Long-Term and Lasting Impacts of Personal Initiative Training on Entrepreneurial Success

Francisco Campos
Michael Frese
Leonardo Iacovone
Hillary C. Johnson
David McKenzie
Mona Mensmann

Abstract

A randomized experiment in Togo found that personal initiative training for small businesses resulted in large and significant impacts for both men and women after two years (Campos et al, 2017). This paper revisits these entrepreneurs after seven years, and finds long-lasting average impacts of personal initiative training of $91 higher profits per month, which is larger than the 2-year impacts. However, these long-term impacts are very different for men and women: the impact for men grows over time as they accumulate more capital and increase self-efficacy, whereas the impact for women dissipates, and capital build-up is much more limited.

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Francisco Campos, Michael Frese, Leonardo Iacovone,

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1. Introduction

Can business training programs that show short-run gains in profitability result in long-lasting entrepreneurial success? The return on investment from the billions spent by governments, aid agencies, microfinance organizations, and NGOs on training small businesses in developing countries will vary dramatically depending on the answer, yet most evaluations only track firms for one to two years (McKenzie et al. 2023). A lasting and constant long-term impact could arise if training improves the "A" term in the production function, increasing the long-term steady state size of the firm. The impact could increase over time if training results in growth through innovation and self-reinforcing psychological impacts. But conversely, impacts may be short-lived if training provides information that only helps solve immediate problems, just speeds up convergence to an existing steady state by helping firms over capital constraints, or if there is knowledge and skill decay and a reversion to previous business practices and mindsets. Psychological transfer studies show substantial decay over longer time periods (Blume et al, 2010).

Recent literature looking at the long-term impacts of cash transfers and multifaceted ultra-poor programs that involve asset transfers along with other components have found mixed results on business outcomes. Some studies have found lasting impacts, perhaps due to behavioral reasons and cash helping smooth shocks (de Mel et al. 2012), or to very poor households accumulating enough assets to potentially overcome threshold effects and sustain agricultural businesses (Balboni et al, 2022). However, others find fade-out due to control group catch-up and convergence (Barker et al, 2024; Blattman et al, 2020; Blattman et al, 2022; Brudevold-Newman et al. 2024). Bouguen et al. (2019) examine the emerging evidence on the long-run effects of development interventions and note that "human capital interventions appear to be particularly effective in boosting long-run economic outcomes" (p.529), although this finding comes from health and education programs, with no such evidence for entrepreneurial human capital. They also note that impacts can often differ substantially by gender, and by the population being targeted.

We examine the long-run impacts of a personal initiative training program in Togo, which is a psychology-based program designed to develop a proactive entrepreneurial mindset (Frese, 2024). In an experiment with 1,500 small business entrepreneurs, we found that this personal initiative approach resulted in a 30 percent improvement in profits over two years, approximately three times that of a traditional business training approach, with similar impacts for both male and female

entrepreneurs (Campos et al, 2017). Based on these results the World Bank, Inter-American Development Bank, and several NGOs have launched this training in more than a dozen countries. In this paper we revisit this experiment seven to 7.5 years after training,

In the pooled sample of men and women, we find a long-term and lasting impact of personal initiative training on entrepreneurial success. The entrepreneurs had an average age of 40 at baseline and had well-established firms. Business survival is high, with 88 percent of the control and 91 percent of the personal initiative training group still in business seven years later. The average impact on monthly business profits has grown from $64 after two years to $91 after seven years, which is 52 percent higher than the control mean. This increase in profits does not come at the expense of less wage income, as total labor income rises by a similar magnitude. In contrast the long-term impacts of traditional business training remain around one-third of the magnitude of those of personal initiative training, and are not statistically significant.

However, despite men and women showing similar 2-year impacts from personal initiative training, we find very different long-term dynamics. The treatment effects for men have grown over time, and after 7 years they see a $148 increase in monthly profits, a 77 percent increase on the control mean. They have accumulated substantial amounts of capital, and entrepreneurial self-efficacy is significantly higher, potentially generating a self-reinforcing psychological cycle. In contrast, profits of women have converged back towards the control group, with their treatment effect of $39 not statistically significant, and only one-quarter of that for men. Analysis of quantile treatment effects shows men particularly pulling away from women in the top half of their respective distributions. Women have accumulated less capital, and see a smaller increase in their "A" component, particularly in self-efficacy. We conclude by exploring different potential explanations for the lack of sustained impact for women: differences in the growth potential and demand in the sectors they work in, redirection of their efforts and capital towards other household businesses, and investment in their children and household instead of their business. We can rule out other household businesses, but limited sectoral overlap with men and a lack of data on household outcomes restrict what we can conclude on these other mechanisms.

2. Experimental Design and Personal Initiative Training

The study took place in the capital city Lomé, of Togo, as part of a World Bank-financed project to support private sector development. Eligibility was restricted to firms that were in business for

at least 12 months, were operating outside of agriculture, were not formally registered companies, and that had fewer than 50 employees. A communication campaign in 2013 attracted 3,220 firms that met this eligibility criteria, and a sample of 1,500 were then selected for the experiment.

A. Experimental Sample and Design

The experimental sample consists of 789 female-operated businesses and 711 male-operated businesses. In contrast to studies which focus on youth running new enterprises, and on ultra-poor individuals operating subsistence businesses, the entrepreneurs in this study are older (median age of 42 for women and 38 for men) and are running established firms (median firm age of 11 years for women and 8 years for men). 82% of men and 65% of women had at least one other worker in their firm, with a mean of 3.8 workers for men and 1.9 workers for women. Mean monthly profits are US$246 for men and US$173 for women.[1] 71% of the women are in commerce, with the typical activities being selling food and clothing. Hairdressing and sewing are the other main activities. In contrast, only 22% of the men are in commerce, with the majority spread across a range of different manufacturing activities, as well as in construction and repair services.

The 1,500 firms were stratified by gender and sector, and grouped into triplets according to baseline profits. Within each triplet, firms were then randomly assigned to a control group (N=500), traditional business training group (N=500), and personal initiative training group (N=500).

B. The Intervention: Personal Initiative Training

Both business training programs were implemented in April 2014 in the form of 36 hours of in-person classroom training spread over four weeks, followed by a trainer visiting the business for three hours, once per month, for each of the next four months to assist with implementing the concepts learned. Both programs had a similar delivery cost of approximately $750 per invited business, and charged firms a highly subsidized fee of $10. Take-up rates were equal in the two training programs, at 84 percent.

The traditional business training used the Business Edge program developed by the International Finance Corporation and adapted to the Togo context. It focused on teaching standard business

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[1] We convert all financial outcomes into real September 2021 U.S. dollars using an exchange rate of 550.5 CFA per USD and the Togo Consumer Price Index collected by INSEED (https://inseed.tg/).

practices such as accounting and financial management, marketing, and human resource management.

In contrast, personal initiative training is a psychology-based approach that aims at creating a self-starting, future-oriented, and persistent proactive mindset (Mensmann and Frese, 2017). The training contains exercises designed to foster innovation, as well as looking for opportunities to learn from setbacks and to differentiate oneself from other businesses. Another key component of the training emphasizes financial bootstrapping, through looking for ways to address financial challenges without taking on bank loans or using microcredit. Exercises have entrepreneurs brainstorm to think through approaches like securing advance payments from customers or more favorable terms from suppliers, and self-funding towards meeting a business goal. Campos et al. (2017) and Mensmann and Frese (2017) provide more details of the training content.

C. Data and Attrition

Our short-term results in Campos et al. (2017) use the baseline survey taken in December 2013, and four rounds of follow-up surveys collected between September 2014 and September 2016. Averaging these rounds together gave profit and sales impacts over the first 2 years and five months after training. Response rates for these follow-up rounds ranged from 89 to 95 percent (Table A1). Long-term follow-up surveys to measure impacts 7 to 7.5 years post-training were conducted by the survey organization AdKontact Togo in 2021. We began with a phone survey in March-April 2021, and were able to interview 1035 entrepreneurs (69%). This was followed by an in-person survey in September-October 2021, which interviewed 1131 entrepreneurs (75%). Combining the two surveys, we have interviews for 1250 owners (83.3%), and in addition were able to ascertain the operating status (including closures) of a further 91 firms, so that the operating status of 1341 firms (89.4%) is known.

Although this overall response rate is high, Table A1 shows that it varies with treatment status, with response rates for the control group 7 to 8 percentage points lower than the personal initiative training group. We pursue several strategies to show that our results are unlikely to be driven by attrition. First, following Ghanem et al. (2023), we show that both the sample of non-atttritors (Table A2a) and of attritors (Table A2b) are balanced on baseline characteristics across all three groups. While not statistically different, if anything the control group firms that remain were doing slightly better on baseline profitability and capital stock than the personal initiative firms,

suggesting it was the less profitable control firms that were more likely to attrit. Second, we examine dynamic selection into attrition in Table A3, comparing firms which answered both the in-person and phone surveys, to those which answered only one, and to the attritors. We see that the firms that were harder to get to respond were ones that were less likely to be still operating after two years, and that were more likely to have below median profits. The attritors therefore appear to be less successful entrepreneurs on average, making our estimates of long-term treatment effects likely to be lower bounds (since we are missing more less-successful control firms than less-successful treated firms). We additionally show the results are robust to different sets of robustness controls and to different bounding assumptions about the self-employment status and profits of these attritors (Tables A4 and A5). Finally, we note that the attrition rates for the traditional business training group are similar to those of the personal initiative group, and so comparisons between these two groups should be less affected by attrition.

