer/employee status.

Figure 2: Occupational experience and entrepreneurship entry

(a) Transition from worker to founder



(b) Transitions by educational attainment



Notes: Each panel plots fitted age profiles from the regression in Equation 1, estimated on the period 1996-2022, with occupation-by-age-bin interactions and controls held at their sample means (and fixed effects absorbed as in the estimation). Because the underlying interaction coefficients are relative to an omitted age bin and occupation group, we rescale them into *levels* by adding the constant and the controls computed at the sample mean. As a result, each point in the figure corresponds to a predicted probability. Panel (a) presents the rates at which workers transition founding a new business, while Panel (b) presents the same, but by level of educational attainment. Whiskers show 95% confidence intervals.

rather dramatically for managers, whereas they are slightly hump-shaped for the other occupations. In light of evidence documented in Guner et al. (2018), who show that the earnings-wage profile for managers is much steeper than that for non-managers,[12] the fact that the entry-rate age profile decreases more for managers than for the other occupation groups could be explained by greater returns to occupational tenure for managers compared to non-managers.[13] Panel (b) shows analogous transition-rate age-profiles, now interacting occupation with educational attainment. The occupational categories are here coarsened into managers, professionals and medium-skilled grouped together, and the unskilled. It is interesting to note that non-college-educated managers have higher rates of entry into entrepreneurship compared to college-educated managers. This is particularly true for the younger ages, as the transition-rate decreases more sharply for the non-college educated, so that later in life, the transition-rates for managers are similar regardless of education level.

Taken as a whole, the findings in this subsection suggest that there is something uniquely important about working as a manager that facilitates the transition into entrepreneurship

[12] Guner et al. (2018) find that late career managers earn around 75% more than early career managers, while this figure is 40% for non-managers. They show that this pattern holds across other high-income countries.

[13] While we control for previous earnings in Equation 1, returns to tenure is a forward-looking motive; it could be the case that around age 33-37, managers are better able to predict that they are likely to remain managers so that the return to occupational tenure motive becomes stronger.

and the business creation process. This result is consistent with the hypothesis that some of the skills that entrepreneurs accumulate while participating in the labor market as externally hired managers are applicable to the operation of their own business. Thus, in the next section we turn to investigate the relationship between prior managerial experience and business performance for entrepreneurs in the founders panel.

3.2 Managerial Experience and Entrepreneurial Performance

In order to examine the relationship between founders' prior managerial experience and their entrepreneurial outcomes (represented by various measures of firm-size, including both output and inputs),[14] we run the following regression on the sample of first-time founders, at the founder-year level:[15]

$$\mathrm{y}_{i,t} = \alpha + \beta_1 \times \mathrm{ManExp}_{i,t} + \beta_2 \times \mathrm{ProfExp}_{i,t} + \delta \times \mathrm{FirmAge}_{i,t} + \Gamma X_i + \gamma_{t,\mathrm{sec}} + \omega_{t,\mathrm{reg}} + \varepsilon_{i,t} \quad (2)$$

where $\mathrm{y}_{i,t}$ denotes the log of either the sales, payroll, or employment in year t of the business founded by entrepreneur i. $\mathrm{ManExp}_{i,t}$ and $\mathrm{ProfExp}_{i,t}$ denote, respectively, the number of years of managerial and professional experience in entrepreneur i's prior labor-spell;[16] X_i is a vector of entrepreneur-level controls that includes an indicator for college education, an indicator for gender, age at the beginning of the entrepreneur spell, and average labor income in the previous labor-spell; $\mathrm{FirmAge}_{i,t}$ is the age of entrepreneur i's firm in year t. Sector-by-year fixed effects $\gamma_{t,\mathrm{sec}}$ and region-by-year fixed effects $\omega_{t,\mathrm{sec}}$ absorb, respectively, time-varying sector-level conditions (e.g., sector-wide demand shifts) and local, region-specific shocks in a given year (e.g., labor-market tightness or regional policy changes) that may be correlated with both firm performance and occupational experience over time. Lastly, we include as a control the total number of years we observe the labor-market status of each entrepreneur during their previous spell as a worker. We do this because some individuals have gaps in their records

[14] According to standard theories of firm-dynamics, both are increasing in the fundamental productivity or demand for the output of the firm which drive heterogeneity among firms.

[15] For this regression, and for the remainder of the paper, we focus on the outcomes of founders during their first entrepreneurial spell (that is, we exclude serial entrepreneurs from this regression. We focus on founders in order to have a clean notion of the age of the firm. We do this because for part of the analysis we explicitly examine how firm-life-cycle patterns differ for entrepreneurs with different occupational experience, and we also include firm age as a control variable throughout (Gendron-Carrier (2024) make this restriction as well). We eliminate subsequent spells of serial entrepreneurs from the analysis in order to isolate experience gained on the job from previous entrepreneurship experience. See section 2.3 for further discussion of how we construct this dataset.

[16] We restrict attention to the previous 10 years of history immediately preceding the beginning of the entrepreneurial spell; see section 2.3 for a discussion of our concern regarding missing observations.

