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Human Capital and Entrepreneurship

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Abstract
We investigate how entrepreneurial human capital shapes the outside option of entrepreneurs when they return to paid work. Using data on Portuguese work histories, we find that entrepreneurs suffer large and persistent wage losses upon returning to paid work: their wage trajectory is 18 percent lower compared to never-entrepreneurs immediately after return and remains 5 percent lower for 14 years. We also show that wage losses increase with entrepreneurial experience, and that return-entrepreneurs with higher levels of education suffer larger and more persistent wage losses. Our results imply that the outside option of entrepreneurs comoves with business-specific entrepreneurial human capital. (JEL: E22, J24, J31, L26)

1. Introduction

Entrepreneurship is a key driver of business dynamism and economic growth and, as such, is of key policy interest. Informed policy decisions require a thorough understanding of the process of entrepreneurship, especially when it comes to barriers that potential entrepreneurs face. One such barrier is the outside option of entrepreneurship: what entrepreneurs could do and how much they could earn if they returned to paid work. Entrepreneurs accumulate business-specific human capital while foregoing human capital accumulation in paid work; therefore, there is reason to believe that the outside option might evolve with entrepreneurship.

In this paper, we present empirical evidence suggesting that outside options decrease with entrepreneurial experience. We reach these conclusions by comparing the wage trajectories of entrepreneurs who return to paid work (who we term "return-entrepreneurs") with those who never started a business (who we term

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"never-entrepreneurs"). Our comparisons rely on return-entrepreneurs and never-entrepreneurs being otherwise similar in terms of their demographic and employment characteristics. We find that return-entrepreneurs suffer large and persistent wage losses relative to never-entrepreneurs upon returning to paid work, and that longer entrepreneurial experience is associated with more persistent losses. Furthermore, we show that return-entrepreneurs with higher levels of education suffer larger and more persistent wage losses. The wage losses of return-entrepreneurs with a high school diploma or college degree worsen with entrepreneurial experience, while they do not vary with experience for those without a high school diploma. Our empirical results suggest that entrepreneurial human capital is specific to business ventures and is not a substitute for human capital gained through experience in paid work.

Our analysis is motivated by the lack of prior evidence on the endogenous evolution of entrepreneurial outside options. The extant literature typically assumes that outside options are constant over the course of entrepreneurship, or evolve independently of tenure in entrepreneurship (Hopenhayn 1992; Melitz 2003; Cagetti and De Nardi 2006; Buera and Shin 2013). However, there is no reason—other than for simplicity and lack of documented evidence—to assume that outside options do not evolve endogenously with entrepreneurial experience. Theoretically, the effect of entrepreneurial experience on outside options could go either way. On the one hand, entrepreneurs accumulate human capital specific to their business while simultaneously foregoing human capital accumulation in paid work. Thus, their paid work-specific human capital stagnates or even erodes while they run a business, which decreases their return option. On the other hand, their relative disadvantage might diminish if their entrepreneurial human capital can be transferred to paid work. These two forces together determine the endogenous evolution of entrepreneurs' outside option.

We provide suggestive evidence on the endogenous evolution of entrepreneurial outside option by estimating the impact of entrepreneurial human capital on labor market outcomes upon returning to paid work. We compare the wage trajectories of return-entrepreneurs to never-entrepreneurs who are otherwise similar. We start by making these comparisons among workers of the same gender, age, and education level in the same calendar year who are working in the same occupation. Next, we compare workers in the same gender, age, education, calendar year, occupation, and sector. Finally, we compare workers in the same gender, age, education, calendar year, occupation, sector, and location. By notching up the tightness of our comparisons, we examine the selection patterns of return-entrepreneurs across sectors and locations. Our analysis exploits rich Portuguese microdata covering the universe of worker histories linked to private firms and firm balance sheets in 2004–2020: these data allow us to track individuals across entrepreneurship and paid work, all the while observing their demographic and employment characteristics.

Taking our empirical approach to the Portuguese data, we find that return-entrepreneurs suffer an 18 percent wage loss relative to their never-entrepreneur counterparts immediately upon returning to paid work. The wage trajectory of return-entrepreneurs remains 5 percent lower than for never-entrepreneurs for 14 years. These results come from comparisons of return-entrepreneurs with never-entrepreneurs in

the same occupation. Comparing return-entrepreneurs with never-entrepreneurs in the same occupation and sector, the immediate wage loss is 15 percent and the long-run wage loss is 3 percent: this lower difference in relative terms implies that return-entrepreneurs select into sectors with lower than average wages, thereby recovering faster to a lower baseline. We detect similar composition effects for the location of return-entrepreneurs.