D. Estimation

We estimate the following panel data equation for firm i in randomization strata s at time t, using our 4 short-term rounds and combined fifth long-term follow-up round:

$$y_{i,t} = \alpha + \beta_{sr}1(t \leq 4) * PI_i + \beta_{lr}1(t = 5) * PI_i + \gamma_{sr}1(t \leq 4) * TRAD_i$$

$$+\gamma_{lr}1(t = 5) * TRAD_i + \rho_{SR}y_{i,0} + \rho_{LR}y_{i,0} + \delta_t + \mu_s + \varepsilon_{i,t} \quad (1)$$

Where $1(t \leq 4)$ and $1(t = 5)$ are indicator variables for the short-run and long-run survey rounds respectively, PI denotes assignment to the personal initiative training, $TRAD$ denotes assignment to traditional business training, $y_{i,0}$ is the baseline value of the dependent variable, δ_t are survey round fixed effects, μ_s are randomization strata by short- or long-run fixed effects, and the standard errors $\varepsilon_{i,t}$ are clustered at the firm level.[2] β_{sr} then gives the short-run effect of personal initiative training averaged over the four initial survey rounds, and β_{lr} the long-run effect at 7 to 7.5 years post-training (with γ_{sr} and γ_{lr} defined likewise as the short-run and long-run effects of traditional business training). We then test $\beta_{sr} = \beta_{lr}$ to test whether the impact of personal initiative training is constant over time, and can also test $\beta_{lr} = \gamma_{lr}$ to test whether personal initiative training has the

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[2] We use this saturated formulation which allows the strata and coefficient on the lagged variable to vary with short- and long-run, so that the estimated short- and long-run treatment effect coefficients are the same as those which would be obtained by estimating this model separately for the two time periods.

same long-run impact as traditional business training. We also examine heterogeneity in impacts by gender, by interacting all the variables in equation (1) with an indicator for the gender of the firm owner.

Our main outcome of interest is business performance, which we examine by looking at profitability and sales. These were the main primary outcomes specified in our original pre-analysis plan, and in our main results table in Campos et al. (2017). Three issues are worth noting in examining these outcomes. First, profits and sales are only measured for firms that are still operating. Figure 1A, and Table A4 show that 88% of control firms are still surviving in our long-term follow-up, with the personal initiative group being a statistically insignificant 3 percentage points more likely to survive. We estimate impacts on unconditional profits, which use all firms and code closed firms as having zero profits, as well as impacts on profits conditional on survival. Second, 25 percent of the sample operates more than one firm by the long-term follow-up. We therefore examine profits and sales in their main firm, as well as across all firms combined. Third, profits and sales are highly skewed outcomes. We winsorize at the 1st and 99th percentiles, and also examine quantile treatment effects on profits, given the issues in interpreting log-like transformations (Chen and Roth, 2024). Finally, in addition to business profits, we also examine total labor earnings, which combines profits with any income earned from wage work.

We follow suggestions by Viviano et al. (2024) in our approach to multiple hypothesis testing. Our main interest is in the personal initiative training treatment, and so we do not adjust for the presence of a second treatment (traditional training) that has limited scale economies. We then see firm profits as the main primary outcome, and use index measures to aggregate secondary mechanisms.

3. Why might Personal Initiative Training Have (or Not Have) Sustained Impacts?

An entrepreneur operating in industry i with production function $f_i(.)$, chooses how much capital K, and labor L to use in their business in order to maximize profits, subject to a borrowing constraint B on how much capital they are able to access:

$$\max_{K,L} p f_i(A, K, L) - rK - wL \quad s.t. \ \ K \leq B \quad\quad (2)$$

where p is their output price, r and w the cost of capital and labor respectively, and A includes entrepreneurial skills, knowledge, ability, and personality that determine how efficiently inputs can be turned into output. Then, as in Lucas (1978), the optimal steady-state size of the firm will

depend on A, while credit-constrained firms will be operating below the efficient scale until they can accumulate more capital.

There are several potential mechanisms through which personal initiative training could then change this maximization problem, with differing predictions for whether we should expect lasting impacts from training.

Training increases A, increasing the optimal steady state size of the firm, leading to the treatment impact persisting over time: We can think of at least three components of A which training might affect. The first is business practices, such as record-keeping and marketing practices. Second are psychological aspects of A, such as personal initiative, and entrepreneurial self-efficacy. Third is innovation and technology, which can also be thought of as potentially changing the production function f() itself. An increase in A should then cause a long-term increase in profitability and size of the firm, so that we should expect the gap between the personal initiative treatment group and control group to persist over time. *However, if increases in A are short-lived, then any increase will be temporary.* Firms may stop using better business practices over time (Bloom et al., 2020 find decay in the use of management practice improvements in much larger firms over time). Knowledge and skill decay and fatigue may cause entrepreneurs to reduce the amount of personal initiative over time (Mensmann and Frese, 2019), and external shocks to the business may take away focus and set in place a negative feedback cycle in which they lose confidence in their abilities. Changes in market demand and technological depreciation may mean that new products and technologies introduced immediately after training may no longer be as profitable after multiple years, and so unless entrepreneurs keep innovating, A will fall back towards initial levels.

Training may relax borrowing constraints, speeding up convergence to a steady-state, but with the control group catching up over time and the treatment effect decreasing over time: The financial bootstrapping aspect of personal initiative training may have helped entrepreneurs to relax the borrowing constraint $K \leq B$. If this is the only impact of training, and there is no change in the optimal steady state size, then we should expect impacts to decay over time as the control group more slowly accumulates capital. Two potential avenues for a long-term impact here are if training also lowers the cost of obtaining capital r, thereby increasing the optimal size of capital at which the marginal product of capital equals r, or if there are behavioral constraints that make it difficult

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for the control group to reinvest profits in their business even when the return on capital exceeds r (as discussed for cash transfers in de Mel et al, 2012).

There is also the possibility of the treatment effect increasing over time if increases in A become self-reinforcing. A further possibility is that there is not just a level increase in A, but that training induces an endogenous growth process whereby entrepreneurs can keep increasing their level of A further over time. This could occur if they are able to continually introduce new innovations, or through a self-reinforcing psychological channel, whereby higher profitability encourages and reinforces trained behavior, leading entrepreneurs to become more confident and invest further in using the training. In addition, if training helps firms better survive shocks, then over time as firms cumulatively face more and more shocks, treatment effects could further diverge through a survival effect.

4. Long-Term Follow-up Impacts

4.1 Long-Term Impacts on Business Performance in the Pooled Sample

We begin by pooling together men and women, to estimate impacts on the full sample. Figure 1 plots mean survival, profits, and number of employees over time by treatment status. In panel A we see that survival rates remain high after 7 years, at 88 percent for the control group and 91 percent for the personal initiative training group. This 3 percentage point (p.p.) difference is not statistically significant. Table A4 examines the survival impact under different assumptions about the survival of attritors, and shows that this impact would grow to 5.4 p.p. if half of all attritors were closed, and 8.8 p.p. if all attritors were closed.

Panels B and C then examine our key outcome of business profitability, with panel B coding closed businesses as having zero profits, and panel C conditioning on survival. We see that profitability of control group firms has not grown between 2013 and 2021, with surviving firms earning $196 per month on average in 2021, compared to $202 per month in 2013. In contrast, the personal initiative training group increases profits relative to both the control and traditional training groups over the first two years, and this gap persists over our 7 to 7.5 year follow-up period.

Table 1 shows a statistically significant treatment effect of personal initiative training on profits in the main business of $59 per month after 2-years and $72 per month after 7-years. The impacts

across all businesses run by the entrepreneur are slightly larger at $64 per month after 2-years and $91 per month after 7-years, suggesting that while most of the effect comes through the main business, there is also some growth in diversified activities. The difference between the short and long-term impact is not significant (p=0.336); this is also true for profits conditional on survival, Sales in all businesses are up $423 per month in the personal initiative group after 7-years. Combining our main business profit and sales measures into a standardized index, we see a statistically significant long-term impact of 0.19 standard deviations. The growth in profits is not coming at the expense of lower labor earnings from wage work, as total labor earnings from both the business and other labor activities are up $89 over 7-years. In contrast, the long-term impacts of traditional business training are not statistically different from zero, are statistically different from personal initiative training, and are approximately one-quarter to one-third of the magnitude of the personal initiative impacts.

Table A5 shows the significant increase in profits to be robust to different assumptions about attrition . Table A6 also examines impacts on log profits and sales, profits and sales in the best and worst months of the year, and recall of profits and sales in the best and worst months of 2019. Personal Initiative training does not boost profits or sales in the worst months of the year for business, but has even larger impacts in the best months.

This long-term impact of personal initiative training of $91 per month represents a 52 percent increase on the control mean of $173. Assuming that the short-term and long-term impacts also apply to the period in between, this would suggest a total cumulative gain in profits of over $6,900 over the 7.5 years post-training, or an over 900% return on the $750 cost of training.

4.2 Gender Heterogeneity in Treatment Impacts

This study was set up to also examine whether personal initiative training would be at least as effective for women as for men, with the randomization stratified by gender and the sample chosen to give approximately equal samples of male and female entrepreneurs. Over the first two years of the program this was the case, with positive impacts for women irrespective of their initial levels of human capital (Campos et al, 2018), and we could not reject equality of treatment effects of personal initiative for men and women.

We examine how these dynamics vary over time in Figure 2 and Table 2. Column 1 of Table 2 shows that the treatment impact of personal initiative training was $65 for men and $61 for women over the first two years. Panel B of Figure 2 shows that not only do men and women both have positive average impacts that are similar in levels over this period, but that the quantile treatment effects on profits for men and women are almost identical to one another across all quantiles at 2 years. However, men and women experience dramatically different impacts after 7 years. Panel A of Figure 2 shows profits in the treatment group continued to grow over time for men, but are smaller for women at 7 years than they were at 2 years. Men assigned to personal initiative training have an average increase in monthly profits after 7 years of $148, almost four times the statistically insignificant gain of $39 per month for women. We can reject equality of long-run impacts by gender (p=0.053). There is evidence of divergence for men, as the 7-year impacts are more than twice the size of the 2-year impacts (p=0.074), whereas the treatment magnitudes are smaller at 7 years than 2 years for women, although we cannot reject equality over time for them (p=0.507). Panel B of Figure 2 shows that we not only see a gender difference in average impacts, but also very different quantile treatment effects in the long-run. Quantile treatment effects are high for the top half of men, especially those at the top of the distribution, whereas they are flat and near zero across the distribution for women. Columns 2 to 4 of Table 2 show that we see similar results of a large and statistically significant long-term impact of personal initiative training for men if we condition on survival, look at an overall standardized index of profits and sales, or look at total labor income including any wage earnings. The impacts for women are always much smaller in magnitude, although we cannot reject equality of the male and female effects for some of these outcomes.

