

WORKING PAPER · NO. 2023-42

Breaking the Glass Ceiling: Empowering Female Entrepreneurs through Female Mentors

Frank Germann, Stephen J. Anderson, Pradeep Chintagunta, and Naufel Vilcassim

MARCH 2023

Breaking the Glass Ceiling: Empowering Female Entrepreneurs through Female Mentors

Frank Germann
Stephen J. Anderson
Pradeep Chintagunta
Naufel Vilcassim

Frank Germann is Viola D. Hank Associate Professor of Marketing, Mendoza College of Business, University of Notre Dame (email: fgermann@nd.edu). Stephen J. Anderson is Assistant Professor of Marketing, McCombs School of Business, University of Texas at Austin (email: sjanderson@mcombs.utexas.edu). Pradeep Chintagunta is Joseph T. and Bernice S. Lewis Distinguished Service Professor of Marketing, Booth School of Business, University of Chicago (email: pradeep.chintagunta@chicagobooth.edu). Naufel Vilcassim is Head of Department, LSE Vice Dean TRIUM Executive MBA Program, and Professor of Marketing, London School of Economics (email: n.vilcassim@lse.ac.uk). We thank the Uganda office of Innovations for Poverty Action (IPA) for hosting our study and for outstanding research support. Special thanks to Stephen Kagera for exceptional research management, as well as Janine Titley and Christy Lazicky for fieldwork leadership. We are extremely grateful to Chris Coghlan and Grow Movement for allowing their program to be part of the research. This research was supported by grants from: the UK Department for International Development (DFID) and Economic and Social Research Council's (ESRC) joint Growth Research Program, Deloitte Institute for Innovation and Entrepreneurship (DIIE), the John A. and Cynthia Fry Gunn Faculty Scholar award (Stanford), London Business School (LBS) and the LBS Leadership Institute (LI), Private Enterprise Development in Low-Income Countries (PEDL), the Chicago Booth School of Business Social Enterprise Initiative (SEI), the Chicago Booth Initiative on Global Markets (IGM), the Chicago Booth Kilts Center for Marketing, the Becker Friedman Institute's Initiative for the Study of Gender in the Economy, the London School of Economics Marshall Institute, the Stanford Graduate School of Business, the Mendoza College of Business at Notre Dame, the Stanford Institute for Innovation in Developing Economies (SEED), and the Stanford Center on Global Poverty and Development (SCGPD). The authors thank seminar participants at Penn State, Georgia Tech, Iowa State, George Mason University, Technical University of Munich, and University of Texas, Austin for comments and suggestions. We are grateful to Yesim Orhun and Anna Tuchman for their very helpful comments and suggestions on a previous version of the paper.

Breaking the Glass Ceiling: Empowering Female Entrepreneurs through Female Mentors

Among the millions of entrepreneurs in developing economies, few are able to earn a decent livelihood. To help these entrepreneurs succeed, governmental and nongovernmental organizations invest billions of dollars every year providing training programs. Many of these programs involve providing entrepreneurs with mentors. Unfortunately, the effects of these programs are often muted, or even null, for women-owned firms. Against this backdrop, we tested whether gender-matching, where female entrepreneurs are randomly paired with a female mentor, could help address the gender gap. Findings from a randomized controlled field experiment with 930 Ugandan entrepreneurs show that although mentor gender has little impact on male entrepreneurs, it has a powerful impact on female entrepreneurs. Firm sales and profits of female entrepreneurs guided by a female mentor increased by, on average, 34% and 29% compared to the control group, and these estimates are even larger for female entrepreneurs with high aspirations. In contrast, female entrepreneurs guided by a male mentor did not significantly improve performance compared to the control group. We provide suggestive mechanism evidence that female mentor-mentee arrangements are characterized by more relational exchanges.

Keywords: female entrepreneurs, gender gap, glass ceiling, mentorship gender-matching, randomized controlled field experiment, small firm growth, developing economies

1. INTRODUCTION

Despite growing calls to improve business opportunities and outcomes for women in developing economies (e.g., De Mel, McKenzie, Woodruff 2014), the handful of policies introduced to remove gender-based advancement barriers have fallen short (e.g., Bertrand, Black, Jensen, and Lleras-Muney 2019). Worse, there has been little attention devoted to addressing ‘glass ceilings’¹ that exist beyond the boardrooms and management hierarchies of Western corporations. Nowhere are such barriers more egregious than in developing economies where over half of all workers are self-employed as owner-entrepreneurs of small firms² – most of which fail to survive, let alone thrive (e.g., Anderson, Chandy, and Zia 2018; McKenzie and Paffhausen 2017). And for the female professionals in these economies, a persistent gender gap means business success and advancement are even more fleeting (e.g., World Bank 2017).

In an effort to help address this concerning trend, governmental and nongovernmental organizations invest billions of dollars (e.g., Campos et al. 2017) every year providing training programs to improve business outcomes in developing economies. Unfortunately, the results of this policy tool have been mixed (e.g., Berge, Bjorvatn, and Tungodden 2015, Campos et al. 2017, McKenzie 2020), and female entrepreneurs in particular tend to benefit significantly less from these training programs compared to their male counterparts (e.g., Berge et al. 2015, De Mel et al. 2014, McKenzie 2020). This raises several important questions, including if other policy tools exist that can help overcome the ‘glass ceiling’ and facilitate more inclusive growth? We address this question by examining whether mentorship gender-matching (i.e., female mentors

¹ We construe the term ‘glass ceiling’ broadly to represent all barriers faced by women in a business context, including during the process of building their businesses.

² We consulted the following World Bank website to determine the number of self-employed workers in developing countries: <https://data.worldbank.org/indicator/SL.EMP.SELF.ZS>

with female mentees) is an effective tool to tackle advancement barriers for female business professionals in developing economies.

2. MENTORSHIP GENDER-MATCHING

Be it an engineer, manager or entrepreneur, receiving guidance and advice from another professional – often someone more senior and experienced – is a common form of support offered across companies and business contexts. Yet, there is no causal evidence on ways to structure these mentorship arrangements, including whether matching mentor-mentee gender matters. On the one hand, a descriptive study in entrepreneurship suggests female professionals may be better off having *male* mentors because they increase access to more profitable, traditionally male-dominated sectors (World Bank 2022). On the other hand, research in education implies the opposite. For instance, evidence shows female students perform better in quantitative courses when they have a *female* professor (e.g., Carrell, Page, and West 2010; Krishna and Orhun 2022). At the same time, however, Carrell et al. (2010) report that professor gender has a limited effect (at best) on students' outcomes in humanities courses. Thus, the direction of the mentorship gender-matching effect in business is ambiguous, and whether mentorship gender-matching helps improve business success and advancement for women remains an open empirical question.

We therefore conducted a field experiment with hundreds of entrepreneurs in which we randomly matched female (or male) mentors with female (or male) entrepreneurs. The results indicate that female entrepreneurs performed significantly better when guided by a female mentor (as opposed to a male mentor).

3. STUDY DESIGN

We implemented our study in a research context ideal for identifying the effects of mentorship gender-matching: A developing economy in which ex ante exposure to business

mentorship is low, and where entrepreneurial ventures are often perceived as male-dominated. Our sample consists of 930 Ugandan entrepreneurs who were operating from a physical building and ready to receive a business support program. Section 1 of the online appendix details the recruitment process. We conducted one-on-one interviews with these entrepreneurs between July and August 2015 and also conducted a business audit and baseline survey that year. Roughly 40% of the entrepreneurs were female and 54% of them were married. The typical entrepreneur was 31 years old, had 2.3 children, and had completed high school or higher education. At baseline, the entrepreneurs' firms, on average, had been in operation for about 4 years, were open 6.5 days per week, and employed 1.7 paid staff. Moreover, the average firm had approximately 4.4 million UGX (Ugandan Shillings) in monthly sales and 673 thousand UGX in monthly profits.³

The 930 entrepreneurs were randomly assigned to either a Control group (n = 400; 40.3% female) or a Treatment group (n = 530; 39.2% female). Next, the 530 treated entrepreneurs were randomly matched with a unique mentor (38.2% female). This resulted in 35.8% of female entrepreneurs (in the treatment group) exogenously matched with a female mentor. We used a computer for the randomization process, so any differences across the groups are due to chance. Tables S1 and S2 in the online appendix show that the experimental groups are reasonably balanced on entrepreneur, business and industry observables. We include these observables in our models, however, to improve estimate precision and account for any chance imbalances.

³ Anderson et al. (2021) and Anderson, Chintagunta and Vilcassim (2023) leverage data from the same project to study two other important, yet very different, research questions. Anderson, Chintagunta, and Vilcassim (2023) investigate the general effects of international coaching via virtual collaboration technology, while Anderson et al. (2021) examine the more specific effects of marketers in helping small firms grow. Critically, these studies *ignore the impact of gender* (both of the entrepreneur and the mentor) on business performance and entrepreneurial advancement. Moreover, neither of these studies investigates whether female entrepreneurs perform better when guided by a female (as opposed to a male) mentor, which is our key research question here. These other studies also fail to provide any evidence on relational exchange as a novel mechanism explanation.

We partnered with a non-governmental organization (Grow Movement) that recruited and approved the 530 mentors who participated in the study. Our partner did not look for mentors with a specific background, but ultimately approved those with substantial business expertise – on average, the mentors had over 14 years of professional work experience. Also, the mentors were volunteers and based in more than 60 countries (most were ‘advanced economies’). Overall, from the viewpoint of our study entrepreneurs, the mentors tended to be highly experienced business professionals in aspirational positions. Table S3 in the online appendix provides details about the mentors’ backgrounds, as well as additional balance checks.

The study’s intervention phase started in August 2015. The mentoring was carried out virtually via Skype video conferencing or using other virtual productivity tools (e.g., WhatsApp, Google docs, mobile calls). Collaborations lasted for, on average, two to six months, and mentors interacted with the entrepreneurs on a regular basis, sometimes multiple times per week. Grow Movement hired and made available in-country staff who facilitated and ensured introductions and regular meetings (but who otherwise did not intervene). Besides the requirement to meet regularly and help entrepreneurs grow their business, the mentors had the discretion to guide the project and interactions as they saw fit. Section 2 of the online appendix provides additional information on the intervention and mentor-mentee interactions.

We conducted a follow-up business audit and endline survey in May 2017, almost two years after the intervention started. This time gap should allow enough time for potential performance gains to manifest. Independent auditors, supervised by a research manager from Innovations for Poverty Action (IPA), collected the follow-up data at each entrepreneur’s business location. The survey questions closely mirrored those in the baseline survey, and the auditors collected the same financial data as in the baseline survey. Attrition rates were fairly low, and we were able to reach 79% of the 930 included entrepreneurs at endline. Table S4 of the

online appendix shows that attrition did not differ between the control group and the focal treatment groups (i.e., female entrepreneurs), and Figure S6 of the online appendix shows the makeup of our final sample ($n = 605$) used in the analysis. Finally, Section 3 of the online appendix presents in detail how the key outcome measures were collected and also describes our estimation methodology.