Going further, we show that the wage losses for return-entrepreneurs with longer entrepreneurial experience are larger. Return-entrepreneurs with 1 year of experience suffer a long-run wage loss of 5 percent while it is 3 percentage points larger for those with 5 years of experience and 6 percentage points larger for those with 10 years of experience. Return-entrepreneurs do not catch up to, nor surpass never-entrepreneurs within a time frame that our empirical strategy could detect.

Finally, we repeat our analysis on subsamples by education to understand whether these patterns are stronger for more educated return-entrepreneurs: they are more important from an aggregate perspective as they tend to run larger businesses (Queiró 2022). We find that return-entrepreneurs without a high school diploma experience an immediate wage loss of 13 percent which persists for 10 years, whereas those with a high school diploma or college degree suffer an 18–22 percent immediate loss with no recovery within 14 years. Furthermore, more highly educated return-entrepreneurs are worse off when they have longer entrepreneurial experience while those without a high school diploma share the same trajectory regardless of experience. Our results suggest that the degree to which entrepreneurial human capital shapes the outside option decreases with education.

Related literature: The existing literature has primarily focused on explicit barriers to entrepreneurship such as financial frictions or market regulation. We contribute to an emerging literature focusing on *implicit* barriers, specifically those posed by irreversible investment and outside options.

The literature on investment irreversibility has argued that when initial investment to businesses cannot be reverted, the entry threshold to entrepreneurship rises (e.g., Abel and Eberly 1996). In direct relation to our work, Tan (2022) argues that entrepreneurial risk is associated with lack of insurance and illiquidity arising from frictional asset resale. He finds that physical investment irreversibility can account for the bulk of entrepreneurial risk. In our context, human capital specificity is analogous to investment irreversibility in that entry into entrepreneurship requires investing in business-specific human capital that is (partially) nontransferable to paid work upon exit. The contribution of our paper is an empirical assessment of the impact of human capital specificity on labor market outcomes.

Our paper also contributes to a recent literature focusing on the option to return to paid work as a determinant of entrepreneurial entry (Dillon and Stanton 2017; Catherine 2022). These papers treat the evolution of the outside option as exogenous, thereby positing that the choice of starting a business does not introduce additional labor income risk. In contrast, our empirical results suggest that human capital specificity

is an important ingredient to dynamically evolving outside options and, thus, to entrepreneurial risk.

More generally, our paper contributes to a wide literature on the human capital aspects of entrepreneurship. Bhandari and McGrattan (2021) find that "sweat equity"—human capital associated with running a business—is equivalent to about 120 percent of US GDP. **?** show that many businesses are sold as whole, signifying the importance of intangible assets such as human capital. Linking entrepreneurial activity to human capital, Queiró (2022) finds that more educated entrepreneurs start larger and faster-growing firms while Kozeniauskas (2023) argues that the propensity of high-skill workers to enter entrepreneurship has decreased in recent decades. We contribute to this wide literature by documenting empirical patterns of entrepreneurial experience shaping outside options.

2. Empirical approach

The ideal experiment to measure the evolution of entrepreneurs' outside option would be to compare the outcomes of two *potential* entrepreneurs. These two hypothesized individuals—let us call them Ashley and Blake—are identical in all aspects, including their current employment in paid work. Since they are ex ante identical, they both have the same propensity to start identically productive business ventures. The thought experiment then goes on to posit that Ashley starts their own business while Blake stays in paid work. Blake's subsequent work trajectory serves as a natural measure of Ashley's opportunity cost at any point; furthermore, if Ashley returns to paid work, we can compare their trajectory from the point of return to Blake's to quantify the wage gains or losses of their entrepreneurial stint.

Unfortunately, comparisons in such ideal experiments are not available to us: we cannot observe potential entrepreneurs. Instead, we compare the wage trajectories of *return-entrepreneurs* (former entrepreneurs after returning to paid work) to the trajectories of *never-entrepreneurs* (other workers who never started a business), and we look at the gradient of wage differences by the length of entrepreneurial experience. For example, if a return-entrepreneur of ten years suffers a larger wage loss than a return-entrepreneur of only one year, this suggests that the outside option of returning to paid work worsens over the course of entrepreneurship. We include a rich set of controls to ensure that return-entrepreneurs are similar to never-entrepreneurs, making our comparisons as tight as possible.