Table 4: Managerial experience and entrepreneurial performance

	Log-Revenue	Log-Payroll	Log-Employment
ManExp	0.056^{***}	0.048^{***}	0.047^{***}
	(0.003)	(0.003)	(0.003)
ProfExp	0.005	0.002	-0.006^{**}
	(0.003)	(0.003)	(0.003)
TotExp	0.021^{***}	-0.000	0.002
	(0.003)	(0.003)	(0.003)
College	0.114^{***}	0.089^{***}	0.030^{**}
	(0.015)	(0.015)	(0.013)
Male	0.164^{***}	-0.024^{*}	-0.038^{***}
	(0.013)	(0.013)	(0.011)
FirmAge	0.103^{***}	0.061^{***}	0.049^{***}
	(0.002)	(0.002)	(0.001)
AgeFirstEntry	-0.012^{***}	-0.006^{***}	-0.007^{***}
	(0.001)	(0.001)	(0.001)
AvgLogWage	0.450^{***}	0.436^{***}	0.237^{***}
	(0.011)	(0.011)	(0.010)
R^2	0.220	0.179	0.140
Num. obs.	52646	42014	42014

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Note: All three regressions include only observations for which revenue is positive.

in the QP, and we want to avoid the influence of measurement error that might be correlated with either the regressors or the outcome variable.

Table 4 reports the results for each of the three specifications of the outcome-variable. As the first row for each regression indicates, more years of previous managerial experience is significantly associated with a larger scale of operations for the entrepreneur's business, across all three measures of size. The magnitudes of the semi-elasticities are quite large also: each additional year of managerial experience is associated with 5.5% greater sales (and just under 5% for payroll and employment).[17] By contrast, the estimated semi-elasticity of revenue

[17]Note that since we include the total years of observed experience, the implicit occupation experience variable is the union of years spent working in the medium-skilled and low-skilled occupation-groups. Thus the interpre-

with respect to previous professional experience is smaller by at least an order of magnitude than that for managerial experience, and is not significantly positive in any specification. This reaffirms the patterns regarding transitions into entrepreneurship from different occupations, suggesting that experience working as a manager is particularly useful training for future entrepreneurs. Additionally, and perhaps unsurprisingly, the age of the founder's firm, the founder's previous labor-market earnings[18], and the founder being college-educated are all also associated with a larger scale of operations.

3.2.1 Managerial Experience and Firm-Growth Patterns

Having shown in our cross-sectional analysis that prior managerial experience is associated with superior entrepreneurial performance, we now take a closer look at how business-growth trajectories differ between entrepreneurs with and without managerial experience. One might wonder whether, for instance, both types of entrepreneurs start off with businesses of similar scale, but entrepreneurs with managerial experience are able to grow their business at a faster rate and thus over time separate from businesses founded by entrepreneurs without managerial experience. Alternatively, it could be the case that management-experienced entrepreneurs are able to immediately overcome hurdles that new firms often face (e.g. searching for employees), but that management-inexperienced entrepreneurs are able to catch up over time (in which case, conditional on survival, any effect from differences in managerial experience would fleeting).

To examine the growth patterns over the first 5 years of each business's life, we run the following regression:

$$\underbrace{y_{it}}_{\text{Firm Size}} = \alpha + \underbrace{\sum_{k=1}^{4} \theta_k D_{it}^k \times \text{NoManExp}_i}_{\text{Founder w/o Previous Man. Exp.}} + \underbrace{\sum_{k=0}^{4} \beta_k (D_{it}^k \times \text{PosManExp}_i)}_{\text{Founder with Previous Man. Exp.}} + \Gamma X_i + \gamma_{t,\text{sec}} + \omega_{t,\text{reg}} + \varepsilon_{i,t}. \tag{3}$$

Specifically, we run this regression on the subset of founders whose business survives to the fifth year, so that our estimates are not affected by survivorship bias. Here, $D_{i,t}^k$ is an indicator variable that takes the value 1 if entrepreneur i's business is of age k in year t, and

tation of the coefficient for (e.g.) managerial experience is: an additional year spent as manager, opposed to the omitted group, is associated with 5.5% greater sales.

[18] Again, previous earnings could capture both the strength of the founder's outside option as a wage-laborer, and also the opportunity to amass savings, which could facilitate overcoming financial frictions.

PosManExp$_i$ (NoManExp$_i$) is an indicator that takes the value 1 if entrepreneur i has any (no) experience in a managerial occupation in their 10 years as a worker before starting a business. We here take this coarse, dichotomous classification, first, in order to simplify the presentation of results, and also because around 80% of the founder sample has no managerial experience in their previous 10 years of labor-market history. The omitted group in this regression is the first year of businesses that were founded by entrepreneurs with no managerial experience.

Figure 3 presents the results of these regressions by plotting together the $[\theta_k]$ and $[\beta_k]$ coefficient vectors for each of the three measures of firm-size (θ_0 is normalized to equal 0). What stands out from each plot is that the difference between the two age-profiles is constant across all ages, and both groups of businesses experience qualitatively similar patterns of life-cycle growth: growth rate are initially large in the first couple of years, then taper off as the age-profiles of size eventually flatten (particularly in panel (a)). These results suggest that prior managerial experience influences entrepreneurs' businesses by providing a static boost that affects performance symmetrically across all ages, rather than by affecting the manner in which the firm grows.