4. MAIN EFFECTS: BREAKING THE GLASS CEILING

We examined if female entrepreneurs benefit more from female mentors (versus male mentors) using standard metrics of business success and advancement in the context of small firms in developing economies (e.g., McKenzie 2020): firm sales, firm profits, as well as two aggregated indices of these two measures (i.e., Monthly Sales and Profits Index 1 and 2; see Section 3 in the online appendix for details). We tested this by estimating the intention-to-treat effects of a female entrepreneur being randomly assigned to either a female mentor (Treatment 1) or a male mentor (Treatment 2). Table 1 presents the results.

[Insert Table 1 about here]

The impact of the mentoring intervention was not significant for sales, profits, or the aggregated indices of these measures when female entrepreneurs were matched with male mentors (see Treatment 2 in Table 1). In contrast, the mentoring intervention had a statistically significant and positive impact on these measures when *female entrepreneurs were matched with female mentors* (see Treatment 1 in Table 1). For example, compared to the control group, the monthly sales of female-led firms increased by 1,579,906 UGX (~\$432 USD) or 33.9% when mentored by female professionals. These female entrepreneurs also improved their monthly profits by 249,861 UGX (~\$68 USD) or 29.4% relative to the control group.

Moreover, mentorship gender-matching resulted in a 0.19 to 0.21 standard deviation increase on the aggregated performance indices for female-led firms. These effects were not only

significant relative to the control group, but also when compared against the treatment group in which female entrepreneurs were matched with male mentors. Furthermore, as a discriminant validity test, we find that mentor gender had no significant impact on male entrepreneurs (see test of equality between treatments that included male entrepreneurs in Table 1).

Section 4 of the online appendix provides model-free evidence and several additional robustness checks pertaining to the main effect. For example, one potential explanation for the observed effect is that females are simply better mentors. However, as we show in Table S5 of the online appendix, female mentors did not generally outperform the male mentors, ruling out this potential explanation.

In summary, mentorship gender-matching improves business success and advancement for women (but not men). It appears to be an effective policy tool for breaking ‘glass ceilings’ that many female entrepreneurs face in developing economies.

5. MECHANISM EVIDENCE: RELATIONAL EXCHANGE

So why is it that female entrepreneurs benefit more from female mentors (than male mentors)? Although there is only colloquial evidence, having an aspirational role model is sometimes cited as a potentially important factor affecting mentoring outcomes (Card, Domnisoru, Sanders, Taylor, and Udalova 2022). Other factors might include gender differences in: communication styles (e.g., amount of feedback offered); engagement approaches (e.g., extent to which interactions are social); and tone of advice (e.g., degree of positive reinforcement and encouragement). In other words, female mentor-female mentee arrangements may be characterized by more relational exchanges (than male mentor-female mentee ones) which, in turn, may influence the effectiveness of the business advice.

5.1. Mentor-Entrepreneur Interactions

To shed at least some light on this potential explanation, we analyzed written meeting summaries provided by the mentors (all mentors were encouraged to provide such summaries after each meeting; see Section 5 of the online appendix for details). The words people use reflect who they are and the social relationships they are in. And, people use language to translate their internal thoughts and emotions (Tausczik and Pennebaker, 2010). Thus, we analyzed the meeting summaries using Linguistic Inquiry and Word Count (LIWC) to detect emotionality, social relationships, and, more generally, individual differences in the mentors' descriptions of their interactions with entrepreneurs.

Our results revealed that, compared to male mentors, female mentors used significantly more (i) *personal pronouns* (e.g., her, us, she; 47% difference; $t = 3.26, p < .01$) as well as more words indicative of (ii) *social processes* (e.g., talk, us, contact; 25% difference; $t = 2.63, p < .05$), (iii) *affiliation* (e.g., ally, friend, social; 31% difference; $t = 1.79, p < .10$), (iv) *perceptual processes* (e.g., look, heard, feel; 52% difference; $t = 2.33, p < .05$), and (v) *assent* (e.g., agree, OK, yes; 360% difference⁴; $t = 2.14, p < .05$) when they were matched with a female entrepreneur (Table S8 in the online appendix includes more details about these contrasts). In addition, a summary measure based on the combined word usage across these five categories shows that female mentors used 33.7% more 'relational' words overall (versus male mentors) when describing their interactions with female entrepreneurs (see Figure 1).

[Insert Figure 1 about here]

Although speculative, these findings suggest that (compared to male mentors) female mentors may have formed closer bonds with the female entrepreneurs, developed a better

⁴ Words capturing the "assent" category were used very sparsely by both genders, which therefore amplifies this contrast.

understanding of the situations the female entrepreneurs faced, and been more supportive and encouraging of the female entrepreneurs' ideas. In other words, relational exchanges between the mentors and mentees were potentially better, resulting in higher quality mentoring interactions overall. Importantly, this may have improved the effectiveness of the business advice and its application, including enabling female entrepreneurs to enhance their relationships with customers and, ultimately, increase firm performance. We explore this additional mechanism link next.

5.2. Entrepreneur-Customer Relationships

Following the reasoning outlined above, we next analyzed if, depending on mentor gender, female entrepreneurs improved their customer relationships. To that end, we collected data on several customer relationship measures before and after the intervention: (1) the entrepreneurs' customer closeness practices (i.e., building rapport and closer relationships; contacting a customer post-purchase; understanding customer needs); (2) the number of customer transactions the entrepreneurs had per month; and (3) whether or not the entrepreneurs' customers purchase more than one item when they interacted with them (see Section 6 of the online appendix for details). To address noisy measurement issues and limit multiple hypothesis testing, we also constructed a customer relationship index by averaging the standardized values of the three customer relationship measures outlined above. We then re-estimated the intention-to-treat effects of a female entrepreneur being randomly assigned to either a female mentor (Treatment 1) or a male mentor (Treatment 2) but used the customer relationship measures as the dependent variable. Table 2 presents the results

[Insert Table 2 about here]

Compared to the control group, female entrepreneurs who were matched with female mentors seemed to have significantly improved their relationships with customers. None of the

other treatment conditions are positive and significant. These findings indicate female entrepreneurs started to develop better relationships with their customers after they were matched with a female mentor.

Extant literature suggests that better relationships between a firm and their customers should increase firm sales and profitability (e.g., Gupta and Zeithaml 2006; Kumar et al. 2008). Thus, in a next step, we examined the empirical link between the customer relationship index and firm performance. The general pattern of results indicates a positive and significant correlation between the customer relationship index and firm performance (see Table 3).

[Insert Table 3 about here]

We also tested whether the customer relationship index mediates Treatment 1's effect (Female Mentors matched with Female Entrepreneurs) on firm performance using Hayes's (2018) PROCESS Model 4. The results indicate a clear "yes". For example, the indirect effect of Treatment 1 on the Monthly Sales and Profits Index 2 – through the customer relationship index – is positive and significant (i.e., $a \times b = .04$; 95% confidence interval based on 10,000 bootstrap samples = [.01, .08]).⁵ Of note is that the direct effect of Treatment 1 on firm performance is only marginally significant ($p < .1$) when controlling for the customer relationship index.⁶

6. HETEROGENEOUS EFFECTS: ASPIRATION DRIVES ADVANCEMENT

Mentorship arrangements are believed to be more effective when the mentee aspires to reach the higher position or status of the mentor (Card et al. 2022), suggesting the effects

⁵ The indirect effect is positive and significant for all six firm performance measures used in this study.

⁶ We conducted several additional analyses to test alternative mechanism explanations. In particular, there is some descriptive work in developing economy contexts which suggests that having a mentor can provide entrepreneurs with access to finance and/or new networks (World Bank 2022). We estimated similar regressions as outlined in the section here, but replaced the customer relationship index with variables that served as proxies for the alternative mechanism explanations (e.g., changes in an entrepreneur's access to loans). None of the focal variables were significant in these models. This is not to say that access to finance or networks are not important channels for entrepreneurs in developing economies. However, for our intervention and context, these alternative mechanism explanations were not supported by the evidence.

demonstrated above may vary based on an entrepreneur's level of aspiration. Yet, one may also conjecture that aspirational female entrepreneurs are less impacted by the gender of the mentor as they would have the motivation to succeed either way. That said, Carrell et al. (2010) report that higher achieving female students (i.e., those with top SAT math scores in high school) benefitted the most from having a female (as opposed to a male) college professor in quantitative courses. Thus, it may be that female entrepreneurs with higher (vs. lower) aspirations also benefit significantly more from having a female mentor. We consider this aspect next.

As part of the baseline survey, the field auditors assessed all entrepreneurs in terms of their: (1) aspiration to achieve a high level of success; (2) understanding of business; and (3) seriousness to succeed in business (see Section 7 of the online appendix). We first created an aspiration composite for each entrepreneur by averaging their scores on these three individual measures. We then examined the interaction effect between aspiration levels and mentorship gender-matching on firm performance. Table 4 reports these results.

[Insert Table 4 about here]

As can be seen in Table 4, there is a consistently positive interaction effect between Treatment 1 (female mentors matched with female entrepreneurs) and the aspiration composite. Most importantly, the interaction effect is positive and significant in models (5) and (6), that is, when examining impacts on the two sales and profits indices. Using the latter of these two indices (i.e., Monthly Sales and Profits Index 2), Figure 2 illustrates the interaction effect for female entrepreneurs at different levels of aspiration.

[Insert Figure 2 about here]

As Figure 2 shows, female entrepreneurs with (ex ante) higher aspiration levels benefitted significantly more from female mentors in terms of increasing their firms' performance. Overall, this pattern of results suggests that aspirational female entrepreneurs may

be better targets for training programs aimed at stimulating business growth when such programs are delivered by female instructors or led by female mentors.

7. CONCLUSION

Governmental and nongovernmental organizations invest billions in business training programs to fight poverty in developing economies (e.g., Campos et al. 2017). Unfortunately, female entrepreneurs have been found to benefit less – or not at all – from these programs. Our study provides causal evidence in support of a potential new policy tool that can help overcome the pervasive barriers to business success and advancement faced by female entrepreneurs in developing economies. Indeed, *mentorship gender-matching* represents a novel solution that can complement other corporate policies (e.g., board quotas; Bertrand et al. 2019) in an effort to shatter ‘glass ceilings’ across a range of contexts and countries. We hope designers of future training programs in developing economies consider our findings and, where possible, match female business professionals with female mentors. Doing so, we dare to predict, will result in more equitable and inclusive business growth.