We formalize this argument in a regression framework with a number of fixed effects. Assume we obtain panel data on return-entrepreneurs and never-entrepreneurs indexed by i over time t. We observe workers' wages w_{it}, the duration that return-entrepreneurs have spent in paid work dur_{it}, and their demographic and employment characteristics captured by the grouping function $g(i,t)$. Specifically, $g(i,t)$ denotes worker i's gender, age, education, the calendar year at time t, as well as the occupation, sector, and location they work in at time t, and $\varphi_{g(i,t)}$ is the corresponding collection of fixed effects.

Putting all the pieces together, we estimate the following regression specification:

$$\log w_{it} = \sum_{s=1}^{S} \theta_s \mathbb{1}(dur_{it} = s) + \varphi_{g(i,t)} + \varepsilon_{it}. \quad (1)$$

Our parameters of interest are the sequence of θ's which gives us the relative wage trajectory of return-entrepreneurs, compared to never-entrepreneurs, over S years after returning to paid work. The inclusion of the fixed effects $\varphi_{g(i,t)}$ signifies that we make these comparisons within narrowly defined groups. In practice, we will first estimate a model with gender-by-age, education, occupation, and calendar year fixed effects, then iteratively add sector and location fixed effects; the results will reveal composition effects which have important implications for policymakers.

Next we look at the heterogeneity of these trajectories by the length of entrepreneurial experience $exper_i$.[1] We estimate the following regression:

$$\log w_{it} = \beta_0 exper_i + \sum_{s=1}^{S} (\theta_s + \beta_s exper_i) \mathbb{1}(dur_{it} = s) + \varphi_{g(i,t)} + \varepsilon_{it}. \quad (2)$$

Now our parameters of interest are the θ's and the β's: these parameters describe the relative wage trajectory of return-entrepreneurs for a given length of entrepreneurial experience. Note that this specification is linear in experience. Our modeling choice is driven by data limitations: since we only observe workers for 16 years, we can only track return-entrepreneurs with long experience for a few years. The linear specification allows us to make out-of-sample predictions about the relative wage trajectories for the whole length of our sample, even for return-entrepreneurs with 15 years of experience.

3. Data

We implement our empirical approach on the Quadros de Pessoal (QP) dataset which covers the universe of work histories at Portuguese private firms employing paid workers. We can track a person's work history across employers, accompanied by detailed information on wages, occupations, job titles, and demographics like age, gender, and education. We supplement these data with information on the sector and location of firms from the Sistema de Contas Integradas das Empresas (SCIE) dataset. Our final sample covers the time period of 2004–2020.

One key empirical question for our purposes is how we identify entrepreneurs in the data. The QP–SCIE dataset does not allow us to observe them directly, which is commonplace in large-scale administrative data (see also Félix, Karmakar, and Sedláček 2021). We follow Queiró (2022) and define entrepreneurs as top managers of newly established firms. Top managers are identified as (i) directors according to their 4-digit occupation and (ii) employers according to their professional status. Newly established

1. Note that $exper_i$ varies across individuals but not time. Our sample includes return-entrepreneurs only after returning to paid work, so their entrepreneurial experience is fixed.