3.2.2 Heterogeneity by Entrepreneurs' Educational Attainment

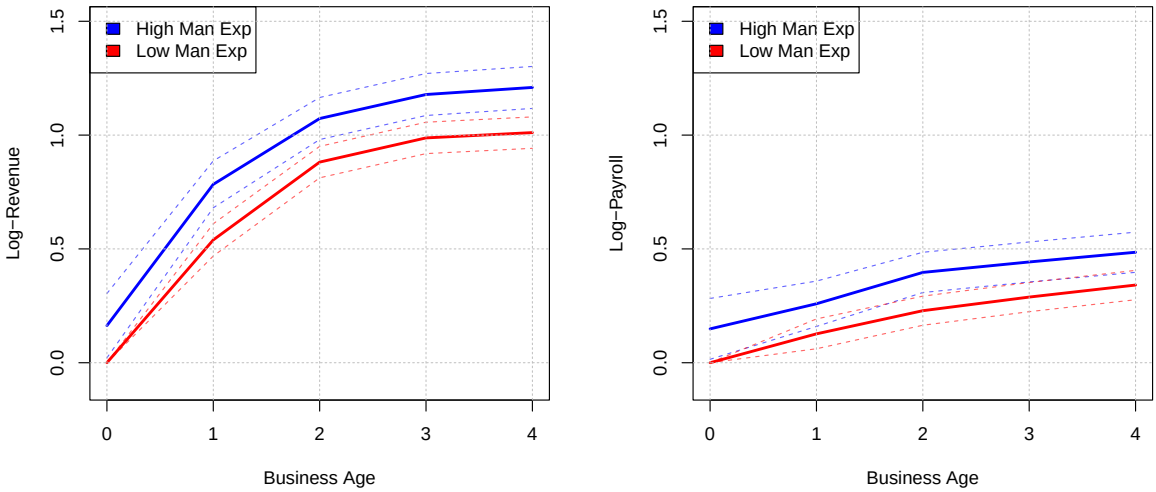
To explore whether the relationship between occupational experience and entrepreneurial outcomes is heterogeneous with respect to the educational attainment of entrepreneurs, we repeat regression (2), but now interacting each occupational experience variable with the college education indicator.[19] We present the education-interaction results in Table 5.

The results of these education-interaction regressions show that, in line with the results regarding transition rates, the positive relationship between prior managerial experience and entrepreneurial performance is stronger for the non-college-educated than the college-educated. One potential explanation for this could be that the training that working as a manager provides to the non-college educated acts as a substitute to the organizational or the business-administration training that formal education provides, thus allowing the non-college-educated to gain a level of basic business acumen that they might not have had the opportunity to otherwise. Examples might be learning how to use business-administration software, organizing personnel, or more general good-practice for organizing data. For professional experi-

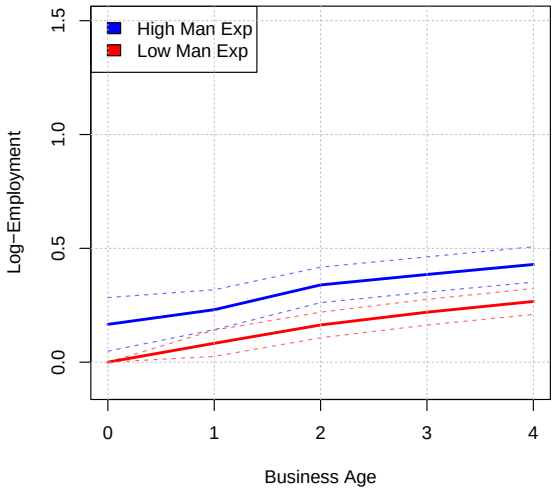
[19] In the appendix, we report the results of a similar exercise, where we interact experience with gender, rather than education.

Figure 3: Life-cycle firm performance by managerial experience of founders

(a) Log-Revenue **(b)** Log-Payroll



(c) Log-Employment



Notes: This figure plots fitted life-cycle profiles implied by Equation 3, estimated on the 1986–2022 firm panel. Business age is grouped into bins D_{it}^{k}, and the age profile is allowed to differ between founders with prior managerial experience (PosManExp$_i$) and those without (NoManExp$_i$). Each panel uses a different outcome y_{it}: log revenue (a), log payroll (b), and log employment (c). All points are normalized relative to the omitted category (founders without managerial experience at business age $k = 0$), so the plotted values represent differences in log size from that baseline Dashed lines denote 95% confidence intervals.

ence, however, the opposite pattern holds: professional experience is associated with better entrepreneurial performance only for the college-educated.

Table 5: Managerial experience and entrepreneurial performance by education

	Log-Revenue	Log-Payroll	Log-Employment
ManExp	0.073^{***}	0.063^{***}	0.060^{***}
	(0.004)	(0.004)	(0.004)
ProfExp	-0.007	0.002	-0.006
	(0.007)	(0.008)	(0.007)
ManExp×College	-0.039^{***}	-0.035^{***}	-0.031^{***}
	(0.006)	(0.006)	(0.005)
ProfExp×College	0.011	-0.005	-0.003
	(0.008)	(0.008)	(0.007)
TotExp	0.021^{***}	-0.000	0.002
	(0.003)	(0.003)	(0.003)
College	0.147^{***}	0.128^{***}	0.064^{***}
	(0.017)	(0.017)	(0.015)
Male	0.165^{***}	-0.022^{*}	-0.037^{***}
	(0.013)	(0.013)	(0.011)
FirmAge	0.103^{***}	0.061^{***}	0.049^{***}
	(0.002)	(0.002)	(0.001)
AgeFirstEntry	-0.012^{***}	-0.006^{***}	-0.007^{***}
	(0.001)	(0.001)	(0.001)
AvgLogWage	0.457^{***}	0.441^{***}	0.242^{***}
	(0.011)	(0.011)	(0.010)
R^2	0.220	0.179	0.141
Num. obs.	52646	42014	42014

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Note: All three regressions include only observations for which revenue is positive.