8. REFERENCES

- Anderson SJ, Chandy R, Zia B (2018) Pathways to profits: The impact of marketing vs. finance skills on business performance. *Management Sci.* 64(12):5559-5583.
- Anderson SJ, Chintagunta P, Germann F, Vilcassim N (2021) Do marketers matter for entrepreneurs? Evidence from a field experiment in Uganda. *J. Marketing* 85(3):78-96.
- Anderson SJ, Chintagunta P, Vilcassim N (2023) Virtual collaboration technology and international business coaching: Examining the impact on marketing strategies and sales. *Marketing Sci.* (forthcoming).
- Berge LJO, Bjorvatn K, Tungodden B (2015) Human and financial capital for microenterprise development: Evidence from a field and lab experiment. *Management Sci.* 61(4):707–722
- Bertrand M, Black SE, Jensen S, Lleras-Muney A (2019) Breaking the glass ceiling? The effect of board quotas on female labour market outcomes in Norway. *Rev Econom. Stud.* 86(1):191-239.
- Campos F, Frese M, Goldstein M, Iacovone L, Johnson HC, McKenzie D, Mensmann M (2017) Teaching personal initiative beats traditional training in boosting small business in West Africa. *Sci.* 357(6357):1287-1290.
- Card D, Domnisoru C, Sanders SG, Taylor L, Udalova V (2022) The impact of female teachers on female students' lifetime well-being. *NBER Working Paper no. 30430*.
- Carrell SE, Page ME, West JE (2010) Sex and science: How professor gender perpetuates the gender gap. *Quart. J. Econom.* 125(3):1101-1144.
- De Mel S, McKenzie D, Woodruff C (2014) Business training and female enterprise start-up, growth, and dynamics: Experimental evidence from Sri Lanka. *J. Development Econom.* 106:199-210.
- Gupta S, Zeithaml V (2006) Customer metrics and their impact on financial performance. *Marketing Sci.* 25(6): 718-739.
- Hayes AF (2018) *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Perspective, 2nd ed.* New York: Guilford Press.
- Krishna A, Orhun AY (2022) Gender (still) matters in business school. *J Marketing Res*, 59(1): 191-210.
- Kumar V, Venkatesan R, Bohling T, Beckmann D (2008) Practice Prize Report—The power of CLV: Managing customer lifetime value at IBM. *Marketing Sci.* 27(4): 585-599.
- McKenzie D (2020) Small business training to improve management practices in developing countries: Reassessing the evidence for 'training doesn't work. *Policy Research Working Paper no. 9408*. World Bank.
- McKenzie D, Paffhausen AL (2017) Small firm death in developing countries. *Policy Research Working Paper no. 8236*. World Bank.

- Tausczik YR, Pennebaker JW (2010) The psychological meaning of words: LIWC and computerized text analysis methods. *J. Lang. Soc. Psych.* 29(1):24-54.
- World Bank (2019) *Profiting from parity: Unlocking the potential of women's business in Africa* (World Bank Group, Washington, DC).
- World Bank (2022) *Breaking barriers: Female entrepreneurs who cross over to male dominated sectors* (World Bank Group, Washington, DC).

Table 1
Impact of Mentorship Gender-Matching on Entrepreneurs' Firm Performance

	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly Sales [levels: UGX] [logs: IHS]		Monthly Profits [levels: UGX] [logs: IHS]		Monthly Sales & Profits [index 1] [index 2]	
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	1579.906*	0.226	249.861**	0.814**	0.188**	0.214**
	(910.965)	(0.158)	(116.309)	(0.327)	(0.087)	(0.094)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	430.085	0.163	1.096	0.199	0.025	0.031
	(590.908)	(0.137)	(106.964)	(0.364)	(0.075)	(0.081)
Treatment 3: Male Mentor - Male Entrepreneur [yes=1]	1993.179*	0.254*	176.967	0.181	0.146	0.149
	(1016.141)	(0.130)	(181.253)	(0.228)	(0.0982)	(0.104)
Treatment 4: Female Mentor - Male Entrepreneur [yes=1]	1135.127	0.153	94.684	0.009	0.0572	0.0597
	(1019.695)	(0.130)	(171.273)	(0.257)	(0.0951)	(0.101)
<i>P</i> value from test of equality between treatment 1 & 2	0.237	0.687	0.047	0.075	0.074	0.062
<i>P</i> value from test of equality between treatment 3 & 4	0.469	0.503	0.685	0.518	0.424	0.451
<i>P</i> value from test of equality between treatment 1 & 3	0.746	0.888	0.725	0.112	0.739	0.632
<i>P</i> value from test of equality between treatment 1 & 4	0.737	0.717	0.443	0.053	0.294	0.250
<i>P</i> value from test of equality between treatment 2 & 3	0.208	0.639	0.430	0.965	0.343	0.386
Baseline value of dependent variable included	YES	YES	YES	YES	YES	YES
Mentor gender unknown condition control included	YES	YES	YES	YES	YES	YES
15 Business controls included	YES	YES	YES	YES	YES	YES
10 Entrepreneur controls included	YES	YES	YES	YES	YES	YES
10 Industry fixed effects included	YES	YES	YES	YES	YES	YES
Sample size	605	605	605	605	605	605
R-squared	0.324	0.381	0.255	0.081	0.283	0.270
Control group mean	4662.5	8.305	848.98	6.261	0.000	0.000

Notes: Table 1 summarizes analysis for the main effects (versus the control group) of mentorship gender-matching on the performance of female- and male-led firms (from baseline to endline). Values listed in levels represent Ugandan Shillings (in thousands) with the following conversion rate: 3,656 UGX = 1.00 USD (as per www.xe.com on 31st October 2017). Robust standard errors are in parentheses. Statistically significant p-values are highlighted by: * (10% significance level); ** (5% significance level).

Table 2
Impact of Mentorship Gender-Matching on Entrepreneurs' Customer Relationships

	(1)	(2)	(3)	(4)
	Customer Closeness	Customer Transactions	Customer Bundling	Customer Relationship Index
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	0.289* (0.162)	13.71** (6.271)	0.0834* (0.047)	0.300** (0.0914)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	-0.103 (0.124)	8.568 (5.578)	0.0446 (0.050)	0.0836 (0.0978)
Treatment 3: Male Mentor - Male Entrepreneur [yes=1]	-0.156 (0.106)	-5.132 (4.640)	-0.0638 (0.0413)	-0.192** (0.0761)
Treatment 4: Female Mentor - Male Entrepreneur [yes=1]	0.066 (0.116)	5.552 (5.117)	-0.108** (0.048)	-0.0595 (0.0832)
P value from test of equality between treatment 1 & 2	0.023	0.436	0.436	0.041
P value from test of equality between treatment 3 & 4	0.091	0.047	0.408	0.161
P value from test of equality between treatment 1 & 3	0.023	0.017	0.021	0.000
P value from test of equality between treatment 1 & 4	0.263	0.305	0.005	0.004
P value from test of equality between treatment 2 & 3	0.110	0.059	0.098	0.027
Mentor gender unknown condition control included	YES	YES	YES	YES
15 Business controls included	YES	YES	YES	YES
10 Entrepreneur controls included	YES	YES	YES	YES
10 Industry fixed effects included	YES	YES	YES	YES
Sample size	605	605	605	605
R-squared	0.067	0.215	0.162	0.187
Control group mean	1.122	56.667	0.867	-0.008

Notes: Table 2 summarizes analysis for the main effects (versus the control group) of mentorship gender-matching on the customer relationships of female- and male-led firms (from baseline to endline). Robust standard errors are in parentheses. Statistically significant p-values are highlighted by: * (10% significance level); ** (5% significance level).

Table 3
Correlation between Entrepreneurs' Customer Relationships and Firm Performance

	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly Sales [levels: UGX] [logs: IHS]		Monthly Profits [levels: UGX] [logs: IHS]		Monthly Sales & Profits [index 1] [index 2]	
Customer Relationship Index	1026.6** (451.4)	0.262** (0.0707)	211.7** (83.73)	0.342** (0.143)	0.142** (0.047)	0.150** (0.050)
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	1272.2 (920.9)	0.149 (0.160)	186.4 (119.5)	0.711** (0.325)	0.147* (0.088)	0.170* (0.095)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	344.5 (600.2)	0.144 (0.135)	-16.54 (108.6)	0.172 (0.364)	0.015 (0.075)	0.019 (0.082)
Treatment 3: Male Mentor - Male Entrepreneur [yes=1]	2190.5** (1034.7)	0.303** (0.129)	217.9 (186.1)	0.249 (0.227)	0.173* (0.099)	0.177* (0.105)
Treatment 4: Female Mentor - Male Entrepreneur [yes=1]	1196.6 (1023.3)	0.168 (0.130)	108.1 (172.0)	0.0305 (0.254)	0.066 (0.095)	0.069 (0.101)
Baseline value of dependent variable included	YES	YES	YES	YES	YES	YES
Mentor gender unknown condition control included	YES	YES	YES	YES	YES	YES
15 Business controls included	YES	YES	YES	YES	YES	YES
10 Entrepreneur controls included	YES	YES	YES	YES	YES	YES
10 Industry fixed effects included	YES	YES	YES	YES	YES	YES
Sample size	605	605	605	605	605	605
R-squared	0.379	0.443	0.319	0.158	0.344	0.331
Control group mean	4662.5	8.305	848.98	6.261	0	0

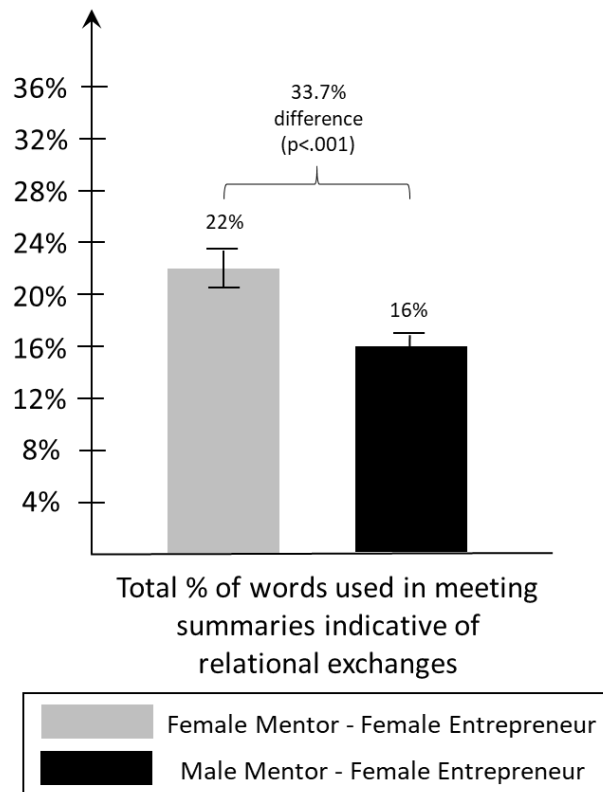
Notes: Table 3 summarizes analysis pertaining to the correlation between the customer relationship index and performance of female- and male-led firms (from baseline to endline). Values listed in levels represent Ugandan Shillings (in thousands) with the following conversion rate: 3,656 UGX = 1.00 USD (as per www.xe.com on 31st October 2017). Robust standard errors are in parentheses. Statistically significant p-values are highlighted by: * (10% significance level); ** (5% significance level).