	Return-entrepreneurs		Never-entrepreneurs	
Num. observations				
Workers	47,611		5,556,832	
Firms	48,194		661,262	
Share of obs. by education				
Less than high school	30.8		59.4	
High school	24.7		24.1	
College	44.5		16.5	
Most frequent occupations [share]				
1	Sales workers	[8.8]	Sales workers	[7.7]
2	Office clerks	[7.7]	STEM occs.	[6.7]
3	Service workers	[7.1]	Administrators	[6.6]
Most frequent sectors [share]				
1	Real estate	[21.2]	Wholesale	[18.6]
2	Wholesale	[20.2]	Real estate	[14.9]
3	Construction	[10.2]	Construction	[9.5]
Statistics (means [25th ∣ 50th ∣ 75th perc.])				
Male (percent)	59.7		53.4	
Age (years)	41.3	[35 ∣ 40 ∣ 47]	40.1	[32 ∣ 39 ∣ 48]
Monthly wage (EUR)	997	[625 ∣ 915 ∣ 1,636]	763	[557 ∣ 728 ∣ 1,074]
Entrep. experience (years)	3.1	[1 ∣ 2 ∣ 4]	–	
Statistics by education (means [25th ∣ 50th ∣ 75th perc.])				
Less than high school				
Male (percent)	73.1		58.1	
Age (years)	41.3	[33 ∣ 41 ∣ 49]	41.2	[33 ∣ 42 ∣ 51]
Monthly wage (EUR)	642	[500 ∣ 623 ∣ 839]	621	[504 ∣ 638 ∣ 825]
Entrep. experience (years)	2.7	[1 ∣ 1 ∣ 4]	–	
High school				
Male (percent)	65.7		50.2	
Age (years)	38.6	[31 ∣ 38 ∣ 45]	36.1	[28 ∣ 35 ∣ 43]
Monthly wage (EUR)	851	[574 ∣ 768 ∣ 1,275]	789	[597 ∣ 766 ∣ 1,104]
Entrep. experience (years)	2.7	[1 ∣ 1 ∣ 4]	–	
College				
Male (percent)	55.9		44.6	
Age (years)	39.2	[32 ∣ 38 ∣ 45]	37.1	[30 ∣ 35 ∣ 43]
Monthly wage (EUR)	1,483	[902 ∣ 1,545 ∣ 2,619]	1,326	[890 ∣ 1,323 ∣ 2,048]
Entrep. experience (years)	3.5	[1 ∣ 3 ∣ 4]	–	

TABLE 1. Summary statistics

Notes: Return-entrepreneurs are paid workers with an observed entrepreneurial history. Never-entrepreneurs are paid workers who are not observed to have started a business in sample. Workers and firms are anonymized. The firm count for return-entrepreneurs shows the number of firms that employ at least one return-entrepreneur. Educational groups are based on 1-digit educational categories (less than high school: did not finish 12th grade; high school: finished 12th grade but did not earn a bachelor's degree; college: earned a bachelor's degree and may have acquired higher levels of education). Occupations and sectors are measured on the 2-digit level. All statistics for return-entrepreneurs are measured after returning to paid work.
Source: QP–SCIE, authors' calculations.

firms are firms whose (anonymized) identifier appears first in the sample after the first observed calendar year.

The resulting sample covers 5.6 million workers across 709 thousand firms (Table 1). 0.8 percent of these workers are return-entrepreneurs, employed at firms making up 6.8 percent of the firm distribution. Return-entrepreneurs are most commonly working

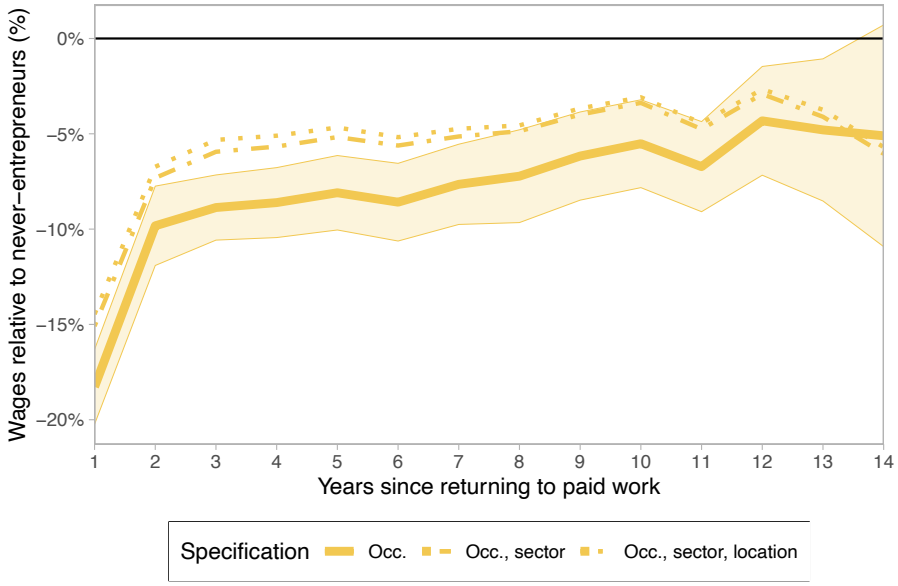


FIGURE 1: Wage trajectories after returning to paid work

Notes: Solid line represents results from specification with occupation FEs. Dash-dotted line represents results from specification with occupation and sector FEs. Dotted line represents results from specification with occupation, sector, and location FEs. Shaded region represents 95 percent confidence bounds around the specification with occupation FEs.
Source: QP–SCIE, authors' calculations.