3.2.3 Same-Sector Occupational Experience

We now examine the extent to which the strength of the relationship between prior occupational experience and entrepreneurial performance is sensitive to whether or not the entrepreneur gained their occupational experience working for a firm in the same sector in which

they later operate their own business.[20] The answer to this sheds light on the level of generality of the skills gained while working as a manager. That is, are managers equipping themselves with the skills to better run any business, or a narrower set of skills to run only a particularly type of business. Specifically, we run a version of regression (2) but now with two separate variables for years of experience in each occupational group: one variable counts the number of years working in the given occupational group in the same sector as the entrepreneur's future business, and the other counts years working in a different sector.

We report the results in Table 6. While the relationship between managerial experience and entrepreneurial performance remains positive regardless of whether or not the experience was accumulated in the same sector as the entrepreneur's own business, the magnitude of the relationship is about twice as large for experience gained in the same sector. This provides evidence in favor of the view gaining management experience primarily facilitates operating businesses similar to those at which the entrepreneur gained the experience.

Turning toward professional experience, an interesting distinction emerges between the semi-elasticities when separating experience by sector. Whereas when all professional experience was pooled together in regression (2), the semi-elasticity was either not significantly positive or negligible in magnitude, in this specification the semi-elasticity with respect to professional experience in the same sector is both significant and comparable in magnitude to that of managerial experience in a different sector. This suggests that professional skills gained while working are even less transferable across sectors than managerial skills. [21]

The evidence that managerial experience is sector-specific becomes more nuanced upon examining how the relationship between the occupation-sector pairs and entrepreneurial performance differs for the college-educated versus the non-college educated. We present the results to the regression that incorporates education-interactions in Table 7. As the first two rows show, for the non-college-educated the relationship between managerial experience and entrepreneurial outcomes is very similar regardless of whether the entrepreneur gained the experience working in the same sector as their own firm. For the college-educated, there is no correlation between different-sector managerial experience and entrepreneurial outcomes.

The results overall point toward the idea that, while working as managers, non-college-

[20] QP uses several sectoral classifications over the sample period. We exploit an harmonized version of 1-digit sector codes, based on the most recent european classification NACE Rev3.

[21] One could imagine a dentist or veterinarian working in a corporate practice during the early part of their career to continue honing their professional skills by interacting with more experienced coworkers before attempting to start their own practice.

Table 6: Managerial experience by sector and entrepreneurial performance

	Log-Revenue	Log-Payroll	Log-Employment
ManExpDiffSector	0.034^{***}	0.028^{***}	0.028^{***}
	(0.005)	(0.005)	(0.005)
ManExpSameSector	0.065^{***}	0.057^{***}	0.055^{***}
	(0.004)	(0.004)	(0.003)
ProfExpDiffSector	-0.032^{***}	-0.023^{***}	-0.030^{***}
	(0.005)	(0.005)	(0.004)
ProfExpSameSector	0.032^{***}	0.016^{***}	0.008^{**}
	(0.004)	(0.004)	(0.003)
SameSectorExp	0.024^{***}	0.011^{***}	0.005^{***}
	(0.002)	(0.002)	(0.002)
College	0.121^{***}	0.093^{***}	0.032^{**}
	(0.015)	(0.015)	(0.013)
TotExp	0.004	-0.008^{***}	-0.002
	(0.003)	(0.003)	(0.003)
Male	0.166^{***}	-0.023^{*}	-0.036^{***}
	(0.012)	(0.013)	(0.011)
FirmAge	0.102^{***}	0.061^{***}	0.049^{***}
	(0.002)	(0.002)	(0.001)
AgeFirstEntry	-0.012^{***}	-0.006^{***}	-0.007^{***}
	(0.001)	(0.001)	(0.001)
AvgLogWage	0.473^{***}	0.446^{***}	0.243^{***}
	(0.011)	(0.011)	(0.010)
R^2	0.228	0.182	0.143
Num. obs.	52627	41996	41996

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Note: All three regressions include only observations for which revenue is positive.

educated entrepreneurs gain more fundamental business-skills that one could also gain through college, and which are also transferable across sections, whereas the marginal set of skills that the college-educated gain while working as managers are more tailored to the type of business in which they worked.

Table 7: managerial experience and entrepreneurial performance, by sector experience and education

	Log-Revenue	Log-Payroll	Log-Employment
ManExpDiffSector	0.077^{***}	0.067^{***}	0.058^{***}
	(0.008)	(0.008)	(0.007)
ManExpSameSector	0.069^{***}	0.060^{***}	0.060^{***}
	(0.005)	(0.005)	(0.004)
ManExpDiffSector×College	-0.079^{***}	-0.075^{***}	-0.057^{***}
	(0.010)	(0.010)	(0.009)
ManExpSameSector×College	-0.013^{*}	-0.011	-0.014^{**}
	(0.007)	(0.007)	(0.006)
ProfExpDiffSector	-0.062^{***}	-0.039^{***}	-0.046^{***}
	(0.012)	(0.013)	(0.011)
ProfExpSameSector	0.026^{***}	0.024^{**}	0.015^{*}
	(0.009)	(0.010)	(0.008)
ProfExpDiffSector×College	0.033^{***}	0.017	0.017
	(0.012)	(0.014)	(0.012)
ProfExpSameSector×College	0.003	-0.014	-0.011
	(0.010)	(0.010)	(0.009)
SameSectorExp	0.025^{***}	0.012^{***}	0.006^{***}
	(0.002)	(0.002)	(0.002)
TotExp	0.003	-0.009^{***}	-0.002
	(0.003)	(0.003)	(0.003)
College	0.147^{***}	0.127^{***}	0.062^{***}
	(0.017)	(0.017)	(0.015)
Male	0.167^{***}	-0.021^{*}	-0.035^{***}
	(0.012)	(0.013)	(0.011)
FirmAge	0.102^{***}	0.061^{***}	0.049^{***}
	(0.002)	(0.002)	(0.001)
AgeFirstEntry	-0.012^{***}	-0.006^{***}	-0.007^{***}
	(0.001)	(0.001)	(0.001)
AvgLogWage	0.480^{***}	0.452^{***}	0.247^{***}
	(0.011)	(0.011)	(0.010)
R^2	0.229	0.183	0.144
Num. obs.	52627	41996	41996

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Note: All three regressions include only observations for which revenue is positive.