There is limited evidence on the long-term effectiveness of traditional business training programs, with most studies tracking impacts over just one to two years (McKenzie, 2021). McKenzie and Puerto (2021) find larger impacts at three years than one year, and suggest that it can take credit-constrained firms time to reinvest profits and grow after training. However, Table A7 shows that the 7-year traditional training impacts remain much smaller in magnitude than the personal initiative training impacts, and are not statistically significant for either gender.

Columns 5 to 10 of Table 2 examine the mechanisms through which training may be having these impacts through testing impacts on A, K, and L. Neither men nor women increase employment in

their firms. Panel D of Figure 1 and column 5 show a small and insignificant impact on the number of employees, which has stayed constant over time. Table A8 shows this remains the case if we examine employees in all firms (only measured in the long-run survey), as well as if we restrict attention to paid employees. This lack of labor impact is consistent with the meta-analysis of short-term training impacts in McKenzie et al. (2023), who find a relatively precise zero impact of business training on employment in small firms. This may arise because the existing workforce (including the owner) has some slack and scope to work harder without the firm needing to hire more workers (Egger et al, 2024), as well as firms being able to use more capital in place of additional labor.

Column 6 shows that personal initiative training instead caused large increases in the capital stock of firms operated by men, with a 2-year impact of $1,298, and 7-year impact of $3,627. This 7-year impact represents an 81% increase on the control mean of $4,461, and the long-run effects are significantly larger than the short-run. Figure A1 shows that firms run by women had much lower capital stock to begin with, and that women increase capital stock much less over time. The treatment effect at 7-years of $1,166 is less than one-third of that of men, is not statistically significant, and we can reject equality with the impact for men (p=0.100). As with profits, the quantile treatment effects for capital stock are much larger for men across the distribution (Figure A1). Table A9 examines impacts on the different types of capital stock, and shows that the largest increases, and biggest gender differences, are in the amount of machinery and equipment, and vehicles.[3] In addition to building up more capital, there is also a positive treatment effect for men on the amount they think could borrow on short notice (Table A8).

The remaining columns of Table 2 consider impacts on different aspects of A, which are then combined into an overall index measure in the last column. Column 7 shows that there is a significant long-term impact of personal initiative training on entrepreneurial self-efficacy for men of 0.15 standard deviations, compared to a negative and insignificant effect for women. This impact is larger than in the short-run, and suggests a possible self-reinforcing psychological mindset, whereby success increases self-efficacy, giving men confidence to further invest and grow their businesses. Column 8 shows that while the short-run impacts on personal initiative were

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[3] The value of land and buildings also increases, but we exclude this from our measure of capital stock in Table 2 given that it is an asset that can be intertwined with the household, and that has a very skewed distribution with only 16 percent of firms listing a positive value.

larger for women, the impacts are similar (0.11 for men, and 0.09 for women, measured as points on a 5-point Likert scale, or around 0.16 s.d.) after 7 years. Column 9 shows that both types of training program have a lasting impact on business practices, with men and women doing 6 to 9 percentage points more practices after 7 years. Combining these factors into an "A" index, we see a statistically significant long-run increase of 0.28 s.d. for men and 0.18 s.d. for women. Table A8 also examines impacts on two other potential components of "A" that were not measured in the same way or not measured in the short-run: there is a small positive impact on innovation, and on digitalization.

Taken together, these results suggest long-term divergence for men, with the impact on profits growing over time. Men have built up capital, are able to borrow more if they need to, and they may be in a self-reinforcing psychological mindset whereby success increases self-efficacy, further boosting the business. There is a sustained impact on "A", so that their optimal business size may continue to increase with time. In contrast, the impacts for women are either flat or converging back towards the control group, and they have built up much less capital. This lack of long-term success may then prevent a positive reinforcement cycle.

4.3 Why is there this Long-Term Gender Difference?

We consider several possible explanations for these differences in long-term effects by gender. A first potential explanation is that the impacts arise from gender differences in industry and efficient scale. The women in our sample are running smaller businesses than men on average, and are more likely to be in commerce. De Mel et al. (2009) argue that women see lower returns to capital than men because many of them are operating in industries where the efficient scale is low. Hardy and Kagy (2020) note further that women tend to concentrate in a small number of industries, so that demand is more of a constraint on their growth than access to inputs. Sectors like commerce and hairdressing may have less scope for growth through capital accumulation alone, but face difficulties consolidating into a smaller number of larger firms (Hardy et al, 2024). Even though all our surveys took place at times when markets were open, a further sectorial reason for differences could be if the COVID-19 pandemic hit women-dominated sectors harder, causing

them to sell off capital.[4] The first two columns of Table 3 show that the large gender differences are there for firms that had below median profitability at baseline as well as above median profitability, suggesting that is not simply due to women having smaller baseline scale. The next two columns split the sample by commerce or not commerce, and find large impacts for men and smaller and insignificant impacts for women in both subsamples. However, we have almost no overlap in the specific subsectors that men and women operate in, so cannot rule out that differences stem from women being in subsectors with low efficient scale and limited demand.

A second potential explanation is that women see limited long-term impact in their businesses because they instead redirect their capital and entrepreneurial insights towards businesses run by other household members. Bernhardt et al. (2019) show evidence of this for cash transfers. Table 3 shows no significant impact of treatment on whether anyone else in the household operates a business, and that only one-third of women have another household member operating a business. Treatment effects are large and positive for men, and smaller and not statistically significant for women even in the subsample in which no one else in the household operates a business. The evidence therefore does not seem consistent with this explanation.

A third set of explanations center around women instead spending the money on other household members, either because they lack control over how business revenues are spent (Riley, 2024), or because they see high returns in investing in the education and health of family members. For example, Agte et al. (2022) find that women getting a microfinance intervention divert some of the income gains away from their business to invest in children's education, with this effect stronger for those with more education. Friedson-Ridenour and Pierotti (2019) additionally suggest some married women limit how much they invest in their businesses to ensure continued support from their husbands and to be able to respond to household emergencies. Given concerns about survey fatigue and difficulties in getting entrepreneurs to answer, our long-term survey focused on business outcomes, and did not collect any information on household expenditure, household asset ownership, or children's outcomes. We therefore can not look at this explanation directly, but in Table A10 examine this indirectly through exploring heterogeneity in impacts among women by baseline decision-making power and household structure. 85 percent of women say they have sole

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[4] Partial evidence against this explanation comes from seeing that for the subset of firms that recall 2019 profits, the 2021-2019 difference in profits in the control group is not statistically different between men and women for either the best month or worst month's profits.

decision-making power over how business revenues are spent. The treatment effect on profits is significantly lower for the 15 percent that do not[5], and the impact is $70 (significant at the 10 percent level) for those with sole decision-making power. Interactions are relatively small and insignificant with whether they have sole decision-making power over household expenses, look after children or elderly members, or have below median education. The treatment impact is larger ($106 per month) for the 24 percent who were not married or in a domestic partnership at baseline, but the standard error is large and this interaction is not statistically significant. Hence there does not seem to be strong indirect evidence for the money being spent on children and elderly members, but suggestive evidence for a role for business decision-making power and marital status.

None of these three explanations fully explain the gender gap in our data, although our power to detect heterogeneity is limited once we start splitting the sample. Moreover, women often face many overlapping constraints to business growth, and so there is likely not one single factor that explains this gap, but rather a combination of the above explanations. It seems plausible that many women are in industries where the return to building up additional capital is limited, and they instead spent their short-term profit gains on household needs, but our data do not provide evidence of this.

5   Discussion and Conclusions

A short course in personal initiative training for small business owners in Togo resulted in long-lasting and sustained average impacts on business profits. An approximate cost-benefit calculation suggests firm owners have earned a cumulative return of 900 percent or more on the cost of this training over seven years. These entrepreneurs were able to increase their capital stock holdings on their own, without the need for asset or cash transfers, and experience long-lasting gains in entrepreneurial human capital. These impacts contrast with those from traditional business training, which remain much smaller and not statistically significant. Together with recent results from Chioda et al. (2023) who find sustained impacts on youth of a mixture of hard and soft skills training, these results show that high-quality business training content that incorporates

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[5] However, the control mean is much higher, so this may reflect outlier effects in a small sample.

psychological tools can be extremely effective, in contrast to the skepticism often expressed about standard business training programs (McKenzie, 2021).

Personal initiative training seems to have particularly effective long-term impacts for men, especially in the upper quantiles of treatment effects. The reduced long-term impact for women entrepreneurs was a surprise to us in light of the positive 2-year impacts, and suggests a need to test whether complimentary interventions alongside personal initiative training are needed for them (such as helping them change industries, facilitating access to capital, or empowerment efforts). But even with these much smaller long-term impacts, the training still yields higher benefits for women than the cost of the training.