in sales, office clerk and service occupations while never-entrepreneurs are most likely in sales, STEM, or administrative occupations. Both return-entrepreneurs and never-entrepreneurs are most likely to work in the real estate, wholesale, or construction sector. Return-entrepreneurs are, on average, 6.3 percentage points more likely to be male than never-entrepreneurs, 1.2 years older, 28 percentage points more likely to have graduated from college, and earn 30.5 percent higher wages. Recall, however, that this latter difference is not the relevant comparison: we need to compare return-entrepreneurs with *similar* never-entrepreneurs. Indeed, the wage differences are smaller (4–12 percent) within education groups, so the aggregate wage difference is due to composition effects across education. We make even narrower comparisons in our empirical approach.

4. Results

We now present the results of taking our empirical approach to the data. We first show the estimated relative wage trajectory of return-entrepreneurs compared to never-entrepreneurs. Figure 1 displays the estimated θ coefficients from three alternative versions of Equation 1: one with only occupation fixed effects, one with occupation and sector fixed effects, and one with occupation–sector–location fixed effects.

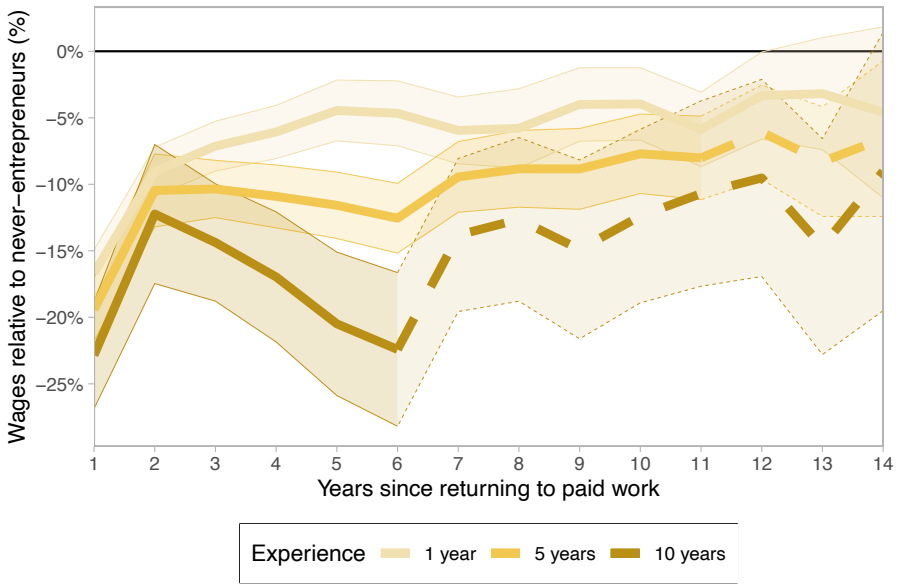


FIGURE 2: Wage trajectories by entrepreneurial experience

Notes: Regression results from specification with occupation FEs. Increasingly darker lines represent wage trajectories after returning to paid work from 1, 5, and 10 years of entrepreneurship, respectively. Shaded regions represent 95 percent confidence bounds. Dashed line segments represent out-of-sample predictions.
Source: QP–SCIE, authors' calculations.

According to our main estimate in Figure 1, return-entrepreneurs—compared to never-entrepreneurs of the same gender, age, education, in the same calendar year, and working in the same occupation—suffer an 18 percent wage loss immediately upon returning to paid work. The wage loss decreases in subsequent years but the trajectory remains flat at a 5 percent loss. The average wage loss is 10.4 percent as shown in Table A.1. Furthermore, the net present value of the wage trajectory is −8.3 percent.[2]

Next, we focus our comparisons on narrower groups. The dash-dotted line in Figure 1 shows the wage trajectory of return-entrepreneurs relative to same-gender-age-education never-entrepreneurs in the same occupation and sector. The immediate wage loss is somewhat smaller but still sizeable at 15 percent, and the long-run wage loss shrinks to 3 percent from 5. The differences between the two estimates are due to composition effects: return-entrepreneurs select into sectors with relatively low wages. Therefore, their wage loss appears to vanish faster when we compare them to the lower baseline of never-entrepreneurs. The same logic applies when we add location to the mix: return-entrepreneurs select into locations with lower than average wages.