Table 4
Moderating Effect of Female Entrepreneurs' Aspiration

	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly Sales		Monthly Profits		Monthly Sales & Profits	
	[levels: UGX]	[logs: IHS]	[levels: UGX]	[logs: IHS]	[index 1]	[index 2]
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	1754.784*	0.265*	276.438**	0.861**	0.209**	0.234**
	(959.128)	(0.153)	(120.206)	(0.333)	(0.089)	(0.097)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	453.161	0.170	8.378	0.209	0.029	0.034
	(594.210)	(0.137)	(109.039)	(0.368)	(0.076)	(0.082)
Treatment 3: Male Mentor - Male Entrepreneur [yes=1]	1989.888*	0.256*	181.313	0.191	0.149	0.151
	(1025.105)	(0.131)	(181.305)	(0.230)	(0.099)	(0.105)
Treatment 4: Female Mentor - Male Entrepreneur [yes=1]	1162.203	0.160	100.00	0.011	0.06	0.062
	(1024.186)	(0.130)	(171.682)	(0.257)	(0.095)	(0.101)
Entrepreneur: Aspiration Composite	-138.134	-0.194	-149.028	-0.008	-0.037	-0.023
	(981.185)	(0.177)	(201.045)	(0.414)	(0.116)	(0.125)
Interaction: Treatment 1 (FF) * Aspiration Composite	2906.665	0.793**	463.774*	0.704	0.350**	0.338**
	(1798.971)	(0.312)	(241.753)	(0.608)	(0.157)	(0.166)
Interaction: Treatment 2 (MF) * Aspiration Composite	-766.132	0.074	288.066	-0.305	-0.032	-0.053
	(1464.747)	(0.337)	(257.253)	(0.693)	(0.184)	(0.196)
Interaction: Treatment 3 (MM) * Aspiration Composite	746.565	0.198	448.614	0.572	0.216	0.223
	(2045.76)	(0.282)	(337.689)	(0.433)	(0.187)	(0.120)
Interaction: Treatment 4 (FM) * Aspiration Composite	-3794.557	-0.195	-241.901	-0.206	-0.247	-0.256
	(3455.762)	(0.353)	(596.404)	(0.695)	(0.314)	(0.335)
Test of equality of treatments 1 & 2 (<i>p</i> -value)	0.199	0.523	0.035	0.058	0.051	0.045
Test of equality of treatments 3 & 4 (<i>p</i> -value)	0.487	0.525	0.685	0.498	0.427	0.452
Test of equality of interaction effects (treatment 1 & 2) (<i>p</i> -value)	0.04	0.075	0.394	0.21	0.043	0.049
Test of equality of interaction effects (treatment 3 & 4) (<i>p</i> -value)	0.24	0.333	0.282	0.258	0.177	0.189
Baseline value of dependent variable included	YES	YES	YES	YES	YES	YES
Gender unknown condition control included	YES	YES	YES	YES	YES	YES
15 Business controls included	YES	YES	YES	YES	YES	YES
10 Entrepreneur controls included	YES	YES	YES	YES	YES	YES
10 Industry fixed effects included	YES	YES	YES	YES	YES	YES
R-squared	0.379	0.434	0.315	0.153	0.339	0.326
Sample size	605	605	605	605	605	605

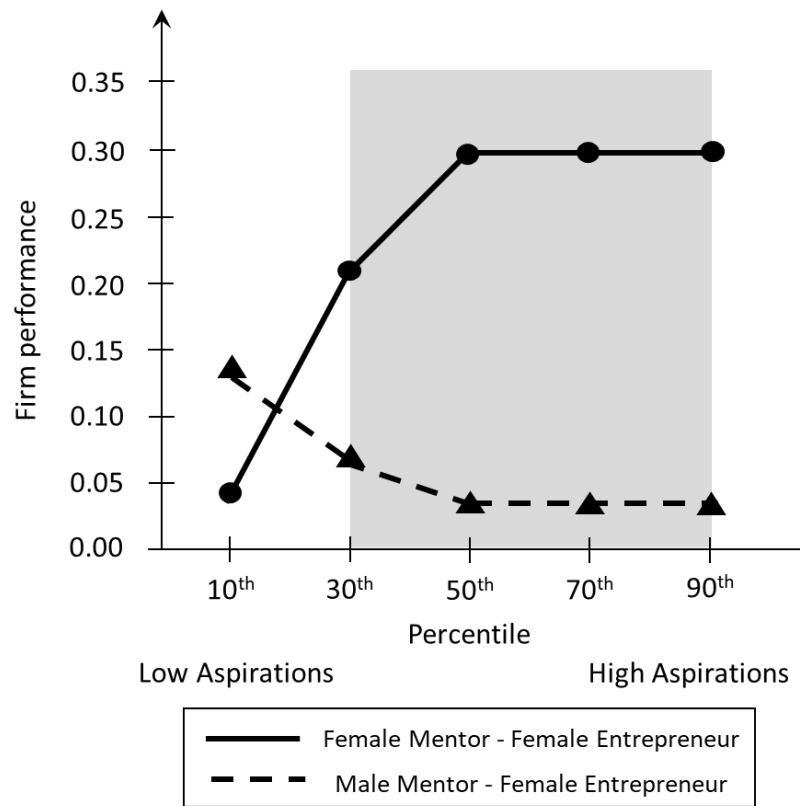
Notes: Table 4 summarizes analysis for the main and interaction effects (based on the entrepreneur's aspiration) of mentorship gender-matching on the performance of female- and male-led firms (from baseline to endline). Values listed in levels represent Ugandan Shillings (in thousands) with the following conversion rate: 3,656 UGX = 1.00 USD (as per www.xe.com on 31st October 2017). Robust standard errors are in parentheses. Statistically significant *p*-values are highlighted by: * (10% significance level); ** (5% significance level).

Figure 1
Relational Exchanges during Mentoring Interactions



Notes: Figure 1 shows the percentage of total words used by female (grey bar) and male (black bar) mentors in their written meeting summaries that fall into one of the following five categories: social processes, personal pronouns, affiliation, perceptual processes, and assent. Error bars = ± 1 SE.

Figure 2
Aspirational Female Entrepreneurs Benefit More from Female Mentors



Notes: Figure 2 shows the interaction effect between a female entrepreneurs' aspiration (ranging from low to high) and whether her mentor is female (solid line) or male (striped line). Considering firm performance (i.e., Monthly Sales and Profits Index 2; captured on the y-axes), female entrepreneurs with higher aspiration levels (ex ante) benefitted significantly more from female (than male) mentors. The shaded area (30th percentile and above) indicates aspiration levels at which female entrepreneurs with female mentors performed significantly better than female entrepreneurs with male mentors. Results are very similar when considering the Monthly Sales and Profits Index 1 in the analysis.

ONLINE APPENDIX

Breaking the Glass Ceiling: Empowering Female Entrepreneurs through Female Mentors

Section	Title	Page
1	Sample Selection Process	23
2	Additional Information Pertaining to the Intervention	32
3	Key Financial Outcome Measures and Estimation Methodology Used	35
4	Results and Robustness Checks	38
5	Meeting Summaries	44
6	Customer Relationship Measures	46
7	Heterogenous Treatment Effects	47
8	References	48

Section 1: Sample Selection Process

We hired 15 research assistants to help us recruit the entrepreneurs for the study. Between January and March 2015, these research assistants went door-to-door and approached close to 20,000 entrepreneurs located in the greater Kampala, Uganda area. Every entrepreneur (of the 20,000) who was interested in participating in the business support intervention and who could speak conversational English and operated their firm out of a physical structure was asked to complete a recruitment survey which included questions on the following entrepreneur and business characteristics:

- Start-up Capital
- Business Location (permanent structure etc.)
- Has Paid Employee
- Keeps Financial Records
- Separates Finances
- Regularly Engages in New Activities
- External Focus
- Education
- Business Training
- Corporate Experience
- Surveyor Evaluation of Entrepreneur

Of the ~20,000 entrepreneurs approached, 4,043 completed the recruitment survey. The research assistants also used and distributed the flyer shown in Figure S1 among entrepreneurs.

We created a growth potential index for each entrepreneur based on the responses the entrepreneurs provided as part of the recruitment survey. We then invited the top 1,500 entrepreneurs to advance in the process based on their respective growth potential index. Our partner's (Grow Movement) program requirement was to work with operational firms that were committed and ready to receive a business support intervention, and this screening step was consistent with this program requirement. These kinds of screenings are common in government and NGO programs given the scarcity of the resources they allocate to stimulate growth (e.g., Anderson, Chandy, Zia 2018). We also note that while this screening step influences the population of entrepreneurs to which our results generalize, it does not influence our causal effects.

Between May and June of 2015, the research assistants visited the 1,500 entrepreneurs who advanced and invited them to complete the baseline survey (also referred to as the "Get to know your business" survey). The research assistants used a touchscreen tablet and captured all of the baseline survey information electronically which, in turn, was automatically stored on a server. Figure S2 shows a picture of one of the research assistants meeting with an entrepreneur to gather the information for the baseline survey.

FIGURE S1
Flyer used as part of the Recruitment Process

DO YOU WANT TO GROW YOUR BUSINESS?

Get **free consulting** through Grow Movement and watch your business grow!

Grow Movement matches **ambitious business owners** like you with **experienced consultants** from around the world who share their skills to help you grow your business.



How it works		
1	Complete an application form	Jan–Mar 2015
2	Complete a 'Get to know your business' survey	May–Jun 2015
3	Attend an interview with a Grow Movement Project Manager	May–Jun 2015
4	Start your consulting! Meet with your remote consultant once every two weeks over telephone, Skype and email. During the next six months (12 sessions total), learn and apply new skills in marketing, financial management and strategy to improve your performance and grow your business.	Jun–Dec 2015
5	Complete a 'Following your Growth 1' survey	Jul–Aug 2016
6	Complete a 'Following your Growth 2' survey	Feb–Mar 2017

INTERESTED? Contact a marketing rep to apply today!

Tel:
Email: info-growconsulting@poverty-action.org



Grow Movement at Enterprise Uganda
Plot 38, Lumumba Avenue, Nakasero, Kampala
www.growmovement.org



Innovations for Poverty Action Uganda
Plot 9, Naguru Drive Close, Nakawa, Kampala
www.poverty-action.org

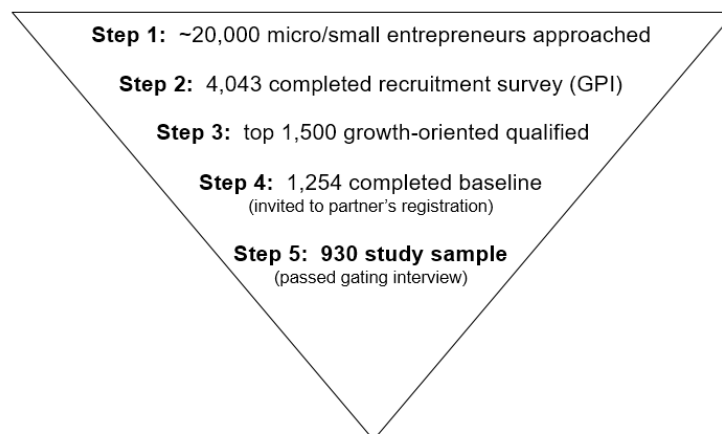
Each baseline survey took approximately 90-minutes to complete, and, of the 1,500 entrepreneurs who were invited to complete the baseline survey, 1,254 entrepreneurs did so. Compared to the initial recruitment survey, the baseline survey included more detailed business background questions as well as detailed financial questions (e.g., detailed monthly profit and sales figures), product-related questions (e.g., what products do you make; at what prices do you sell them; what does it cost you to make the products).