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Figure 1: Personal Initiative Training Has a Long-Term Positive Impact on Business Profits
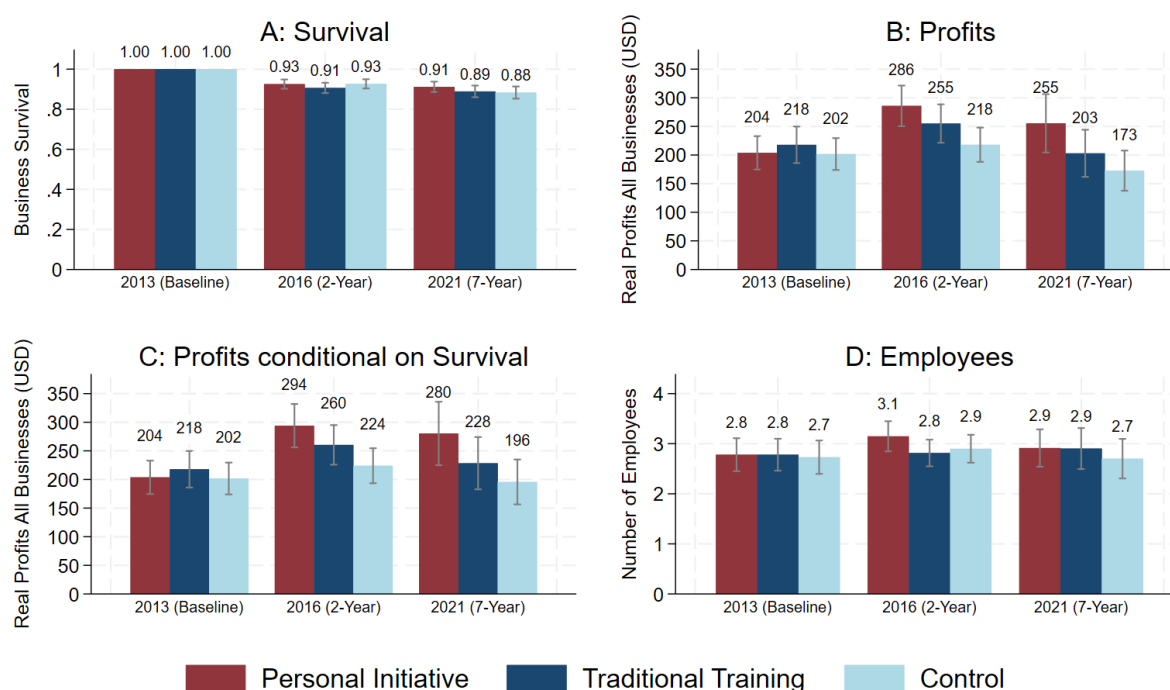
Notes: Business survival defined as still running an enterprise. Profits are aggregated across all businesses owned, and are converted into real September 2021 USD, and winsorized at the 1st and 99th percentiles. Employees are in main firm, since employees in other firms not asked in 2016. Panels B and D code entrepreneurs with no business as earning zero profits and having zero employees, while Panel C codes them as having missing profits. Two-year survival comes from the 2016 follow-up survey; two-year profits and employees are averaged over all four short-term follow-up rounds. 95 confidence intervals around sample means shown.

Figure 2: No gender difference after 2 years and Men benefiting much more than Women after 7 years

A: Mean Profits by Gender and Time Period

B: PI Quantile Treatment Effects on Total Profits
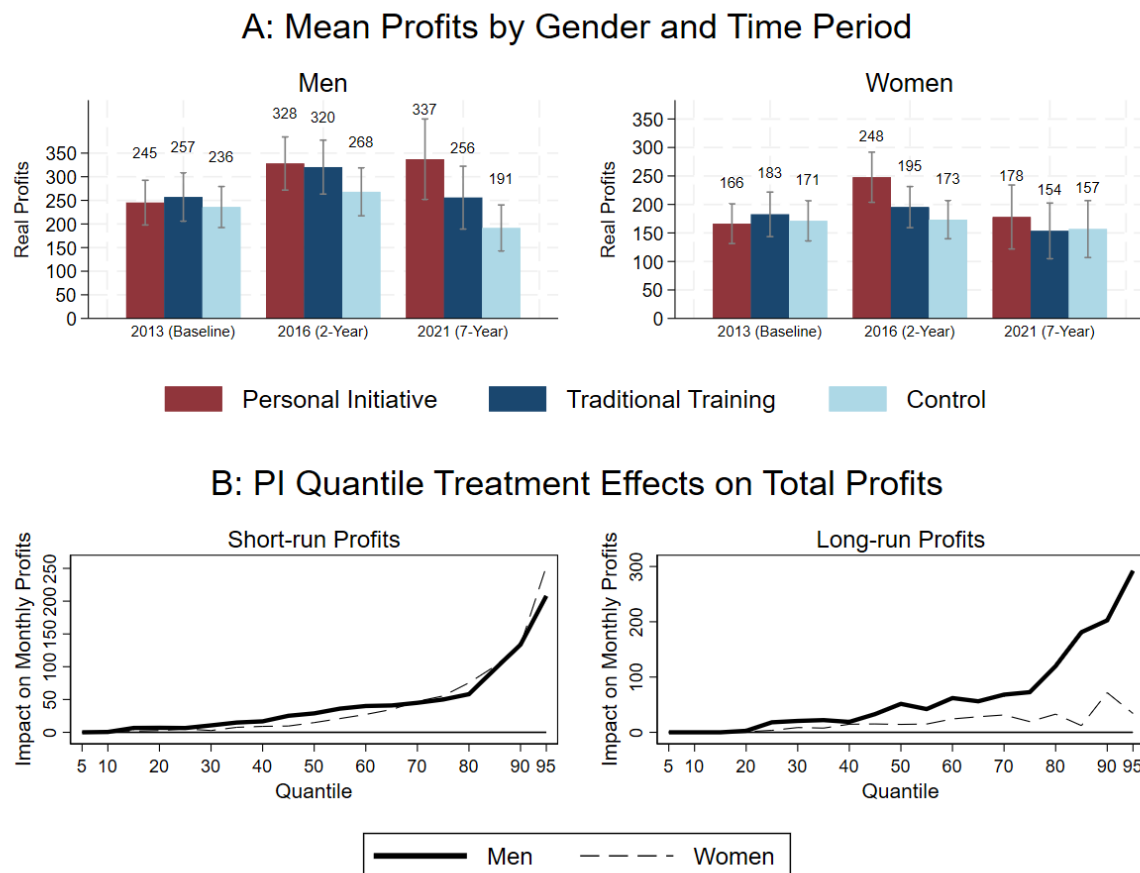
Notes: Profits are aggregated across all businesses owned, and are converted into real September 2021 USD, and winsorized at the 1st and 99th percentiles. Entrepreneurs with no business are coded as earning zero profits. Panel A shows sample means with 95 percent confidence intervals. Panel B shows quantile treatment effects of personal initiative (PI) training estimated from a panel regression of all four short-run waves to obtain the short-run effects, and estimated separately for the long-run (seven-year) follow-up to obtain the long-run effect.

Table 1: Impact on Firm Profits and Sales in Pooled Sample

	Real Last Month Profits (USD)			Real Last Month Sales (USD)			Main Business Sales & Profits Index	Real Total Labor Income
	Main Businesses	All Businesses	All Conditional on Survival	Main Businesses	All Businesses	Main Conditional on Survival		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Assigned to Personal Initiative*First 2 Years	58.5***	63.9***	66.8***	232.2*		251.8**	0.13***	67.3***
	(14.9)	(17.2)	(18.0)	(122.7)		(128.1)	(0.037)	(18.7)
Assigned to Traditional*First 2 Years	22.9	24.8	29.0*	74.7		97.4	0.036	29.4
	(14.3)	(16.6)	(17.1)	(121.2)		(125.5)	(0.036)	(18.2)
Assigned to Personal Initiative*Year 7	71.8***	90.6***	93.6***	351.5*	423.4*	387.0*	0.19***	89.1***
	(21.4)	(27.5)	(30.6)	(199.0)	(247.2)	(221.9)	(0.065)	(34.0)
Assigned to Traditional*Year 7	20.7	27.6	21.7	80.2	70.2	53.3	0.049	14.3
	(20.8)	(26.0)	(30.5)	(189.1)	(230.4)	(222.5)	(0.063)	(30.9)
Sample Size	6979	6980	6594	6979	1337	6593	6979	6786
Control Mean Short-run	195	218	227	1381		1441	0	250
Control SD Short-run	341	399	405	3386		3445	1	432
Control Mean Long-run	128	173	196	1048	1241	1187	0	237
Control SD Long-run	275	370	388	3086	3211	3260	1	444
p-value: PI SR=LR	0.552	0.336	0.386	0.522		0.519	0.292	0.509
p-value: Trad SR=LR	0.919	0.917	0.811	0.977		0.843	0.832	0.616
p-value: PI SR = Trad SR	0.020	0.032	0.052	0.179		0.213	0.016	0.054
p-value: PI LR = Trad LR	0.018	0.022	0.020	0.161	0.143	0.122	0.028	0.022

Notes:

Regressions include randomization strata and baseline value of the outcome interacted with short-run and long-run dummies, as well as survey wave fixed effects. Robust standard errors in parentheses, clustered at the firm level. *, **, and *** denote significance at the 10, 5, and 1 percent levels respectively. P-values test that the 2-year short-run (SR) and 7-year long-run (LR) effects are equal for personal initiative training (PI) and traditional training (Trad), and for equality of the two types of training withing time period. Profits, Sales, and Labor Income converted into real 2021 USD. **Real Profit in Main Business** is monthly profit in the main business winsorized at the 1st and 99th percentiles, coded as 0 for those without businesses; **Real Profit in All Businesses** is monthly profit across all businesses operated by the entrepreneur, winsorized at the 1st and 99th percentiles, and coded as 0 for those without businesses; **All Profits conditonal on survival** is real profit in all businesses conditional on the firm operating; **Real sales in main business** and **Real sales in all businesses** are both last month's sales, winsorized at the 99th percentile, and coded as 0 for those without businesses. Sales in other firms not collected in earlier rounds. **Sales in main business conditional on survival** is real sales in the main business conditional on the firm operating; **Main business profit and sales index** is the average of standardized z-scores of the main profits and main sales variables; **Total labor income** is winsorized real monthly profit in all businesses added to real income from wages and other work in the last month, also winsorized at the 99th percentile.