Now we know that return-entrepreneurs suffer a wage loss upon returning to paid work, but how does the very act of running a business impact their wages? Figure

2. For this back-of-the-envelope net present value calculation, we set the discount rate to 0.98 and real wage growth to its observed value of 0.05 percent over our sample period 2004–2020.

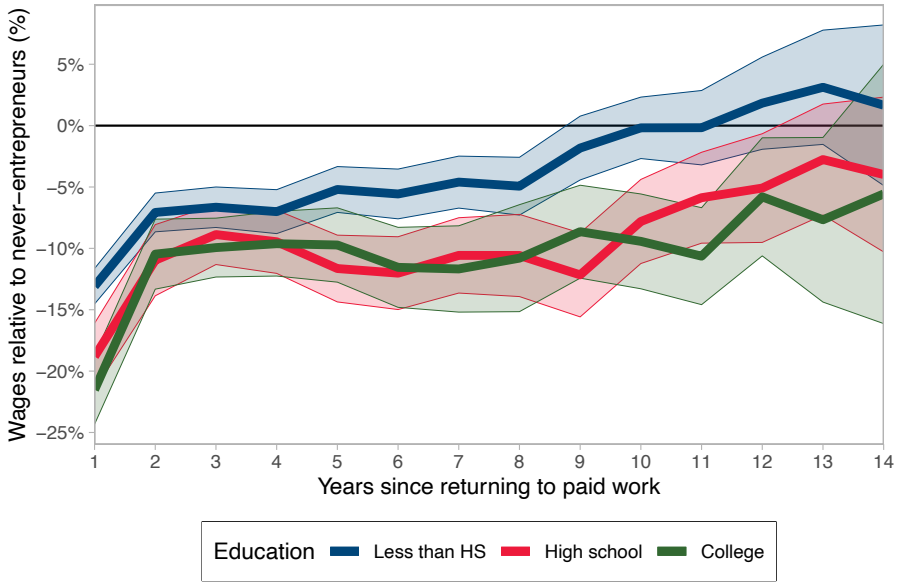


FIGURE 3: Wage trajectories by education

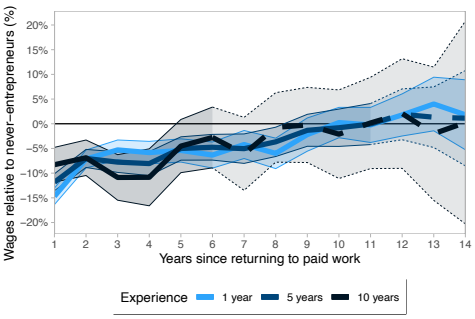
Notes: Regression results from specification with occupation FEs. Blue, green, and yellow lines represent wage trajectories for return-entrepreneurs with less than high school education, high school diploma, and college degree, respectively. Shaded regions represent 95 percent confidence bounds. Dashed line segments represent out-of-sample predictions.
Source: QP–SCIE, authors' calculations.

2 answers this question by displaying the predicted values from three estimates of Equation 2: estimates with 1, 5, and 10 years of entrepreneurial experience.[3] The results are stark: return-entrepreneurs with longer experience fare worse than those with shorter entrepreneurial stints. The wage loss of return-entrepreneurs with 5 years of experience is 3 percentage points larger than those with only 1 year of experience, and the gap grows to 6 percentage points for those with 10 vs. 1 years of experience.[4] These results suggest that time spent in entrepreneurship (i.e., time out of paid work) diminishes the human capital of return-entrepreneurs.

We now turn to discussing how our results differ across return-entrepreneurs by their level of education. We replicate the above analysis separately for three groups of return-entrepreneurs: those without a high school diploma, high school graduates, and college graduates.

3. We only show results from the specification with occupation fixed effects in the main text. The results from the other two specifications are shown in Appendix Figures A.1 and A.2: those estimates are qualitatively similar to the ones presented in the main text.

4. Some of our long-run estimates are out-of-sample predictions since we only observe return-entrepreneurs with 5 (10) years of experience for 10 (6) years. We denote these out-of-sample predictions with dashed lines on our graphs.



(A) Less than high school

(B) High school

(C) College

FIGURE 4: Wage trajectories by education and entrepreneurial experience

Notes: Regression results from specifications with occupation FEs. Increasingly darker lines represent wage trajectories after returning to paid work from 1, 5, and 10 years of entrepreneurship, respectively, within each panel by education. Shaded regions represent 95 percent confidence bounds. Dashed line segments represent out-of-sample predictions.
Source: QP–SCIE, authors' calculations.