FIGURE S2
Research Assistant Gathering Information for Baseline Survey



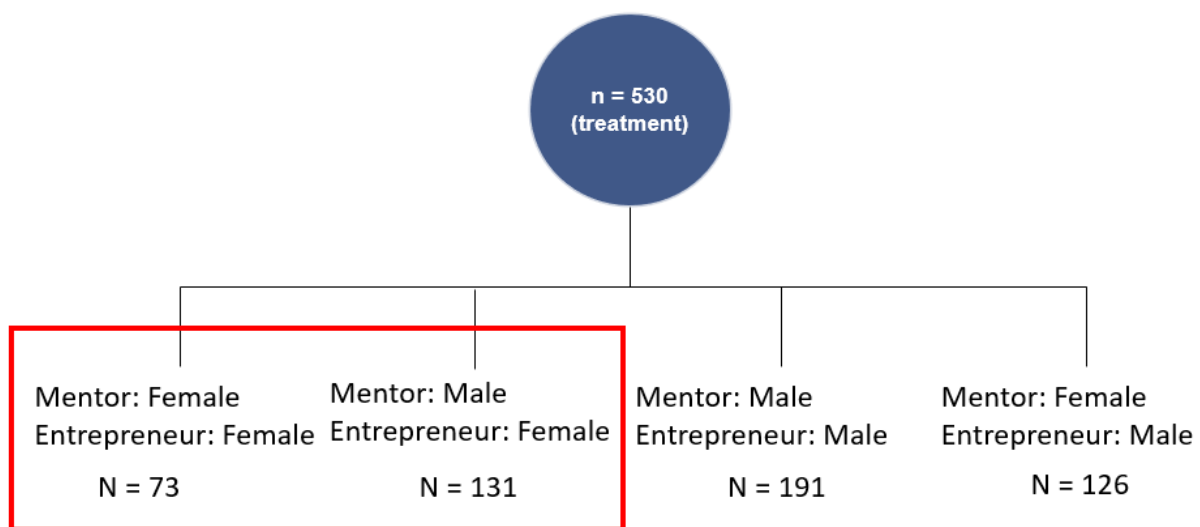
Finally, Grow Movement (our partner) invited the 1,254 entrepreneurs to an interview. These interviews also took place between May and June 2015. As part of the interview, the entrepreneurs received additional details about the business support intervention. Moreover, Grow Movement used the interview as an additional screening. Ultimately, Grow Movement approved 930 (of the 1,254) entrepreneurs. These 930 entrepreneurs formed our sample. Figure S3 summarizes our recruitment steps.

FIGURE S3
Summary of Recruitment Steps



The 930 entrepreneurs were then randomly assigned to either a Control group ($n = 400$) or a Treatment group ($n = 530$), and each treated entrepreneur was randomly matched with a unique mentor. 39.2% of the treated entrepreneurs were female and 38.2% of the mentors were female. Figure S4 shows the four treatment group sizes (the two focal treatment groups are highlighted in red). Although not shown in Figure S4, there was also a 5th treatment group included in the analysis capturing the mentor-entrepreneur dyads for which either mentor or entrepreneur gender was unknown ($n = 9$).

FIGURE S4
Treatment Groups



Note: Although not shown in Figure S4, there was also a 5th treatment group included in the analysis capturing the mentor-entrepreneur dyads for which either mentor or entrepreneur gender was unknown ($n = 9$).

Balance Table

Tables S1 and S2 show the balance of entrepreneur, business, and industry observables among the control and the four treatment groups. Table S1 shows the balance table for all firms responding to the baseline survey (n = 930), and Table S2 shows the balance table for all firms responding to the endline survey and those firms that survived (n = 608). The tables, and especially Table S2 which is based on our final dataset, indicate that the groups are reasonably balanced. We note that we also include these observables in our models to improve estimate precision and account for any group imbalances.

Table S1
Balance Table – All Firms Responding to Baseline Survey

	(1) Control		(2) Treatment 1: Female Mentor- Female Entrepreneur		(3) Treatment 2: Male Mentor- Female Entrepreneur		(4) Treatment 3: Male Mentor- Male Entrepreneur		(5) Treatment 4: Female Mentor- Male Entrepreneur		(6) Treatment 5: Unknown		t-test Difference (1)-(2)	t-test Difference (1)-(3)	t-test Difference (1)-(4)	t-test Difference (1)-(5)	t-test Difference (1)-(6)
Variable	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE					
Founder of current business [yes=1]	400	0.675 [0.023]	73	0.603 [0.058]	131	0.779 [0.036]	191	0.696 [0.033]	126	0.722 [0.040]	9	0.667 [0.167]	0.072	-0.104**	-0.021	-0.047	0.008
Years operating current business [continuous]	399	3.779 [0.216]	71	3.690 [0.549]	131	3.153 [0.303]	190	4.663 [0.365]	125	4.264 [0.433]	9	5.111 [2.208]	0.089	0.627	-0.884**	-0.485	-1.332
Startup capital: above median [yes=1]	400	0.672 [0.023]	73	0.685 [0.055]	131	0.679 [0.041]	191	0.665 [0.034]	126	0.635 [0.043]	9	0.667 [0.167]	-0.012	-0.007	0.008	0.038	0.006
Prior loan with a formal institution [yes=1]	400	0.133 [0.017]	73	0.137 [0.041]	131	0.107 [0.027]	191	0.115 [0.023]	126	0.119 [0.029]	9	0.222 [0.147]	-0.004	0.026	0.017	0.013	-0.090
Separates business and personal affairs [yes=1]	400	0.748 [0.022]	73	0.671 [0.055]	131	0.824 [0.033]	191	0.723 [0.032]	126	0.706 [0.041]	9	0.778 [0.147]	0.076	-0.077*	0.025	0.041	-0.030
Days open per week [1-7]	400	6.530 [0.033]	73	6.548 [0.078]	131	6.489 [0.055]	191	6.534 [0.044]	126	6.484 [0.081]	9	5.556 [0.412]	-0.018	0.041	-0.004	0.046	0.974***
Sales frequency: daily to monthly [1-4]	400	1.320 [0.039]	73	1.178 [0.060]	131	1.290 [0.056]	191	1.361 [0.057]	126	1.429 [0.082]	9	1.111 [0.111]	0.142	0.030	-0.041	-0.109	0.209
Structure of business premises [1-14]	400	9.970 [0.154]	73	10.274 [0.314]	131	9.443 [0.300]	191	9.796 [0.219]	126	10.198 [0.252]	9	8.556 [1.345]	-0.304	0.527*	0.174	-0.228	1.414
Location of business: on a main/busy road [yes=1]	400	0.547 [0.025]	73	0.589 [0.058]	131	0.511 [0.044]	191	0.586 [0.036]	126	0.524 [0.045]	9	0.444 [0.176]	-0.042	0.036	-0.039	0.024	0.103
Business registered with government [yes=1]	400	0.223 [0.021]	73	0.164 [0.044]	131	0.198 [0.035]	191	0.257 [0.032]	126	0.230 [0.038]	9	0.111 [0.111]	0.058	0.024	-0.034	-0.008	0.111
Size: different levels or types of options [1-11]	400	2.603 [0.144]	73	3.548 [0.433]	131	2.947 [0.276]	191	2.492 [0.195]	126	2.794 [0.271]	9	3.444 [1.345]	-0.945**	-0.344	0.110	-0.191	-0.842
Business practices: number implemented [0-27]	400	7.600 [0.202]	73	7.589 [0.473]	131	7.611 [0.326]	191	7.963 [0.326]	126	7.635 [0.333]	9	7.111 [1.020]	0.011	-0.011	-0.363	-0.035	0.489
Operations practices: number implemented [0-9]	400	2.527 [0.083]	73	2.411 [0.191]	131	2.435 [0.131]	191	2.723 [0.136]	126	2.397 [0.134]	9	3.111 [0.539]	0.117	0.092	-0.195	0.131	-0.584
Marketing practices: number implemented [0-9]	400	3.208 [0.097]	73	3.274 [0.246]	131	3.183 [0.172]	191	3.429 [0.150]	126	3.452 [0.175]	9	2.333 [0.577]	-0.066	0.024	-0.222	-0.245	0.874
Finance practices: number implemented [0-9]	400	1.865 [0.086]	73	1.904 [0.199]	131	1.992 [0.152]	191	1.812 [0.129]	126	1.786 [0.148]	9	1.667 [0.373]	-0.039	-0.127	0.053	0.079	0.198
Products: closest competitors outside neighborhood [yes=1]	400	0.072 [0.013]	73	0.055 [0.027]	131	0.061 [0.021]	191	0.115 [0.023]	126	0.095 [0.026]	9	0.111 [0.111]	0.018	0.011	-0.043*	-0.023	-0.039
Customers: sells business-to-business [percent]	400	11.620 [1.066]	73	5.438 [1.682]	131	7.023 [1.609]	191	14.403 [1.799]	126	11.175 [1.864]	9	20.000 [13.333]	6.182**	4.597**	-2.783	0.445	-8.380
Markets: sells outside neighborhood [percent]	400	8.782 [0.695]	73	7.627 [0.783]	131	8.869 [2.149]	191	9.538 [2.110]	126	10.606 [3.077]	9	5.467 [0.953]	1.154	-0.087	-0.756	-1.824	3.315
Sales (aided-recall): total last month [UGX in 1000s]	400	4272.894 [479.948]	73	2268.738 [398.958]	131	3904.269 [892.184]	191	4973.172 [741.681]	126	3154.841 [603.585]	9	1913.333 [565.312]	2004.156*	368.625	-700.278	1118.053	2359.561
Sales (anchored-adjusted): total last month [UGX in 1000s]	400	4700.877 [458.218]	73	2706.944 [444.083]	131	4307.836 [857.435]	191	6192.987 [805.685]	126	4057.302 [683.935]	9	3095.278 [1177.822]	1993.933*	393.041	-1492.110*	643.576	1605.599
Profits (aided-recall): total last month [UGX in 1000s]	400	534.759 [45.233]	73	328.062 [86.756]	131	404.719 [57.444]	191	720.518 [90.003]	126	573.421 [87.723]	9	838.889 [265.070]	208.697*	130.040	-185.759**	-38.662	-304.130