Table 2: Gender Heterogeneity in Personal Initiative Impacts and Mechanisms

	Uncond. Profits (1)	Cond. Profits (2)	Profit & Sales index (3)	Total Labor Income (4)	Employees (5)	Capital Stock (6)	Self-Efficacy (7)	Personal Initiative (8)	Business Practices (9)	"A" Index (10)
Assigned to Personal Initiative										
*Male * 2-Years	65.0**	69.1**	0.10*	66.8**	0.43	1298*	-0.0057	0.071***	0.038***	0.078
	(27.7)	(29.3)	(0.057)	(30.3)	(0.35)	(786)	(0.047)	(0.024)	(0.014)	(0.076)
*Female*2-Years	60.9***	63.0***	0.15***	66.0***	0.047	175	0.068	0.16***	0.032**	0.22***
	(20.7)	(21.2)	(0.048)	(22.1)	(0.19)	(515)	(0.046)	(0.023)	(0.013)	(0.084)
*Male*7-Years	148.0***	165.8***	0.25**	153.7***	0.052	3627***	0.15**	0.11**	0.064**	0.28***
	(45.1)	(49.0)	(0.11)	(57.3)	(0.44)	(1247)	(0.060)	(0.051)	(0.027)	(0.084)
*Female*7-Years	39.3	28.3	0.14*	36.6	0.15	1166	-0.023	0.085	0.094***	0.18**
	(33.6)	(38.2)	(0.077)	(39.4)	(0.28)	(825)	(0.067)	(0.055)	(0.028)	(0.092)
Sample Size	6980	6594	6979	6786	2605	2566	2445	6789	5402	2742
Control Mean Men SR	262	274	0.06	306	3.83	4798	4.61	4.38	0.72	0.05
Control Mean Women SR	177	184	-0.05	198	2.02	2401	4.58	4.27	0.65	-0.18
Control Mean Men LR	191	214	0.08	275	3.30	4461	4.37	4.31	0.61	-0.11
Control Mean Women LR	157	179	-0.07	203	2.18	2590	4.44	4.29	0.54	-0.15
p-value: Men=Women SR	0.905	0.864	0.537	0.982	0.351	0.232	0.261	0.008	0.736	0.218
p-value: Men=Women LR	0.053	0.027	0.420	0.093	0.852	0.100	0.052	0.696	0.440	0.459
p-value: SR=LR Men	0.074	0.058	0.167	0.129	0.419	0.040	0.017	0.404	0.342	0.035
p-value: SR=LR Women	0.507	0.350	0.918	0.421	0.719	0.205	0.213	0.178	0.019	0.748

Notes:

Regressions include randomization strata and baseline value of the outcome interacted with short-run and long-run dummies, as well as survey wave fixed effects. Coefficients on Traditional Training treatments shown in Table A7. Robust standard errors in parentheses, clustered at the firm level. *, **, and *** denote significance at the 10, 5, and 1 percent levels respectively. P-values test that the 2-year short-run (SR) or 7-year long-run (LR) effects are equal for men and women, or equal over time. Profits, Labor Income, and Capital Stock are in real 2021 USD and are all winsorized at the 99th percentile. **Uncond. Profit** is monthly profit in all businesses, coded as 0 for those without businesses; **Cond. Profits are conditional on** the firm operating; Profit and sales index is the average of standardized z-scores of the main profits and main sales variables; Total labor income is real monthly profit in all businesses added to real income from wages and other work in the last month; **Main Employees** is number of employees in the main business, winsorized at the 99th percentile; **Capital Stock** is total capital stock including inventories and excluding land and buildings; Entrepreneurial **self-efficacy** is the average of 9 questions on confidence in own ability to perform different business tasks; **Personal initiative** is an index of 5 questions that measure taking initiative and actively tackling problems; **Business Practices** is the proportion of 9 business practices in marketing and budgeting used; "A" Index is the average of standardized z-scores of the measures in columns (7)-(9).

Table 3: Gender Heterogeneity in Subsamples in Long-Run Impacts

	Total Profits				Other	Total Profits	
	Base Profits <$100	Base Profits >=$100	Base Sector is Commerce	Base Sector not Commerce	Household Business	No other Household Business	Other Household Business
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Assigned to Personal Initiative * Male	107.5**	173.1**	129.5	142.2***	0.084	134.7*	135.5*
	(52.3)	(76.7)	(142.9)	(48.3)	(0.059)	(71.8)	(77.0)
Assigned to Personal Initiative * Female	32.9	22.8	50.6	-20.8	0.054	-0.56	45.4
	(27.6)	(81.7)	(47.1)	(57.0)	(0.054)	(49.1)	(94.7)
Assigned to Traditional Training * Male	8.60	105.0	-170.0*	124.6***	0.090	72.5	66.2
	(30.5)	(69.4)	(103.2)	(45.5)	(0.059)	(57.6)	(67.1)
Assigned to Traditional Training * Female	7.36	-21.7	1.32	-4.10	0.027	46.2	-113.8
	(18.4)	(76.1)	(35.7)	(69.4)	(0.052)	(50.7)	(70.0)
Sample Size	690	647	624	713	1115	608	507
Control Mean Men	142	363	330	246	0.59	239	320
Control Mean Women	83	274	175	136	0.33	168	217
p-value: PI Men=Women	0.207	0.180	0.600	0.029	0.704	0.121	0.461
p-value: Traditional Men=Women	0.972	0.219	0.117	0.121	0.425	0.732	0.064

Notes: Dependent variable is total monthly profits, winsorized at the 1st and 99th percentiles, except in column (5), where it is a dummy variable for whether the household has a business owned by someone other than the entrepreneur in our sample. Columns 1 and 2 split the sample by whether baseline profits are below or above $100 in real 2021 USD, where 57% of female-owned firms and 44% of male-owned firms are below; Columns 3 and 4 split the sample based on whether the baseline sector is in commerce (77% of female-owned firms and 22% of male-owned firms) or not; since column 5 shows no treatment impact on operating another household business, columns 6 and 7 split the sample based on whether there is another business in the household at follow-up.

All regressions control for baseline profits, a dummy for gender, and for baseline profits interacted with gender. Robust standard errors in parentheses. *, **, *** denote significance at the 10, 5, and 1 percent levels respectively.

Online Appendix

A. Timeline

November 2012-February 2013: Communication campaign and application window
October 2013-December 2013: Baseline survey
April 2014: Training interventions
May 2014-August 2014: Once a month mentoring sessions
Short-term follow-up survey rounds:

- September 2014: First follow-up survey   (*4 months after training*)
- January-February 2015: Second follow-up survey *(9-10 months after training)*
- August-September 2015: Third follow-up survey *(16-17 months after training)*
- August-September 2016: Fourth follow-up survey (*28-29 months after training*)

Long-term follow-up survey rounds:

- March-April 2021: Phone follow-up surveys (*7 years after training*)
- September-October 2021: In-person follow-up survey (*7.5 years after training*)

B. Data Definitions

To adjust for inflation we converted all nominal values of financial variables to real September 2021 CFA using the consumer price index published at the Institut National de la Statistique et des Etudes Economiques et Démographiques (INSEED-TOGO), a public establishment attached to the Togolese Ministry in charge of statistics. For ease of interpretation of magnitudes, we then converted these to USD at the exchange of 550.5 CFA per USD. We combined the phone and in-person surveys into a single long-term survey round, taking the in-person response where available, and the phone survey response for those who did not answer the in-person. Table A5 shows results are robust to the inclusion of survey month fixed effects.

The main outcome variables in Table 1 are defined as follows:

- Real last month profits:
    - o Main business: Profits in the last full month in the main business operated by the entrepreneur. This variable was winsorized at the 99th and 1st percentiles by survey wave, and coded to 0 for individuals who are not running a business.
    - o All businesses: Profits in the last full month for the main business added to those in any other businesses run by the entrepreneur. This variable was winsorized at the 99th and 1st percentiles by survey wave, and coded to 0 for individuals who are not running a business.
    - o All businesses conditional on survival: Profits in all businesses as defined above, but coded as missing for those no longer running a business.
- Real last month sales:
    - o Main business: Revenues in the last full month in the main business operated by the entrepreneur. This variable was winsorized at the 99th and 1st percentiles by survey wave, and coded to 0 for individuals who are not running a business.

- o All businesses: Revenues in the last full month for the main business added to those in any other businesses run by the entrepreneur. This variable was winsorized at the 99th and 1st percentiles by survey wave, and coded to 0 for individuals who are not running a business. Note revenue in other businesses was only asked in the long-term follow-up round, and not in the short-term rounds.
  - o Main business conditional on survival: Revenue in the main business as defined above, but coded as missing for individuals not running a business.
- Main profits and business index: This index averages the standardized z-scores of profits and sales in the main businesses.
- Total labor income: this adds the total profits in all businesses in the last month, as defined above, to total earnings from paid work, farming, retirement and investment income (winsorized at the 99th and 1st percentiles) to get the total monetary income earned by the entrepreneur.