4 Managerial and Large-Firm Experience

There are two existing findings in the entrepreneurship and firm-dynamics literature that, taken together, suggest that the cross-sectional relationship between prior managerial experience and subsequent entrepreneurial performance that we document may be subject to an omitted-variable bias. First, Hamilton et al. (2025) show that experience accumulated in larger firms is especially valuable for future entrepreneurs. Second, Akcigit et al. (2021) provide coarse evidence—using broad employment bins rather than administrative micro-data—that the managerial share of the workforce rises with firm size in both the U.S. and India. If larger firms employ managers more intensively, then managers are more likely than other workers to have spent time in large firms. In that case, part of the performance advantage we attribute to managerial experience could instead be capturing the benefits of having worked at larger firms.

Since the QP lets us observe the occupational composition of the universe of Portuguese firms, we can address this concern directly. We begin by documenting, at a granular level, that Portuguese firms also exhibit a positive relationship between firm size and the share of managers in the firm's workforce, even while controlling for characteristics such as sector and age.[22] We then return to our main question and show that managerial experience continues to predict stronger entrepreneurial performance even after we explicitly control for founders' experience working in large-firms, alleviating the concern that the results of the previous section are driven primarily by a large-firm effect, rather than managerial experience itself.

Toward the first end, we estimate the following regression:

$$\text{Manager Share}_{it} = \alpha + \beta\ \text{Firm Size}_{it} + \gamma_{\text{age(i)}} + \delta_{\text{sec(i),t}} + \omega_{\text{region(i),t}} + \varepsilon_{it} \tag{4}$$

where $\text{Manager Share}_{it}$ denotes the share of managers in firm i's workforce in year t;[23] Firm Size_{it} is a one of four (depending on the specification) alternative measures of the size of firm i in year t (the measures are employment, sales, payroll, or output per worker). Firm-age-bin fixed effects $\gamma_{\text{age}(i,t)}$ flexibly absorb systematic differences in managerial composition across the firm life cycle. Sector-by-year fixed effects $\delta_{\text{sec}(i),t}$ and region-by-year fixed effects $\omega_{\text{region}(i),t}$ absorb,

[22] To our knowledge, this is the first paper to isolate the firm-size manager-share relationship to this degree.

[23] We deliberately exclude managers who are recorded as employers/owners of the firm. Throughout, we refer to managers who appear as employees as *external managers*.

respectively, time-varying sector-level conditions (e.g., sector-wide demand shifts) and local, region-specific shocks in a given year (e.g., labor-market tightness or regional policy changes) that may be correlated with both firm size and the share of managers.

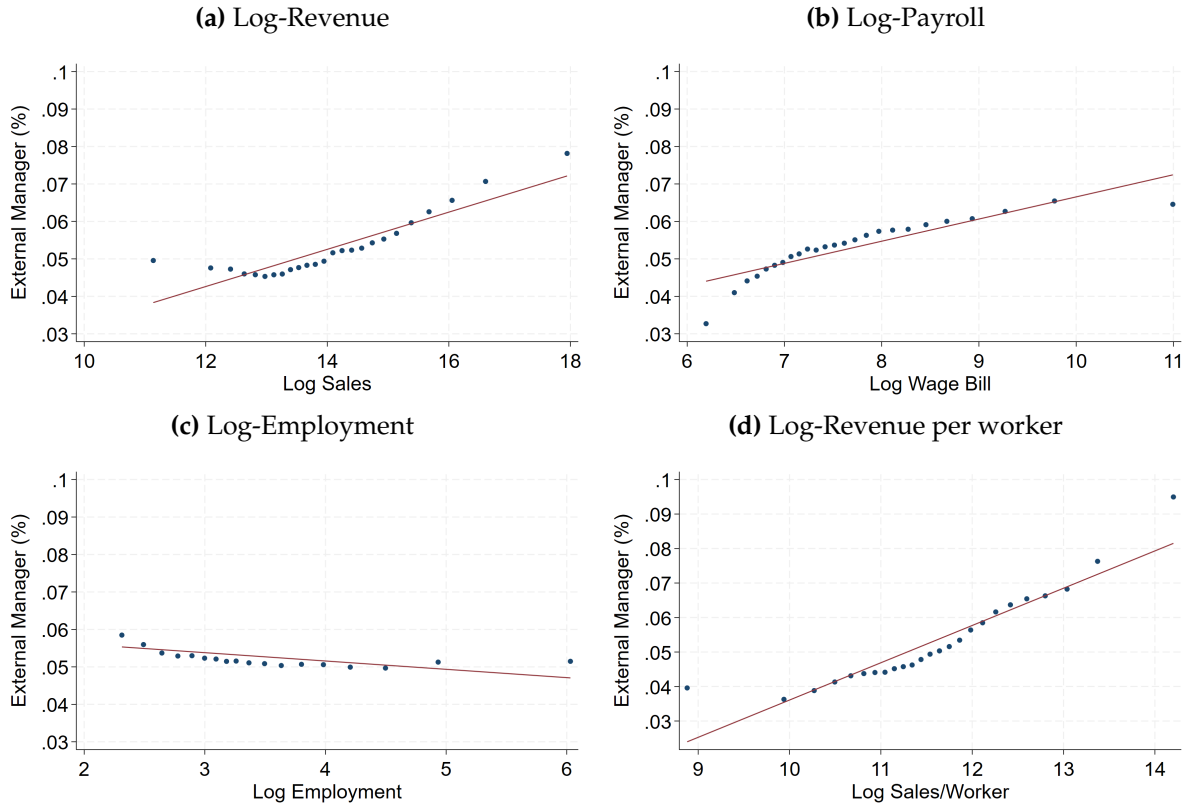
We visualize the estimate of Equation 4 using a binscatter of *partial-residualized* outcomes. Figure 4 plots the manager-share residual after netting out fixed effects, while the overlaid line is the corresponding linear fit implied by the estimated slope $\hat{\beta}$. Overall, we find mildly strong evidence that managers comprise a larger share of the workforce of larger firms compared to smaller firms. For instance, panel (a) shows that manager-share of the workforce for the largest bin of firms is greater than that for the smallest firms by a factor of about 1.6, or 3 percentage points, when the notion of firm-size is revenue. The relationship holds when we use payroll as alternative measure of firm size, and when using revenues per worker as a proxy for firm productivity. Curiously, the estimated slope is insignificant when using log-employment as independent variable. This could be because employee headcount per se is a noisy measure overall business activity and organizational complexity.