Table S1 (continued)
Balance Table – All Firms Responding to Baseline Survey

	(1) Control		(2) Treatment 1: Female Mentor- Female Entrepreneur		(3) Treatment 2: Male Mentor- Female Entrepreneur		(4) Treatment 3: Male Mentor- Male Entrepreneur		(5) Treatment 4: Female Mentor- Male Entrepreneur		(6) Treatment 5: Unknown		t-test Difference (1)-(2)	t-test Difference (1)-(3)	t-test Difference (1)-(4)	t-test Difference (1)-(5)	t-test Difference (1)-(6)
Variable	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE					
Profits (anchored-adjusted): total last month [UGX in 1000s]	400	783.329 [117.189]	73	339.390 [164.860]	131	822.271 [219.456]	191	1026.855 [191.035]	126	758.974 [166.474]	9	573.673 [732.065]	443.939	-38.942	-243.526	24.355	209.656
Assets: present value of all assets [UGX in 1000s]	400	14724.638 [1436.692]	73	9685.773 [1709.118]	131	10711.195 [1619.496]	191	17153.943 [2066.947]	126	16692.152 [2874.100]	9	6421.333 [1550.010]	5038.866	4013.444	-2429.305	-1967.514	8303.305
Assets: present value of 'fixed' assets only [UGX in 1000s]	400	4725.370 [422.772]	73	3685.451 [671.148]	131	3813.637 [612.163]	191	6810.745 [795.471]	126	5713.589 [807.081]	9	3542.222 [1277.779]	1039.919	911.732	-2085.375**	-988.219	1183.147
Employees: number of paid and unpaid workers [continuous]	400	2.643 [0.223]	73	1.712 [0.225]	131	1.947 [0.199]	191	2.754 [0.266]	126	2.357 [0.219]	9	2.111 [0.512]	0.930*	0.696*	-0.111	0.285	0.531
Employees: number of paid workers [continuous]	400	1.907 [0.212]	73	1.301 [0.197]	131	1.275 [0.142]	191	2.042 [0.247]	126	1.452 [0.154]	9	1.444 [0.412]	0.606	0.633*	-0.134	0.455	0.463
Age [continuous]	400	30.738 [0.374]	73	30.598 [0.961]	131	32.039 [0.700]	191	31.273 [0.581]	126	30.018 [0.666]	9	31.711 [3.103]	0.139	-1.301*	-0.535	0.720	-0.974
Age: Below 26 years [yes=1]	400	0.170 [0.019]	73	0.247 [0.051]	131	0.183 [0.034]	191	0.183 [0.028]	126	0.246 [0.039]	9	0.222 [0.147]	-0.077	-0.013	-0.013	-0.076*	-0.052
Age: 26-30 years [yes=1]	400	0.380 [0.024]	73	0.260 [0.052]	131	0.275 [0.039]	191	0.356 [0.035]	126	0.365 [0.043]	9	0.333 [0.167]	0.120*	0.105**	0.024	0.015	0.047
Age: 31-35 years [yes=1]	400	0.212 [0.020]	73	0.301 [0.054]	131	0.237 [0.037]	191	0.178 [0.028]	126	0.175 [0.034]	9	0.111 [0.111]	-0.089*	-0.024	0.034	0.038	0.101
Age: Above 35 years [yes=1]	400	0.237 [0.021]	73	0.192 [0.046]	131	0.305 [0.040]	191	0.283 [0.033]	126	0.214 [0.037]	9	0.333 [0.167]	0.046	-0.068	-0.045	0.023	-0.096
Ethnicity: local Ugandan [yes=1]	400	0.983 [0.007]	73	1.000 [0.000]	131	0.977 [0.013]	191	0.995 [0.005]	126	0.984 [0.011]	9	0.889 [0.111]	-0.018	0.005	-0.012	-0.002	0.094**
Married [yes=1]	399	0.536 [0.025]	73	0.644 [0.056]	130	0.608 [0.043]	191	0.492 [0.036]	126	0.476 [0.045]	9	0.333 [0.167]	-0.107*	-0.071	0.044	0.060	0.203
Children [continuous]	400	2.272 [0.100]	73	1.932 [0.192]	131	2.534 [0.226]	191	2.178 [0.147]	126	2.317 [0.230]	9	1.556 [0.475]	0.341	-0.262	0.094	-0.045	0.717
Highest education level [0-10]	400	6.617 [0.081]	73	6.589 [0.182]	131	6.969 [0.131]	191	6.576 [0.113]	126	6.452 [0.143]	9	7.222 [0.572]	0.028	-0.352**	0.042	0.165	-0.605
Prior business program [yes=1]	400	0.560 [0.025]	73	0.548 [0.059]	131	0.519 [0.044]	191	0.524 [0.036]	126	0.548 [0.045]	9	0.667 [0.167]	0.012	0.041	0.036	0.012	-0.107
Prior salaried job: company size [0-7]	400	3.485 [0.128]	73	3.616 [0.277]	130	3.669 [0.210]	191	3.461 [0.196]	125	3.336 [0.233]	9	4.333 [0.913]	-0.131	-0.184	0.024	0.149	-0.848
Previously owned a business [yes=1]	400	0.482 [0.025]	73	0.438 [0.058]	131	0.427 [0.043]	191	0.476 [0.036]	126	0.429 [0.044]	9	0.222 [0.147]	0.044	0.055	0.006	0.054	0.260
Committed and capable to participate [0-4]	400	3.687 [0.019]	73	3.662 [0.055]	131	3.772 [0.032]	191	3.729 [0.028]	126	3.672 [0.035]	9	3.593 [0.139]	0.025	-0.086**	-0.042	0.015	0.094
F-test of joint significance (F-stat)													1.264	1.450**	0.952	0.714	1.583**
F-test, number of observations													469	527	588	522	407

Table S2
Balance Table – All Firms Responding to Endline Survey & Survivors

	(1)		(2)		(3)		(4)		(5)		(6)		t-test Difference (1)-(2)	t-test Difference (1)-(3)	t-test Difference (1)-(4)	t-test Difference (1)-(5)	t-test Difference (1)-(6)
Variable	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE					
Founder of current business [yes=1]	270	0.722 [0.027]	49	0.571 [0.071]	74	0.784 [0.048]	122	0.689 [0.042]	89	0.742 [0.047]	4	0.750 [0.250]	0.151**	-0.062	0.034	-0.019	-0.028
Years operating current business [continuous]	269	4.201 [0.284]	48	4.604 [0.757]	74	3.784 [0.436]	122	4.795 [0.491]	89	4.685 [0.531]	4	5.500 [3.862]	-0.403	0.417	-0.594	-0.485	-1.299
Startup capital: above median [yes=1]	270	0.622 [0.030]	49	0.633 [0.070]	74	0.635 [0.056]	122	0.664 [0.043]	89	0.663 [0.050]	4	0.500 [0.289]	-0.010	-0.013	-0.042	-0.041	0.122
Prior loan with a formal institution [yes=1]	270	0.148 [0.022]	49	0.163 [0.053]	74	0.108 [0.036]	122	0.107 [0.028]	89	0.157 [0.039]	4	0.250 [0.250]	-0.015	0.040	0.042	-0.009	-0.102
Separates business and personal affairs [yes=1]	270	0.741 [0.027]	49	0.592 [0.071]	74	0.811 [0.046]	122	0.738 [0.040]	89	0.652 [0.051]	4	0.750 [0.250]	0.149**	-0.070	0.003	0.089	-0.009
Days open per week [1-7]	270	6.541 [0.042]	49	6.571 [0.105]	74	6.459 [0.080]	122	6.557 [0.057]	89	6.472 [0.101]	4	6.000 [0.408]	-0.031	0.081	-0.017	0.069	0.541
Sales frequency: daily to monthly [1-4]	270	1.315 [0.047]	49	1.143 [0.058]	74	1.324 [0.084]	122	1.377 [0.072]	89	1.494 [0.102]	4	1.000 [0.000]	0.172	-0.010	-0.062	-0.180*	0.315
Structure of business premises [1-14]	270	9.919 [0.191]	49	10.041 [0.415]	74	9.608 [0.401]	122	9.746 [0.279]	89	10.101 [0.310]	4	9.500 [1.658]	-0.122	0.310	0.173	-0.183	0.419
Location of business: on a main/busy road [yes=1]	270	0.526 [0.030]	49	0.551 [0.072]	74	0.473 [0.058]	122	0.598 [0.045]	89	0.528 [0.053]	4	0.500 [0.289]	-0.025	0.053	-0.072	-0.002	0.026
Business registered with government [yes=1]	270	0.237 [0.026]	49	0.184 [0.056]	74	0.203 [0.047]	122	0.270 [0.040]	89	0.236 [0.045]	4	0.000 [0.000]	0.053	0.034	-0.033	0.001	0.237
Size: different levels or types of options [1-11]	270	2.685 [0.186]	49	3.224 [0.504]	74	2.770 [0.343]	122	2.475 [0.237]	89	2.876 [0.337]	4	3.750 [2.097]	-0.539	-0.085	0.210	-0.191	-1.065
Business practices: number implemented [0-27]	270	7.781 [0.233]	49	7.408 [0.542]	74	7.959 [0.418]	122	7.779 [0.388]	89	7.618 [0.396]	4	6.250 [1.109]	0.373	-0.178	0.003	0.164	1.531
Operations practices: number implemented [0-9]	270	2.626 [0.101]	49	2.531 [0.226]	74	2.500 [0.172]	122	2.656 [0.169]	89	2.438 [0.168]	4	2.750 [0.854]	0.095	0.126	-0.030	0.188	-0.124
Marketing practices: number implemented [0-9]	270	3.315 [0.112]	49	3.184 [0.281]	74	3.324 [0.225]	122	3.344 [0.186]	89	3.506 [0.208]	4	2.250 [0.854]	0.131	-0.010	-0.029	-0.191	1.065
Finance practices: number implemented [0-9]	270	1.841 [0.101]	49	1.694 [0.234]	74	2.135 [0.199]	122	1.779 [0.159]	89	1.674 [0.172]	4	1.250 [0.479]	0.147	-0.294	0.062	0.167	0.591
Products: closest competitors outside neighborhood [yes=1]	270	0.089 [0.017]	49	0.041 [0.029]	74	0.068 [0.029]	122	0.115 [0.029]	89	0.090 [0.030]	4	0.000 [0.000]	0.048	0.021	-0.026	-0.001	0.089
Customers: sells business-to-business [percent]	270	13.707 [1.376]	49	6.163 [2.309]	74	7.905 [2.382]	122	14.754 [2.264]	89	9.921 [1.783]	4	0.000 [0.000]	7.544**	5.802**	-1.047	3.786	13.707
Markets: sells outside neighborhood [percent]	270	9.091 [0.888]	49	6.298 [0.572]	74	6.916 [0.687]	122	10.459 [3.255]	89	11.884 [4.326]	4	5.100 [1.725]	2.793	2.175	-1.368	-2.793	3.991
Sales (aided-recall): total last month [UGX in 1000s]	270	4514.963 [608.881]	49	2727.435 [575.612]	74	2836.154 [754.289]	122	3552.506 [654.142]	89	3190.854 [719.107]	4	1575.000 [425.000]	1787.529	1678.809	962.458	1324.109	2939.963
Sales (anchored-adjusted): total last month [UGX in 1000s]	270	4883.962 [554.626]	49	3050.445 [614.275]	74	3005.839 [567.881]	122	4390.078 [699.328]	89	4163.180 [837.669]	4	2800.000 [567.157]	1833.517	1878.123*	493.884	720.782	2083.962
Profits (aided-recall): total last month [UGX in 1000s]	270	527.273 [49.696]	49	400.051 [127.002]	74	351.232 [48.425]	122	626.508 [100.227]	89	578.213 [103.962]	4	750.000 [330.404]	127.222	176.040*	-99.236	-50.941	-222.727