The mechanism outcomes in Table 2 are defined as follows using the long-term survey:

- Main firm employees: the number of employees in the main firm of the business, coded as 0 for closed firms, and winsorized at the 99th percentile. We use the 2016 number of employees as the short-run outcome to represent the size of the firm after 2 years.
- Capital stock: Total value of machinery and equipment, other work tools, vehicles, furniture, other business assets, and inventories and stocks, winsorized at the 1st and 99th percentiles. Excludes the value of land and buildings given the highly skewed distribution (only 16 percent of firms report a value) and that it can be intertwined with household assets. Asked only during the in-person survey. Coded as 0 for closed firms. We use the 2016 capital stock as the short-run outcome, to represent capital accumulated after 2 years.
- Entrepreneurial Self-Efficacy: This measures their self-confidence in their ability to carry out different business tasks, regardless of whether or not they currently operate a business. It is the mean of responses (answered on a five-point Likert scale ranging from 1 = Not at all confident to 5 = totally confident) of the following statements:
  - o To start a business
  - o Perceive well business opportunities
  - o Ensure the marketing of the company properly
  - o Correctly set the prices of products or services
  - o Negotiate well with other business owners
  - o Manage a team of staff well
  - o Manage a business well
  - o Write a good business plan
  - o Find capital financing when starting a business
  The internal consistency of this scale is good, with a Cronbach alpha of 0.83. These questions were only collected during the in-person long-run survey, and only during the fourth short-term follow-up in 2016.
- Personal initiative: This is the mean of responses (answered on a five-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree) of agreement with whether in the past six months the following statements apply to them:
  - o I normally go beyond what is expected of me
  - o I take the initiative immediately even when others do not
  - o I use opportunities quickly in order to attain my goals
  - o I actively tackle problems
  - o I have a gift for implementing ideas

The internal consistency of this scale is good, with a Cronbach alpha of 0.77. Measured in all four rounds of the short-run follow-up surveys.

- Business practices: This measure is only available for firms answering the in-person survey or that have closed down. This is the proportion of the following 9 business practices used in the firm in the last six months (coded as 0 for firms that are not operating).
    - Visited a competitor to learn their products or prices
    - Asks customers whether there are products or services that they wish the firm would offer
    - Offered promotions to attract customers
    - Compared suppliers' prices or product quality with alternatives
    - Analyzed company's performance in order to identify ways to improve
    - Changed the ways products and services are presented to make them more attractive
    - Consulted the internet, newspapers or books to learn about new developments in their industry
    - Has a written budget
    - Has set sales goals for the company

  These questions were not collected in the first follow-up survey, so average over rounds 2, 3 and 4 of the short-term follow-up.
- "A" Index: The average of standardized z-scores of the business practice, personal initiative, and entrepreneurial self-efficacy indices. We just use the 2016 (fourth survey round) for the short-term follow-up given that self-efficacy was not collected in earlier rounds.

Additional mechanisms and outcomes in Table A8 are as follows:

- Business survival: a binary variable taking the value one if the entrepreneur is still operating a firm in 2021 and zero otherwise.
- Total firm employees: the number of employees aggregated across all firms run by the entrepreneur, coded as 0 for those not running firms, and winsorized at the 99th percentile. Only collected during the in-person survey.
- Total paid workers: the number of paid employees aggregated across all firms run by the entrepreneur, coded as 0 for those not running firms, and winsorized at the 99th percentile. Only collected during the in-person survey.
- Innovation index: This is the proportion of the following five innovative activities that the entrepreneur has taken (coded as 0 for firms that are closed), asked only in the in-person survey:
    - Changed the main location or industry in which the business operates in the past five years
    - Pivoted by changing the focus of their business to a different product, different type of customer, or different target market since March 2020
    - Introduced a new product or service since March 2020
    - Introduced a new product or service that was invented by the company based on their own ideas (as opposed to being purchased from a supplier or copied from others) since March 2020
    - Introduced a new product or service that was invented by the company based on their own ideas or copied from others since March 2020.
- Digitalization index: The proportion of the following four uses of digital technology in their business (coded as 0 for firms that are closed), asked only in the in-person survey:
    - Has started using, or increased the use of internet, online social media, specialized apps, or digital platforms since March 2020

- o   Has a business website
- o   Uses Facebook/Whatsapp/Other social media for marketing
- o   Accepts mobile money payments
- **Maximum loan size possible**: the maximum amount in real September 2021 USD that the firm owner thinks they could borrow within 2 weeks if they needed to, winsorized at the 99th percentile. Asked only in the in-person survey.

C. Appendix Tables and Figures

Tables A1-A5 provide more detail on response rates, and robustness to attrition

Table A6 shows robustness of impacts on profits and sales to other measures

Table A7 provides the traditional training impacts by gender.

Tables A8-A10 and Figure A1 examine gender differences in more detail.

Table A1: Survey Response rates by Round and Survey Type

	Short-Run Survey Rounds				Long-run Survey Round			
	Round 1	Round 2	Round 3	Round 4	In-person survey	Phone survey	Either	Know status
Personal initiative training group response rate	0.962	0.928	0.938	0.910	0.792	0.746	0.870	0.926
Traditional business training group response rate	0.956	0.940	0.938	0.890	0.770	0.678	0.844	0.900
Control group response rate	0.940	0.898	0.906	0.882	0.700	0.646	0.786	0.856
Total number of observations	1429	1383	1391	1341	1131	1035	1250	1341
Overall response response (all groups)	0.953	0.922	0.927	0.894	0.754	0.690	0.833	0.894
p-value: PI=control	0.099	0.071	0.059	0.143	0.001	0.001	0.000	0.000
p-value: Trad=control	0.238	0.013	0.059	0.676	0.012	0.282	0.015	0.027
p-value: PI=Trad	0.642	0.462	1.000	0.290	0.412	0.021	0.254	0.166

Notes:

Round 1-Round 4 denote previous survey rounds collected between September 2014 and September 2016, covering a period up to 2.5 years post-training.

In-person survey is 7 year in-person follow-up survey collected between September and November 2021.

Phone survey is 7-year follow-up survey collected via phone between March and April 2021.

Either denotes firm was surveyed in at least one of in-person and phone long-term follow-up surveys.

Know status denotes firm was surveyed in either long-term round, or owner is dead, or business operating status still known, or migrated abroad.

Table A2a: Baseline balance for those responding to at least one 7-year follow-up survey

	Overall Mean	Overall S.D.	Control Mean	PI Mean	Traditional Mean	p-value equality
Baseline strata variables						
Monthly profits	185	340	191	176	188	0.140
Commerce sector	0.47	0.50	0.47	0.46	0.47	0.167
Production sector	0.28	0.45	0.29	0.28	0.27	0.126
Female	0.52	0.50	0.54	0.51	0.51	0.720
Other baseline variables						
Age of Owner	40.8	10.8	41.3	40.1	40.9	0.448
Years schooling	8.5	4.4	8.6	8.7	8.3	0.153
Firm age	12.2	9.2	12.7	11.6	12.4	0.346
Monthly sales	1336	2603	1364	1320	1328	0.900
Weekly sales	409	829	408	425	394	0.587
Weekly profits	66	122	67	62	68	0.531
Capital stock	1569	4297	1673	1493	1549	0.834
Number of employees	2.9	4.1	2.9	2.9	2.9	0.744
Personal initiative index	4.23	0.47	4.24	4.23	4.21	0.718
Business practices	0.58	0.14	0.58	0.59	0.58	0.365
Sample Size	1250		393	435	422	

Notes: Baseline (2013) characteristics for entrepreneurs interviewed at least once in 2021. Monetary values are expressed in terms of September 2021 USD. **Control, PI,** and **Traditional** denote firms randomly assigned to the control group, personal initiative training group, and traditional business training groups respectively. P-value of equality tests for equality of means across the three groups.

Table A2b: Baseline balance for those not responding to any 7-year follow-up survey

	Overall Mean	Overall S.D.	Control Mean	PI Mean	Traditional Mean	p-value equality
Baseline strata variables						
Monthly profits	190	299	153	212	223	0.775
Commerce sector	0.52	0.50	0.52	0.57	0.49	
Production sector	0.25	0.43	0.21	0.26	0.28	
Female	0.54	0.50	0.47	0.58	0.60	
Other baseline variables						
Age of Owner	39.2	11.6	38.1	39.4	40.7	0.995
Years schooling	7.7	5.5	8.4	7.2	7.2	0.663
Firm age	10.8	8.7	11.0	11.5	9.9	0.750
Monthly sales	1193	2060	1161	1439	1033	0.969
Weekly sales	375	618	373	441	324	0.737
Weekly profits	63	102	56	63	74	0.848
Capital stock	1356	4150	1455	1388	1193	0.853
Number of employees	2.3	3.7	2.3	2.2	2.5	0.896
Personal initiative index	4.23	0.55	4.29	4.16	4.20	0.590
Business practices	0.58	0.15	0.59	0.59	0.56	0.767
Sample Size	250		107	65	78	

Notes: Baseline (2013) characteristics for entrepreneurs interviewed at least once in 2021. Monetary values are expressed in terms of September 2021 USD. **Control, PI,** and **Traditional** denote firms randomly assigned to the control group, personal initiative training group, and traditional business training groups respectively. P-value of equality tests for equality of means across the three groups.

Table A3: Dynamics Selection into who responds to the long-run surveys

	Full sample				Control group				Personal initiative training group			
	Both surveys	Only one survey	Neither survey	p-value	Both surveys	Only one survey	Neither survey	p-value	Both surveys	Only one survey	Neither survey	p-value
Round 4 survey variables												
Answered Round 4	0.97	0.88	0.63	0.000	0.97	0.85	0.67	0.000	0.97	0.90	0.63	0.000
Open in Round 4	0.93	0.89	0.80	0.000	0.94	0.90	0.83	0.027	0.91	0.88	0.83	0.208
Above Median profits round 4	0.57	0.50	0.39	0.000	0.55	0.49	0.37	0.013	0.60	0.54	0.46	0.134
Personal initiative in round 4	4.52	4.52	4.49	0.828	4.49	4.45	4.43	0.503	4.57	4.60	4.58	0.721
Business practices in round 4	0.63	0.59	0.46	0.000	0.59	0.56	0.48	0.002	0.65	0.59	0.50	0.001
Known operating status in long-run												
Self-employed after 7 years	0.97	0.92	0.06	0.000	0.96	0.92	0.09	0.000	0.97	0.95	0.04	0.000
Monthly Profits after 7 years	248	167			204	145			289	213		
Sample size	915	336	249		279	115	106		334	101	65	

Notes:

Both surveys denotes firms that replied to both in-person and phone 7-year survey. Only one survey denotes firm replied to only one of the two survey types, and neither denotes firm did not respond to either survey type.