We now examine whether the positive relationship between managerial experience and subsequent firm performance documented above remains when we additionally control for founders' prior work experience at firms of different sizes. Doing so serves two purposes. First, since Hamilton et al. (2025) emphasize the value of experience accumulated in large firms but do not explicitly consider managerial experience, we assess whether any "large-firm" relationship remains once we account for founders' managerial backgrounds. Second, in light of the recent discussion that large firms have more layers of hierarchy than small firms,[24] and thus more layers of middle-management, one might question whether the tasks performed by a representative "manager" in a small firm are qualitatively different than those in a large firm. It we thus investigate whether there is evidence that the value of the training that future entrepreneurs gain while working as a manager depends on the size of the firm in which the entrepreneur worked.

Toward this end, for each year we assign every firm in the population to one of four groups based on its position in that year's revenue distribution: (i) below the 50th percentile, (ii) between the 50th and 75th percentiles, (iii) between the 75th and 90th percentiles, and (iv) above the 90th percentile. Using this classification, we then count the number of years each

[24] See, for instance, Caliendo et al. (2015) and Caliendo et al. (2020).

Figure 4: Scatter plots: correlation between the share of external managers and firms size.



Notes: This figure reports residualized binned scatter plots corresponding to Equation 4, estimated over 1985–2022, restricting to firm-years with at least five employees and positive sales. In each panel, the dots are bin means from a binscatter of a *constructed partial residual* for the dependent variable against the firm-size measure. After estimating Equation 4, we recover the regression residual $\hat{\varepsilon}_{it}$ and form the partial residual $\widehat{PR}_{it} = \hat{\varepsilon}_{it} + \hat{\beta}\,\text{Firm Size}_{it}$, which nets out all fixed effects. We then shift this partial residual into levels by adding $(\bar{y} - \hat{\beta}\,\bar{x})$, where $\bar{y}$ and $\bar{x}$ are sample means of the outcome and the firm-size regressor in the estimation sample.

entrepreneur in the founder sample worked for a firm in each of these four size-groups;[25] we refer to these counts as firm-size experience. We then track each founder's experience working in each of three occupation-categories (manager, high-skilled professional, and other) in firms that belong to each of the 4 size-categories utilized in regression (5). This makes for 12 total occupation-by-firm-size categories of experience. We then run the following regression on the sample of founders:

$$\mathrm{y}_{i,t} = \alpha + \underbrace{\sum_{k,j} \gamma_{k,j} \times \text{Experience}_{i,t}^{k,j}}_{\textbf{Occupation-by-firm-size experience}} + \Gamma X_{i,t} + \gamma_{t,\text{sec}} + \omega_{t,\text{reg}} + \varepsilon_{i,t}, \tag{5}$$

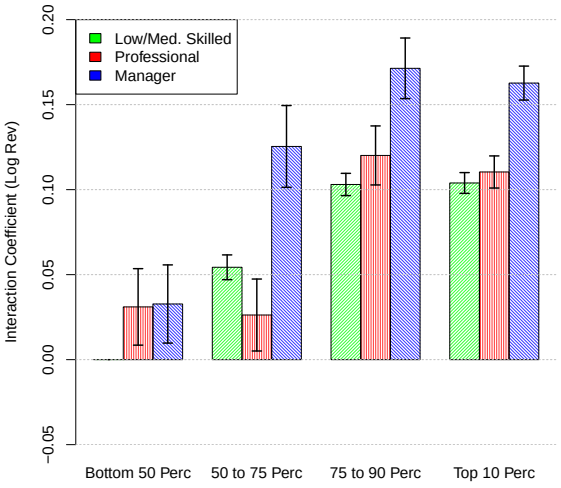
where $\text{Experience}^{k,j}$ is the number of years working in occupation j for a firm in size-bin k.

Figure 5 summarizes the results by plotting the estimated occupation–firm-size semi-elasticities.