Figure 3 displays the wage trajectories of return-entrepreneurs relative to never-entrepreneurs by education. Return-entrepreneurs with higher levels of education suffer larger and more persistent wage losses. Those without a high school diploma experience a 13 percent wage loss immediately after returning to paid work, and catch up to similar never-entrepreneurs within 10 years. At the same time, those with a high school diploma start from 18 percent lower wages (21 percent if they have a college degree), and do not catch up to their never-entrepreneur counterparts within our sample. These results are in line with entrepreneurship-specific human capital that is imperfectly transferable to paid work. If higher-educated entrepreneurs run businesses with more specific human capital and cannot transfer it to paid work, their wages would presumably be lower upon return. At the same time, if return-entrepreneurs with lower levels of education start businesses with less specific human capital, their wage loss would be less severe. These patters exactly coincide with our results.

As a final step, we take a look at the heterogeneity of our education-specific results by entrepreneurial experience in Figure 4. Return-entrepreneurs with less than high school education do not suffer differential losses by entrepreneurial experience. However, the

losses of those with high school or college education are increasing with experience. These patterns further suggest that human capital specificity plays an important role in shaping outcomes after returning to paid work. More educated entrepreneurs who presumably start businesses with more specific human capital suffer larger losses when they ran their business longer; at the same time, entrepreneurial experience does not shift the wage trajectories of less educated return-entrepreneurs.

5. Conclusion

Potential entrepreneurs face many explicit barriers to starting a business. It is costly to set one up, entrepreneurs often need to take on debt to finance their endeavours, and there is uncertainty about how well a business will perform. When businesses close, entrepreneurs often return to paid work. However, accumulating business-specific human capital may affect this outside option, thus posing an implicit barrier to entrepreneurship.

By comparing wage outcomes for entrepreneurs with similar individuals who never started businesses, we show that entrepreneurs initially suffer wage losses when returning to paid work. These wage losses gradually diminish, but it takes years for former entrepreneurs to catch up. Furthermore, both wage losses and recovery to baseline are increasing in entrepreneurial tenure. These effects are also stronger for more educated return-entrepreneurs. Our results suggest that the depreciation of the outside option is an additional barrier to becoming an entrepreneur. Policies that help potential entrepreneurs overcome this barrier, thus insuring against entrepreneurial risk, may improve the allocation of resources, enhance the entrepreneurial environment through business dynamism, and ultimately promote economic growth. Simulating the impact of such policies is an important avenue for future research.

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Appendix: Additional results

Dep. var.: log wage	(1)	(2)	(3)	(4)	(5)	(6)
1(return-entrep.)	-0.1036^{***}	-0.0728^{***}	-0.0768^{***}	-0.0471^{***}	-0.0717^{***}	-0.0443^{***}
	(0.0083)	(0.0091)	(0.0058)	(0.0073)	(0.0056)	(0.0071)
Entrep. experience		-0.0101^{***}		-0.0097^{***}		-0.0089^{***}
		(0.0021)		(0.0019)		(0.0019)
Observations	41,793,126	41,793,126	41,793,126	41,793,126	41,793,126	41,793,126
Gender×age FE	✓	✓	✓	✓	✓	✓
Education FE	✓	✓	✓	✓	✓	✓
Calendar year FE	✓	✓	✓	✓	✓	✓
Occupation FE	✓	✓	✓	✓	✓	✓
Sector FE			✓	✓	✓	✓
Location FE					✓	✓
R^2	0.3497	0.3497	0.3912	0.3912	0.3979	0.3979

TABLE A.1. Lifetime wage loss after returning to paid work

Notes: Standard errors, clustered at the firm level, in parentheses. *** p<0.001, ** p<0.01, * p<0.05. Sample includes entrepreneurs after returning to paid work as well as never-entrepreneurs. Outcome variable is log wages. Each year of age has its own fixed effect parsed by gender. Education is measured as 1-digit educational categories. Occupations and sectors are measured on the 2-digit level. Locations are NUTS II statistical regions.
Source: QP–SCIE, authors' calculations.

Table A.1 shows our results on the lifetime wage loss after returning to paid work. The sample includes return-entrepreneurs after their return to paid work as well as never-entrepreneurs. Column (1) shows that the wage loss of return-entrepreneurs is 10.4 percent on average, compared to never-entrepreneurs in the same gender, age, education, and occupation group in the same calendar year. Looking at the dynamics of wage losses, column (2) shows that the baseline wage loss is 7.3 percent and each year of entrepreneurial experience goes along with a further 1 percentage point decrease.