Round 4 survey was last short-run survey conducted, at 2.5 years post-training. Self-employed after 7 years is based on those who responded to long-run survey, or who had operating status reported by proxy report, were dead or internationally migrated, but is only available for 36% of those responding to neither survey.

Monthly profits after 7 years not available for those not answering any surveys.

p-value is for test of equality of means across the three groups (both, only one, neither).

Table A4: Robustness of Long-term impact on being self-employed

	Self-employed after 7 years	Robustness to assumptions about attritors			
		All s/e	92% s/e	50% s/e	0% s/e
Assigned to personal initiative	0.030	0.018	0.024	0.054**	0.088***
	(0.022)	(0.019)	(0.019)	(0.023)	(0.025)
Assigned to Traditional Training	0.010	-0.000	0.004	0.022	0.044*
	(0.022)	(0.019)	(0.020)	(0.023)	(0.026)
Sample Size	1341	1500	1500	1500	1500
Control Mean	0.883	0.900	0.888	0.828	0.756
p-value: PI=Trad	0.354	0.333	0.303	0.144	0.075

Notes:

Column 1 shows treatment impacts on whether the respondent is still self-employed in Togo 7 years after
training. Columns 2 to 5 examine robustness to different assumptons about the percentage of attritors that
are still self-employed. Firm owners who were harder to reach were more likely to have closed their firms
in earlier rounds than those who were interviewed more easily, suggesting fraction of attritors self-employed
is 92% or lower. s/e denotes self-employed.
Robust standard errors in parentheses. *, **, *** denote significance at 10, 5, and 1 percent levels.

Table A5: Robustness of Profits Impact to Attrition Assumptions

| | Base Specification | PDS Lasso | Month Fixed Effects | Lee lower bound | Lee upper bound | Assuming attritors earn: | | |
| | | | | | | personal max | average of one-time only | no profits (are closed) |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Assigned to personal initiative	90.6***	96.0***	91.6***	-41.5**	125.1***	91.3***	75.8***	87.8***
	(32.2)	(24.5)	(35.2)	(19.1)	(33.6)	(31.9)	(27.4)	(27.6)
Assigned to traditional training	27.6	33.2	18.8	-49.8***	46.4	23.9	19.4	26.8
	(30.4)	(24.8)	(34.3)	(18.7)	(31.6)	(29.0)	(25.6)	(25.9)
Sample Size	1337	1337	1250	1278	1278	1500	1500	1500
Assumed Control Mean	173	173	187	173	173	204	172	147

Notes:

All regressions include randomization strata fixed effects and lagged baseline total profits. Dependent variable is total profits in all businesses. Robust standard errors in parentheses. *, **, *** denote significance at 10, 5, and 1 percent levels respectively.

Column 1 shows base specification. Column 2 uses PDS Lasso to select additional controls. This selects no controls for either treatment but selects baseline monthly sales, weekly profits, and capital stock as additional controls that predict the outcome.

Column 3 introduces fixed effects for the month of interview. Columns 4 and 5 provide Lee bounds by dropping the top (column 4) or bottom (column 5) 36 firms from PI training and 23 firms from traditional training in terms of profits.

Columns 6, 7 and 8 instead fill in missing profits under different assumptions of what attritors could be earning. Column 6 assumes they would earn the maximum profits they have ever earned over the baseline and four short-term follow-up rounds; Column 7 assumes they earn 167 USD, the average for those answering the long-term follow-up only once; Column 8 assumes that all attritors are closed and hence earn zero profits.

Table A6: Impact on Other Measures of Profits and Sales

	Log Total	Best Month	Worst Month	Recall of best 2019	Recall of worst 2019	Alternate Index
Panel A: Profits						
Assigned to Personal Initiative	0.36***	190.7***	13.9	157.3	-2.87	0.13*
	(0.13)	(61.3)	(10.5)	(127.0)	(36.2)	(0.070)
Assigned to Traditional training	0.13	38.6	6.78	2.74	-6.21	0.029
	(0.13)	(55.9)	(9.86)	(136.4)	(35.9)	(0.066)
Sample Size	976	1337	1337	852	818	1337
Control Mean	4.5	299.0	52.0	338.7	100.5	-0.0
Control SD	1.4	665.9	133.4	996.4	241.6	0.9
p-value: PI = Trad	0.057	0.010	0.478	0.247	0.923	0.143
Panel B: Sales						
Assigned to Personal Initiative	0.40***	627.9*	134.3	1757.0*	619.0	0.20*
	(0.12)	(352.1)	(100.6)	(1020.1)	(542.7)	(0.11)
Assigned to Traditional training	0.16	31.3	104.5	-896.9	-308.8	0.041
	(0.13)	(333.2)	(96.1)	(841.4)	(470.1)	(0.089)
Sample Size	1043	1337	1337	852	842	1337
Control Mean	6.1	1956.9	505.7	1993.2	724.4	-0.0
Control SD	1.6	4805.3	1313.6	4797.1	1854.5	0.9
p-value: PI = Trad	0.035	0.083	0.765	0.056	0.320	0.160

Notes:

Regressions include randomization strata fixed effects and baseline of outcome. Robust standard errors in parentheses. *, **, *** denote significance at the 10, 5, and 1 percent levels respectively.

Log denotes log of total profits or sales in all businesses in the past month, conditional on operating.

Best Month and **Worst Month** are for profits or sales in the best and worst months of 2021.

Recall of best 2019 and **Recall of worst 2019** are the recall in 2021 of their profits and sales in the best and worst months of 2019.

Alternate index is an index of standardized z-scores of the best and worst months in both 2021 and 2019.

Table A7: Gender Heterogeneity in Traditional Training Impacts and Mechanisms

	Uncond. Profits (1)	Cond. Profits (2)	Profit & Sales index (3)	Total Labor Income (4)	Employees (5)	Capital Stock (6)	Self-Efficacy (7)	Personal Initiative (8)	Business Practices (9)	"A" Index (10)
Assigned to Traditional Training										
*Male * 2-Years	45.6	54.8*	0.076	55.8*	0.23	365.6	0.00064	0.054**	0.019	-0.043
	(27.8)	(29.9)	(0.057)	(31.3)	(0.33)	(856.0)	(0.045)	(0.023)	(0.015)	(0.080)
*Female*2-Years	4.77	5.19	-0.00024	4.13	-0.31	5.35	0.0015	0.068***	0.045***	0.13
	(19.0)	(18.4)	(0.045)	(20.0)	(0.21)	(488.2)	(0.049)	(0.024)	(0.013)	(0.084)
*Male*7-Years	52.4	52.6	0.080	27.1	0.30	1946.6	0.100	-0.00031	0.067**	0.17**
	(43.1)	(50.0)	(0.11)	(51.7)	(0.45)	(1249.8)	(0.063)	(0.053)	(0.028)	(0.086)
*Female*7-Years	7.26	-4.59	0.024	3.07	-0.23	-307.5	-0.038	-0.022	0.066**	0.094
	(30.7)	(36.4)	(0.069)	(35.7)	(0.31)	(780.2)	(0.068)	(0.061)	(0.028)	(0.096)
Sample Size	6980	6594	6979	6786	2605	2566	2445	6789	5402	2742
Control Mean Men SR	262	274	0.06	306	3.83	4798	4.61	4.38	0.72	0.05
Control Mean Women SR	177	184	-0.05	198	2.02	2401	4.58	4.27	0.65	-0.18
Control Mean Men LR	191	214	0.08	275	3.30	4461	4.37	4.31	0.61	-0.11
Control Mean Women LR	157	179	-0.07	203	2.18	2590	4.44	4.29	0.54	-0.15
p-value: Men=Women SR	0.226	0.159	0.299	0.165	0.169	0.715	0.990	0.676	0.197	0.144
p-value: Men=Women LR	0.394	0.357	0.663	0.703	0.337	0.126	0.137	0.792	0.991	0.542

Notes:

Regressions include randomization strata and baseline value of the outcome interacted with short-run and long-run dummies, as well as survey wave fixed effects. Coefficients on Personal Initiative Treatment shown in Table 2. Robust standard errors in parentheses, clustered at the firm level. *, **, and *** denote significance at the 10, 5, and 1 percent levels respectively. P-values test that the 2-year short-run (SR) or 7-year long-run (LR) effects are equal for men and women. Profits, Labor Income, and Capital Stock are in real 2021 USD and are all winsorized at the 99th percentile. **Uncond. Profit** is monthly profit in all businesses, coded as 0 for those without businesses; **Cond. Profits are conditional on** the firm operating; Profit and sales index is the average of standardized z-scores of the main profits and main sales variables; Total labor income is real monthly profit in all businesses added to real income from wages and other work in the last month; **Main Employees** is number of employees in the main business, winsorized at the 99th percentile; **Capital Stock** is total capital stock including inventories and excluding land and buildings; Entrepreneurial **self-efficacy** is the average of 9 questions on confidence in own ability to perform different business tasks; **Personal initiative** is an index of 5 questions that measure taking initiative and actively tackling problems; **Business Practices** is the proportion of 9 business practices in marketing and budgeting used; "A" Index is the average of standardized z-scores of the measures in columns (7)-(9).