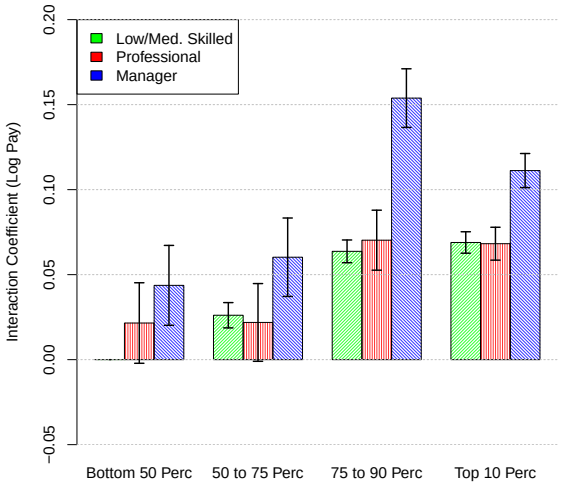
[25] As above, we focus on the 10 years of labor-market experience preceding the beginning of the entrepreneurial spell.

Figure 5: Occupational experience at firms of different size and entrepreneurial performance.

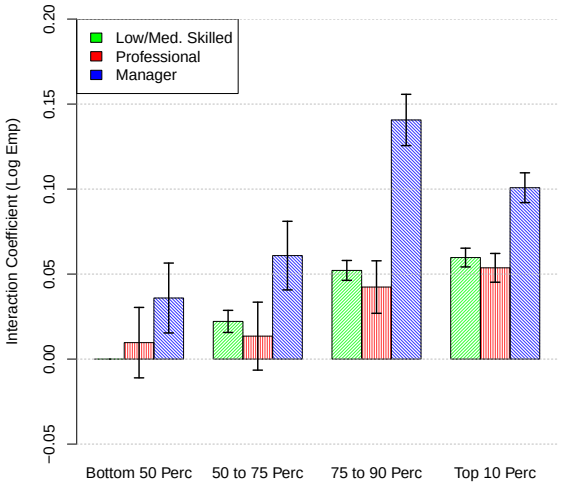
(a) Log-Revenue



(b) Log-Payroll



(c) Log-Employment



The omitted category is experience working as neither a manager nor a skilled professional for a firm in the smallest firm-size group. Overall, the estimates suggest that both managerial experience and experience in larger firms are independently associated with stronger entrepreneurial outcomes: within each occupation group, the semi-elasticities are generally larger for experience accumulated at larger firms (though the pattern flattens toward the very top of the size distribution); within each size group (except perhaps the smallest), managerial experience is the most strongly related to subsequent performance. Furthermore, the interaction between firm-size and occupation is strongest for managers: the difference between the

semi-elasticities with respect to managerial experience and other forms of occupational experience is larger for experience gained at the top quartile compared to the bottom half of the firm-size-distribution. Overall, under the hypothesis that these results reflect human capital accumulation, the conclusion from Figure 5 is that the most valuable training for future entrepreneurs comes from working as a manager in the largest firms.

5 Possible Sources of Bias

So far, we have abstained from making strong causal claims about the relationship between managerial experience and entrepreneurial performance. A central concern is selection on unobservables: individuals with higher latent entrepreneurial ability may both sort into particular career paths—such as managerial roles or employment at larger firms—and subsequently perform better as entrepreneurs (Gendron-Carrier, 2024). Under this view, our estimated "returns" to occupational experience could partly reflect pre-existing differences in ability rather than experience accumulated on the job. To the extent that earnings histories proxy for productivity and outside options, controlling for prior labor income should attenuate this concern, but it need not eliminate it if wages do not fully capture the relevant latent traits. Our estimates would remain biased if wages are an imperfect proxy for this inherent ability and selection operates along dimensions not captured by prior earnings.

Nevertheless, several features of our results are difficult to rationalize through selection on unobservables alone. For example, the finding that managerial experience acquired in large firms is particularly predictive of subsequent performance would require sorting on unobservables that is not well captured by prior earnings and that simultaneously drives selection into *both* managerial tracks and large-firm employment. Likewise, the premium to same-sector experience that appears specifically for professionals would require unobserved traits that push workers into professional occupations and, conditional on that, into the particular sectors where they later found businesses. While we cannot rule out selection, rationalizing all of these margins through unobservables alone requires increasingly specific patterns of sorting beyond what is reflected in earnings histories.

A subtler concern remains, however: even if managerial roles at large firms are genuine sources of learning, forward-looking individuals with high entrepreneurial potential may strategically select into these careers precisely to acquire the relevant human capital, anticipating

becoming and entrepreneur later on. Under this interpretation, our estimates would capture a combination of the returns to learning and selection into learning environments, and should therefore be viewed as an upper bound on the causal effect of experience.

6 Directions for Future Work and Conclusion

The evidence we provide in this paper indicates that labor-market experience working in a managerial role is uniquely important for entrepreneurs. Not only are managers far more likely to become entrepreneurs than workers of other occupations, but the level of managerial experience strongly predicts future entrepreneurial success. This relationship is strongest for the non-college educated, for entrepreneurs who acquire managerial experience in the same sector as the business they eventually start, and when managerial experience is accumulated in large firms.