Columns (3)–(4) and (5)–(6) repeat this analysis with the addition of sector and location fixed effects. The results with sector fixed effects in columns (3)–(4) indicate that return-entrepreneurs suffer a 7.7 percent lifetime wage loss on average, with each year of entrepreneurial experience adding 1 percentage point. These estimates imply that return-entrepreneurs return to lower-paying sectors; that is, their wage loss is lower because we compare them to a lower baseline. The same logic applies to the inclusion of location fixed effects in columns (5)–(6). All results are statistically significant and economically sizable.

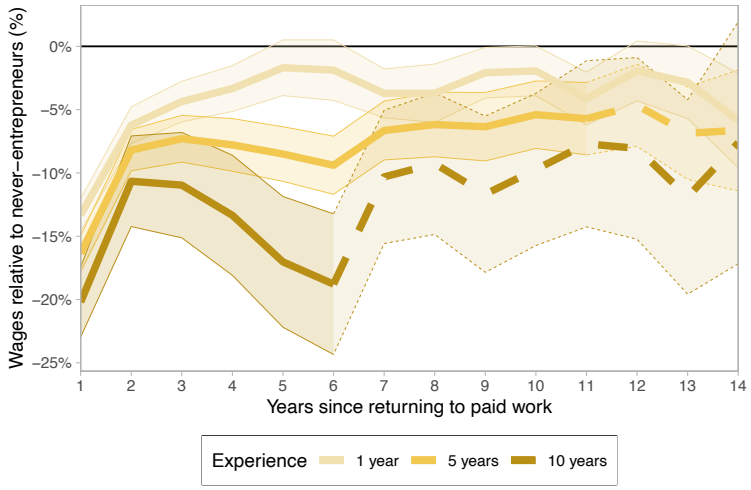

FIGURE A.1: Wage loss by entrepreneurial experience with sector fixed effects

Notes: Regression results from specification with occupation and sector FEs. Increasingly darker lines represent wage trajectories after returning to paid work from 1, 5, and 10 years of entrepreneurship, respectively. Shaded regions represent 95 percent confidence bounds. Dashed line segments represent out-of-sample predictions.
Source: QP–SCIE, authors' calculations.

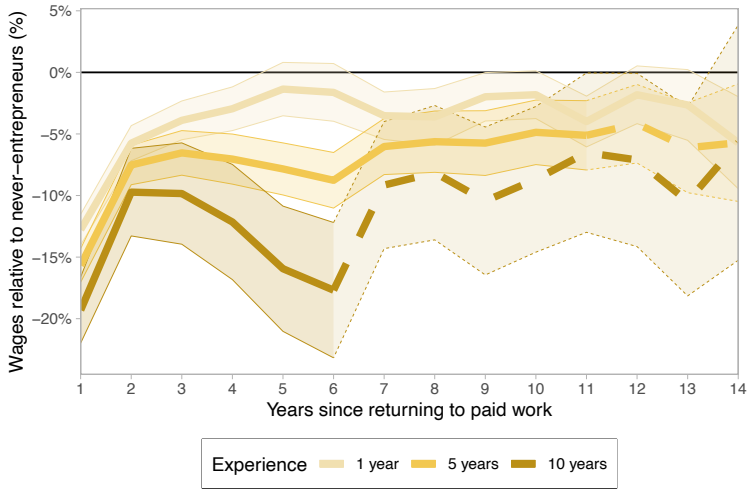

FIGURE A.2: Wage loss by entrepreneurial experience with sector and location FEs

Notes: Regression results from specification with occupation, sector, and location FEs. Increasingly darker lines represent wage trajectories after returning to paid work from 1, 5, and 10 years of entrepreneurship, respectively. Shaded regions represent 95 percent confidence bounds. Dashed line segments represent out-of-sample predictions.
Source: QP–SCIE, authors' calculations.

Figures A.1 and A.2 replicate the results shown in Figure 2 with the inclusion of more fixed effects, resulting in narrower comparisons. The three sets of results

are qualitatively similar: longer entrepreneurial experience goes along with more persistent wage losses. When comparing return-entrepreneurs to never-entrepreneurs in narrower groups (same sector and location, not just same occupation), the losses are less persistent. These results, similar to those presented in Figure 1, imply that return-entrepreneurs select into low-paying sectors and locations upon returning to paid work.