Table A8: Additional Gender Heterogeneity in Long-run Impacts and Mechanisms

	Business Survival	Total Employees	Total paid workers	Innovation Index	Digitalization Index	Maximum Loan size possible
	(1)	(2)	(3)	(4)	(5)	(6)
Assigned to Personal Initiative * Male	0.017	-0.025	0.18	0.046*	0.083***	1554.4*
	(0.030)	(0.64)	(0.44)	(0.027)	(0.032)	(849.6)
Assigned to Personal Initiative * Female	0.043	0.20	0.32	0.020	0.11***	-644.3
	(0.031)	(0.44)	(0.25)	(0.027)	(0.033)	(634.0)
Assigned to Traditional Training * Male	-0.0086	-0.23	0.51	0.048*	0.073**	15.1
	(0.032)	(0.61)	(0.44)	(0.028)	(0.032)	(768.0)
Assigned to Traditional Training * Female	0.028	0.059	-0.11	0.043	0.067**	-630.5
	(0.032)	(0.49)	(0.27)	(0.027)	(0.033)	(585.8)
Sample Size	1341	978	1169	1192	1189	1186
Control Mean Men	0.90	4.20	2.42	0.16	0.45	3281
Control Mean Women	0.89	2.64	1.09	0.16	0.32	2216
p-value: PI Men=Women	0.558	0.772	0.778	0.510	0.542	0.039
p-value: Traditional Men=Women	0.416	0.707	0.231	0.890	0.900	0.504

Notes: all regressions include randomization strata fixed effects, a dummy for female enterprise, and the baseline outcome where available and its interaction with gender. Robust standard errors in parentheses. *, **, *** denote significance at the 10, 5, and 1 percent levels respectively. **Business Survival** is a binary variable denoting survival until 2021 (7 years); **Total employees** is number of workers in all enterprises, winsorized at the 99th percentile; **Total paid workers** is winsorized number of paid workers across all enterprises; **Innovation Index** is the proportion of 5 measures of pivoting and introducing new products; **Digitalization Index** is the proportion of 4 measures of using mobile money, social media, a website, and other digital measures in the business; **Maximum loan size** is the winsorized maximum amount they could borrow within 2 weeks.

Table A9: Impacts on Different Components of Capital Stock

	Machinery & Equipment	Other Tools	Vehicles	Furniture	Other assets	Stock	Land & Buildings
Panel A: Pooled Sample							
Assigned to Personal Initiative	901***	148***	435**	100***	1	331	831*
	(228)	(51)	(169)	(36)	(13)	(396)	(428)
Assigned to Traditional Training	495**	3	237	89**	2	196	818*
	(212)	(45)	(176)	(35)	(13)	(403)	(483)
Sample Size	1184	1184	1188	1188	1188	1188	1188
Control Mean	688	157	380	152	30	1668	885
P-value: PI = Trad	0.047	0.004	0.278	0.742	0.937	0.722	0.976
Panel B: Impacts by Gender							
Assigned to Personal Initiative * Male	1343***	177*	670**	94*	-5	656	757
	(423)	(91)	(302)	(57)	(23)	(607)	(713)
Assigned to Personal Initiative * Female	462***	118**	206	115***	7	62	923*
	(168)	(49)	(158)	(44)	(13)	(514)	(497)
Assigned to Traditional Training * Male	760*	18	361	156***	9	849	941
	(390)	(86)	(303)	(58)	(24)	(659)	(790)
Assigned to Traditional Training * Female	222	-13	129	28	-7	-386	711
	(173)	(36)	(192)	(38)	(11)	(478)	(584)
Sample Size	1184	1184	1188	1188	1188	1188	1188
Control Mean Men	1223	272	588	201	48	1526	1357
Control Mean Women	223	56	198	110	14	1793	471
p-value: PI Men=Women	0.054	0.573	0.173	0.767	0.648	0.456	0.848
p-value: Traditional Men=Women	0.208	0.741	0.518	0.067	0.557	0.129	0.815

Notes:

Regressions include randomization strata and baseline capital stock. Panel B also includes a control for female, and an interaction between female and baseline capital stock. Robust standard errors in parentheses. *, **, *** denote significance at the 10, 5, and 1 percent levels respectively. Capital stock expressed in real September 2021 USD, winsorized at the 1st and 99th percentiles, and coded as 0 for firms that are closed. The first six columns show different components of the overall capital stock aggregate used in Table 2. The last column of land and buildings is excluded from the overall capital measure given its highly skewed distribution and possible intertwining with household assets.

Table A10: Heterogeneity in Impacts for Women

	Total Profits in Long-Term Follow-up				
	(1)	(2)	(3)	(4)	(5)
Assigned to Personal Initiative Training	69.9*	25.2	38.4	50.1	2.22
	(38.7)	(45.8)	(53.4)	(62.8)	(46.0)
Assigned to Traditional Training	22.9	-17.5	-4.58	-8.80	-15.8
	(34.7)	(46.7)	(54.4)	(48.3)	(44.6)
Assigned to PI * Not Sole Decision Maker on Revenues	-296.4***				
	(107.9)				
Assigned to Trad * Not Sole Decision Maker on Revenues	-163.7				
	(111.9)				
Assigned to PI* Not Sole Decision Maker on HH Expenses		-0.58			
		(75.5)			
Assigned to Trad * Not Sole Decision Maker on HH Expenses		25.2			
		(67.6)			
Assigned to PI*Looks after Kids or Elderly			-19.4		
			(74.6)		
Assigned to Trad*Looks After Kids or Elderly			6.45		
			(70.8)		
Assigned to PI*Below 9 Years Education				-42.8	
				(76.2)	
Assigned to Trad*Below 9 Years Education				15.4	
				(67.2)	
Assigned to PI*Not Married					105.5
					(72.0)
Assigned to Trad*Not Married					45.6
					(49.7)
Sample Size	699	699	699	699	699
Proportion with Interaction=1	0.15	0.49	0.55	0.57	0.24
Control Mean for Interaction=1	314	164	155	158	70
Control Mean for Interaction=0	127	151	159	156	187

Notes:

Sample restricted to female entrepreneurs. All regressions include controls for baseline profits, the interacting variable, and the interacting variable interacted with baseline profit. Interacting variable varies across columns as indicated. Robust standard errors in parentheses. *, **, *** denote significance at the 10, 5, and 1 percent levels.

Figure A1: Trajectory of Capital Stock and Capital Stock Quantile Treatment Effects

A: Mean Capital Stock by Gender and Time Period
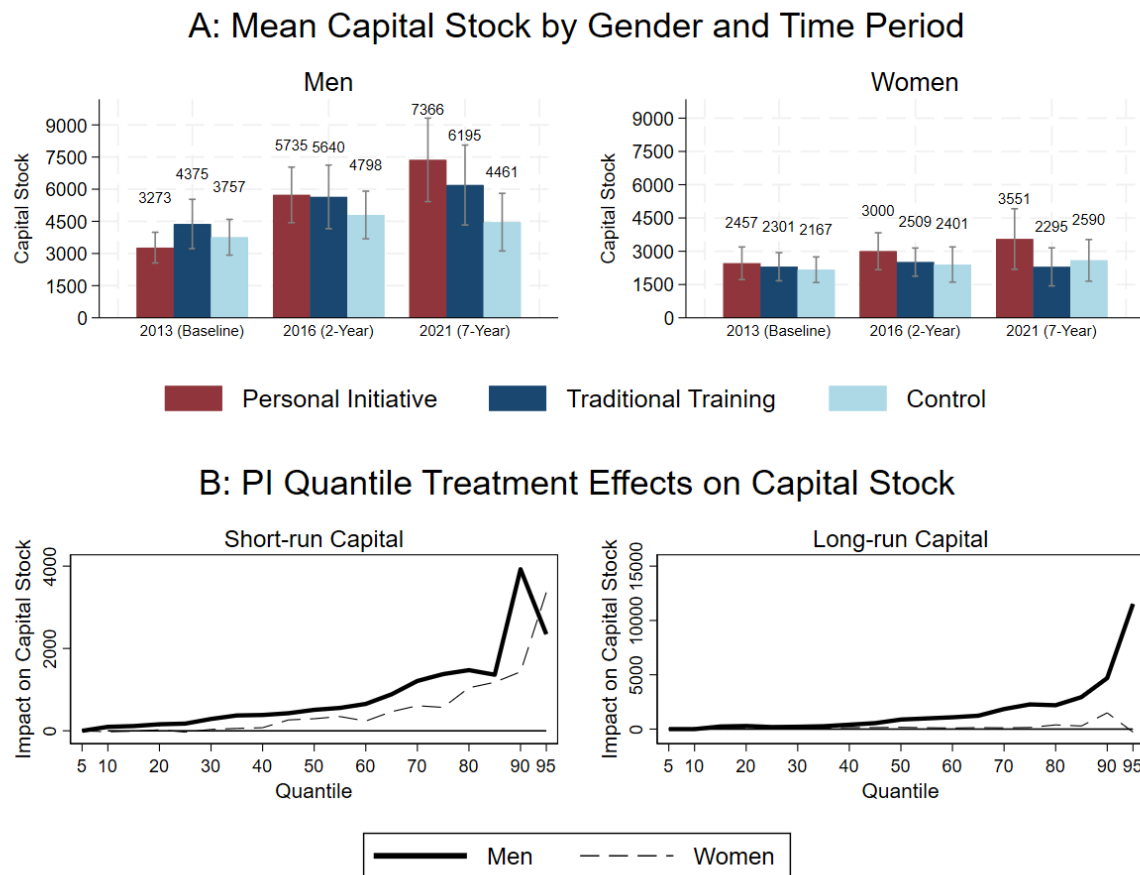
Notes: Capital stock is in real September 2021 USD, and is winsorized at the 99th percentile. Entrepreneurs with no business are coded as having zero capital. Panel A shows sample means with 95 percent confidence intervals. Panel B shows quantile treatment effects of personal initiative (PI) training estimated from a quantile regression of 2016 capital stock on treatment and baseline capital for the short-run, and separately for the long-run (seven-year) follow-up measure of capital for the long-run effects.