The results of this paper have important implications for the discussion regarding the role of size-dependent, firm-level distortions in explaining the income-disparity between developing and advanced economies (e.g. see Restuccia and Rogerson (2008) for a general treatment of the aggregate effects of firm-level distortions). Namely, if i) experience working as a manager prior to starting a business is valuable for entrepreneurs, and allows them to operate their firms at a larger scale, and ii) businesses that operate at larger scales rely more on managers in their operations, and thus produce more of this valuable experience for future entrepreneurs, then there arises a positive feedback effect in which any size-dependent distortion that inhibits large firms will decrease the stock of entrepreneurial human capital in the economy. This is a potentially important channel that we will seek to explore further in future work.

Lastly, the discussion in this paper looks at the empirical results through the lens of theory of human capital accumulation. An alternative explanation is: managerial experience provides the opportunity for would-be entrepreneurs to learn whether they posses an innate ability to be an entrepreneur, and whether an already existing idea or plan for a business has the potential to be successful. That is, does working as a manager provide aspiring entrepreneurs the opportunity to resolve the ambiguity that surrounds starting a business, in addition to learning in the sense of developing skills? In future work, we plan to use the variation in the second-moment properties of the businesses started by entrepreneurs with different types of occupational experience to address this question.

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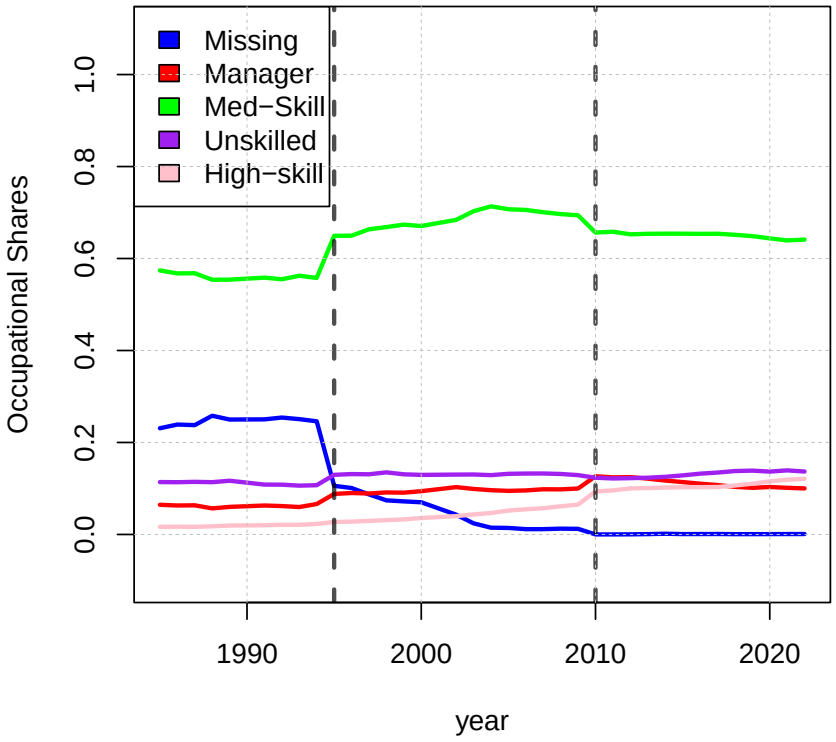
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A Appendix

A.1 Worker classifications

Figure 6: Worker classification across time



A.2 Sample Construction

Table 8: Summary Statistics. Representativeness of the Founder Sample (2010–2022).

	All Firms					Founder Sample				
	Mean	sd	p25	Median	p75	Mean	sd	p25	Median	p75
Employment	9.06	80.58	2.00	3.00	6.38	6.39	16.42	2.00	3.62	6.54
Log Revenue	5.07	1.54	4.03	4.93	5.95	5.19	1.31	4.32	5.13	6.01
Log Revenue/Worker	3.77	1.03	3.11	3.69	4.36	3.82	0.97	3.17	3.76	4.42
Age	9.18	6.36	3.38	8.38	14.54	4.33	3.45	1.54	3.46	6.38
Manufacturing	11.54%					14.23%				
Utilities	0.37%					0.22%				
Services	72.70%					71.59%				
Construction	11.24%					11.91%				
Agriculture	4.14%					2.04%				
N Firms	267,823					11,112				

Notes:

A.3 Managerial Experience and Entrepreneurial Performance by Gender

Table 9: managerial experience and entrepreneurial performance by gender

	Log-Revenue	Log-Payroll	Log-Employment
ManExp	0.054^{***}	0.044^{***}	0.043^{***}
	(0.004)	(0.004)	(0.003)
ProfExp	0.002	0.007^{*}	0.000
	(0.004)	(0.004)	(0.003)
ManExp×Female	0.008	0.023^{***}	0.021^{***}
	(0.007)	(0.007)	(0.006)
ProfExp×Female	0.008	-0.017^{***}	-0.019^{***}
	(0.006)	(0.006)	(0.005)
TotExp	0.021^{***}	-0.001	0.002
	(0.003)	(0.003)	(0.003)
College	0.115^{***}	0.089^{***}	0.030^{**}
	(0.015)	(0.015)	(0.013)
Female	-0.175^{***}	0.022	0.040^{***}
	(0.014)	(0.014)	(0.012)
FirmAge	0.103^{***}	0.061^{***}	0.049^{***}
	(0.002)	(0.002)	(0.001)
AgeFirstEntry	-0.012^{***}	-0.006^{***}	-0.007^{***}
	(0.001)	(0.001)	(0.001)
AvgLogWage	0.450^{***}	0.437^{***}	0.238^{***}
	(0.011)	(0.011)	(0.010)
R^2	0.220	0.179	0.141
Num. obs.	52646	42014	42014

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Note: All three regressions include only observations for which revenue is positive.