Table S2 (continued)
Balance Table – All Firms Responding to Endline Survey & Survivors

	(1) Control		(2) Treatment 1: Female Mentor- Female Entrepreneur		(3) Treatment 2: Male Mentor- Female Entrepreneur		(4) Treatment 3: Male Mentor- Male Entrepreneur		(5) Treatment 4: Female Mentor- Male Entrepreneur		(6) Treatment 5: Unknown		t-test Difference (1)-(2)	t-test Difference (1)-(3)	t-test Difference (1)-(4)	t-test Difference (1)-(5)	t-test Difference (1)-(6)
Variable	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE					
Profits (anchored-adjusted): total last month [UGX in 1000s]	270	936.555 [157.907]	49	413.209 [222.021]	74	715.310 [256.579]	122	799.324 [216.804]	89	698.660 [209.566]	4	1220.884 [381.008]	523.346	221.244	137.230	237.895	-284.330
Assets: present value of all assets [UGX in 1000s]	270	15741.155 [1903.425]	49	8126.753 [2011.051]	74	10102.845 [1271.726]	122	17107.202 [2794.949]	89	18679.929 [3557.654]	4	7513.750 [2106.814]	7614.402*	5638.311	-1366.047	-2938.774	8227.405
Assets: present value of 'fixed' assets only [UGX in 1000s]	270	4662.998 [508.753]	49	3757.600 [913.802]	74	3533.845 [567.664]	122	6208.346 [836.219]	89	6250.918 [951.454]	4	4451.250 [2648.549]	905.398	1129.153	-1545.348	-1587.920	211.748
Employees: number of paid and unpaid workers [continuous]	270	2.978 [0.313]	49	1.796 [0.281]	74	2.122 [0.282]	122	2.877 [0.309]	89	2.607 [0.272]	4	1.250 [0.629]	1.182	0.856	0.101	0.371	1.728
Employees: number of paid workers [continuous]	270	2.130 [0.298]	49	1.347 [0.238]	74	1.459 [0.214]	122	2.131 [0.279]	89	1.607 [0.188]	4	1.000 [0.408]	0.783	0.670	-0.002	0.523	1.130
Age [continuous]	270	30.861 [0.450]	49	32.363 [1.290]	74	33.288 [1.028]	122	31.232 [0.747]	89	30.663 [0.695]	4	28.659 [3.569]	-1.502	-2.427**	-0.371	0.198	2.202
Age: Below 26 years [yes=1]	270	0.167 [0.023]	49	0.224 [0.060]	74	0.189 [0.046]	122	0.172 [0.034]	89	0.191 [0.042]	4	0.250 [0.250]	-0.058	-0.023	-0.005	-0.024	-0.083
Age: 26-30 years [yes=1]	270	0.389 [0.030]	49	0.224 [0.060]	74	0.257 [0.051]	122	0.385 [0.044]	89	0.371 [0.051]	4	0.500 [0.289]	0.164**	0.132**	0.004	0.018	-0.111
Age: 31-35 years [yes=1]	270	0.211 [0.025]	49	0.286 [0.065]	74	0.176 [0.045]	122	0.164 [0.034]	89	0.191 [0.042]	4	0.000 [0.000]	-0.075	0.035	0.047	0.020	0.211
Age: Above 35 years [yes=1]	270	0.233 [0.026]	49	0.265 [0.064]	74	0.378 [0.057]	122	0.279 [0.041]	89	0.247 [0.046]	4	0.250 [0.250]	-0.032	-0.145**	-0.045	-0.014	-0.017
Ethnicity: local Ugandan [yes=1]	270	0.989 [0.006]	49	1.000 [0.000]	74	0.959 [0.023]	122	0.992 [0.008]	89	0.978 [0.016]	4	0.750 [0.250]	-0.011	0.029*	-0.003	0.011	0.239***
Married [yes=1]	270	0.533 [0.030]	49	0.694 [0.067]	74	0.622 [0.057]	122	0.459 [0.045]	89	0.584 [0.053]	4	0.500 [0.289]	-0.161**	-0.088	0.074	-0.051	0.033
Children [continuous]	270	2.319 [0.126]	49	2.020 [0.227]	74	2.730 [0.334]	122	2.270 [0.194]	89	2.629 [0.302]	4	1.250 [0.479]	0.298	-0.411	0.048	-0.311	1.069
Highest education level [0-10]	270	6.604 [0.097]	49	6.551 [0.235]	74	6.892 [0.188]	122	6.459 [0.144]	89	6.416 [0.169]	4	6.250 [1.109]	0.053	-0.288	0.145	0.188	0.354
Prior business program [yes=1]	270	0.556 [0.030]	49	0.571 [0.071]	74	0.541 [0.058]	122	0.508 [0.045]	89	0.596 [0.052]	4	0.500 [0.289]	-0.016	0.015	0.047	-0.040	0.056
Prior salaried job: company size [0-7]	270	3.411 [0.160]	49	3.531 [0.340]	73	3.740 [0.281]	122	3.098 [0.252]	89	3.258 [0.266]	4	3.500 [1.190]	-0.120	-0.329	0.313	0.153	-0.089
Previously owned a business [yes=1]	270	0.493 [0.030]	49	0.469 [0.072]	74	0.419 [0.058]	122	0.467 [0.045]	89	0.427 [0.053]	4	0.250 [0.250]	0.023	0.074	0.025	0.066	0.243
Committed and capable to participate [0-4]	270	3.667 [0.024]	49	3.656 [0.070]	74	3.730 [0.047]	122	3.699 [0.037]	89	3.682 [0.040]	4	3.542 [0.172]	0.010	-0.063	-0.033	-0.015	0.125
F-test of joint significance (F-stat)													1.164	1.263	0.603	0.814	0.866
F-test, number of observations													317	342	391	358	273

Table S3
Mentor Background Characteristics by Treatment Group

	(1) Treatment 1: Female Mentor - Female Entrepreneur		(2) Treatment 2: Male Mentor - Female Entrepreneur		(3) Treatment 3: Male Mentor - Male Entrepreneur		(4) Treatment 4: Female Mentor - Male Entrepreneur		t-test Difference (1) - (4) Coach = Female	t-test Difference (2) - (3) Coach = Male
Variable	N	Mean/SE	N	Mean/SE	N	Mean/SE	N	Mean/SE		
Age	72	38.028 [0.951]	131	39.985 [0.889]	188	39.862 [0.739]	126	37.325 [0.759]	0.702	-0.123
English native language [yes = 1]	73	0.603 [0.058]	130	0.546 [0.044]	190	0.589 [0.036]	125	0.488 [0.045]	0.115	0.043
Bachelors degree [yes = 1]	73	0.945 [0.027]	131	0.962 [0.017]	188	0.936 [0.018]	123	0.951 [0.020]	-0.006	-0.026
Bachelors degree in business [yes = 1]	73	0.315 [0.055]	131	0.366 [0.042]	188	0.282 [0.033]	123	0.268 [0.040]	0.047	-0.084
Graduate degree [yes = 1]	73	0.795 [0.048]	131	0.802 [0.035]	188	0.867 [0.025]	123	0.772 [0.038]	0.022	0.065
Work experience [in years]	73	12.890 [0.775]	129	15.066 [0.848]	188	14.843 [0.634]	123	12.238 [0.709]	0.653	-0.223
Work experience as entrepreneur [yes = 1]	73	0.233 [0.050]	129	0.264 [0.039]	188	0.309 [0.034]	123	0.203 [0.036]	0.030	0.045
Work experience in start-up [yes = 1]	72	0.389 [0.058]	129	0.372 [0.043]	188	0.378 [0.035]	123	0.325 [0.042]	0.064	0.006
International work experience [yes = 1]	73	0.507 [0.059]	131	0.519 [0.044]	188	0.521 [0.037]	123	0.480 [0.045]	0.027	0.002
Work experience in emerging markets [yes = 1]	73	0.247 [0.051]	131	0.412 [0.043]	188	0.367 [0.035]	123	0.317 [0.042]	-0.070	-0.045
Lived internationally [yes = 1]	73	0.521 [0.059]	131	0.527 [0.044]	188	0.569 [0.036]	123	0.472 [0.045]	0.049	0.042
Lived in emerging markets [yes = 1]	73	0.301 [0.054]	131	0.427 [0.043]	188	0.388 [0.036]	123	0.333 [0.043]	-0.032	-0.039
Management experience [yes = 1]	73	0.658 [0.056]	130	0.769 [0.037]	188	0.777 [0.030]	123	0.707 [0.041]	-0.050	0.007
Client facing experience [yes = 1]	73	0.671 [0.055]	130	0.800 [0.035]	188	0.734 [0.032]	123	0.748 [0.039]	-0.077	-0.066
Coaching experience [yes = 1]	73	0.247 [0.051]	130	0.400 [0.043]	188	0.282 [0.033]	123	0.350 [0.043]	-0.103	-0.118**
Marketing background [yes = 1]	73	0.384 [0.057]	131	0.214 [0.036]	191	0.209 [0.030]	126	0.317 [0.042]	0.066	-0.004
Consulting background [yes = 1]	73	0.164 [0.044]	131	0.237 [0.037]	191	0.277 [0.032]	126	0.206 [0.036]	-0.042	0.041
Finance background [yes = 1]	73	0.137 [0.041]	131	0.168 [0.033]	191	0.141 [0.025]	126	0.198 [0.036]	-0.061	-0.027
Strategy background [yes = 1]	73	0.055 [0.027]	131	0.099 [0.026]	191	0.131 [0.024]	126	0.048 [0.019]	0.007	0.032
Engineering background [yes = 1]	73	0.041 [0.023]	131	0.099 [0.026]	191	0.089 [0.021]	126	0.048 [0.019]	-0.007	-0.010
Other background [yes = 1]	73	0.219 [0.049]	131	0.183 [0.034]	191	0.152 [0.026]	126	0.183 [0.035]	0.037	-0.031
F-test of joint significance (F-stat)									0.682	1.135
F-test, number of observations									194	313

Notes: Table S3 shows that there are no statistically significant differences in mentor background characteristics considering the two treatment groups that had a female (i.e., treatment 1 and treatment 4) mentor. This offers some evidence that the female mentors who coached the female entrepreneurs were not different (e.g., better qualified) than the female mentors who coached the male entrepreneurs, i.e., that random assignment of female mentors into the treatment groups worked.

Section 2: Additional Information Pertaining to the Intervention

The intervention was done remotely using online productivity tools such as Skype video conferencing and WhatsApp. Our partner, Grow Movement, made in-country managers available to facilitate the intervention. During the first two weeks of the intervention, the in-country managers organized introductory Skype calls between the entrepreneur and the respective mentor. During these calls, the mentor learned about the problems the entrepreneur was facing, the goods and/or services the entrepreneur was selling, the entrepreneur's financials etc. Some entrepreneurs did not have internet access at their businesses and/or devices to access the internet. In those cases, the entrepreneurs either came to an internet café where one of the intervention managers provided them with internet access or, alternatively, an intervention manager traveled to the entrepreneurs' business and provided them with internet access there. The intervention managers were each given a mobile computer device as well as a data plan for that purpose. Besides organizing the introductory call and ensuring that the intervention continued on schedule, the intervention managers did not get involved with the intervention.

The mentors were told to meet with the entrepreneurs on a regular basis (about once a week) and to help the entrepreneurs grow their business. Other than that, the mentors had the discretion to guide the entrepreneur as they saw fit. Thus, the mentors were not given a playbook that they were asked to follow. On average, each entrepreneur-mentor dyad worked together for about two to six months (88% of the treated entrepreneurs met with their mentor for at least two weeks). Figure S6 shows pictures of entrepreneurs meeting virtually (via Skype) with their respective mentor. Each mentor was assigned to only one entrepreneur, and vice versa.

Figure S5
Examples of Virtual Entrepreneur – Mentor Meetings

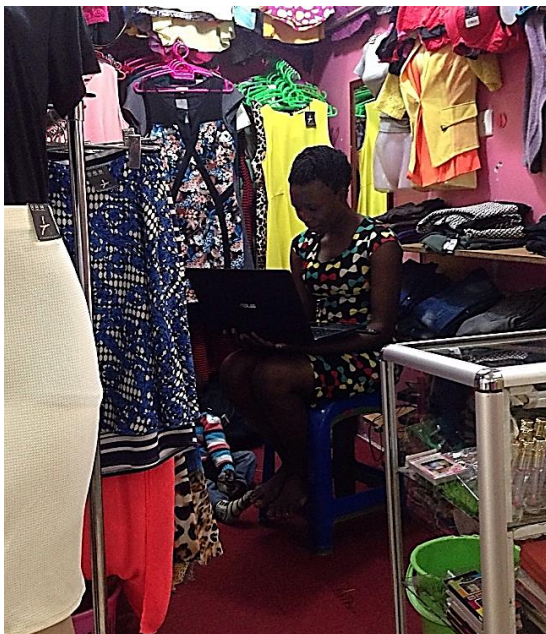
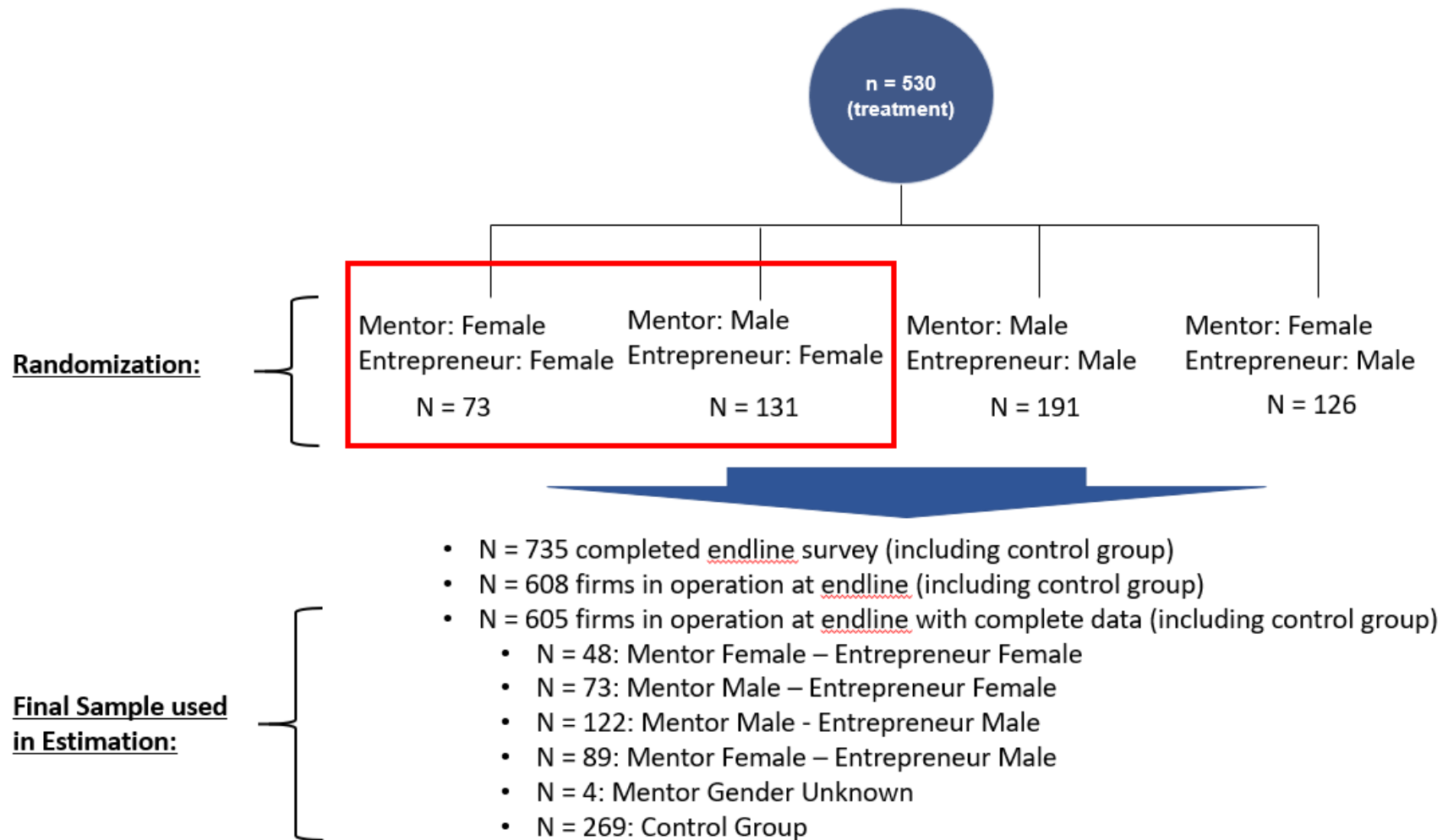


Table S4
Attrition and Survival Checks

	(1)	(2)
	Firm Did Not Respond to Endline Survey	Firm Failed (not operational) at Endline Survey
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	-0.033 (0.058)	-0.024 (0.062)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	0.038 (0.049)	0.051 (0.057)
Treatment 3: Male Mentor - Male Entrepreneur [yes=1]	0.070* (0.04)	-0.022 (0.039)
Treatment 4: Female Mentor - Male Entrepreneur [yes=1]	-0.046 (0.041)	0.022 (0.046)
Entrepreneur controls included	10	10
Business controls included	15	15
Industry fixed effects included	10	10
Sample Size: total	921	732
Control: mean of dependent variable	0.191	0.165
Control: standard deviation of dependent variable	0.394	0.371
p-value of treatment 1 effect	0.574	0.701
p-value of treatment 2 effect	0.438	0.377
p-value of treatment 3 effect	0.083	0.57
p-value of treatment 4 effect	0.257	0.628

Notes: This table summarizes analysis for attrition and survival at the follow-up survey round. Column (1) presents attrition results for firms responding to the Endline Survey round. The dependent variable in the regression is a binary indicator coded: '0' if the firm responded to the survey (data obtained or non-operational status confirmed); and '1' for attriter if the firm did not respond (no data obtained and could not reach in any way to confirm operating status). Column (2) presents survival results for firms that failed (not operational) as at the Endline Survey round. The dependent variable in the regression is a binary indicator coded: '0' if the firm was operational (at the time a survey round was conducted); and '1' if the firm had failed (non-operational with zero monthly sales or profits). The indicated regressions include: ten controls for entrepreneur characteristics at baseline (gender; age; ethnicity; marital status; children; education level; business program; prior salaried job; previous ownership experience; commitment); fifteen controls for business characteristics at baseline (founder; operating years; start-up capital; formal loans; separation of business-personal affairs; days open per week; sales frequency; business premises; location; registration; size; business practices; product competition; B2B customers; markets outside neighborhood) as well as controls for baseline values of the firm growth measures (sales; profits; assets; employees); ten industry fixed effects (the full set of two digit SIC codes), and a dummy variable for the condition where mentor gender is unknown. Robust standard errors are in parentheses. Statistically significant p-values are highlighted by: * (10% significance level); ** (5% significance level); *** (1% significance level).

Figure S6
Final Sample for Analysis



Section 3: Key Financial Outcome Measures and Estimation Methodology Used

Financial Outcome Measures

Our study's goal is to learn whether female entrepreneurs perform better when guided by a female as opposed to a male mentor. Consistent with extant research (Campos et al. 2017), firm growth is our main outcome of interest, and we define firm growth conceptually as an increase in an entrepreneurs' firms' sales and profits. We use several sales- and profit-growth measures as well as two overall indices to operationalize firm growth, as described in the following.

We use aided-recall and iterative anchored-adjusted measures to capture monthly sales and profits (Anderson, Lazicky, and Zia 2021).

To create the aided-recall sales measure, an enumerator asked the entrepreneur to estimate all money collected (i.e., sales) by her/his business in the previous month. Furthermore, the enumerator also obtained sales estimates for weekly as well as daily windows and then converted those to monthly values for subsequent triangulation.

To create the iterative anchored-adjusted sales measure, the enumerator first reviewed the previous three sales estimates with the entrepreneur (i.e., sales estimates based on monthly, weekly, and daily windows) and then used these sales estimates to come up with a fourth sales estimate. As part of this process, the enumerator also anchored on all other potentially available financial information (e.g., from books) to obtain the final (fourth) sales estimate.

The aided-recall and iterative anchored-adjusted profit measures were created as follows: The enumerator first asked the entrepreneur to estimate the total amount of money left-over in the business the previous month after paying all expenses such as wages, rent etc. (i.e., aided-recall approach). Then, using an iterative anchored-adjusted approach, the enumerator reviewed cost estimates for twelve different cost categories with the entrepreneur before subtracting these costs from the final (i.e., fourth) sales estimated described in the previous paragraph. As part of this process, the enumerator asked the entrepreneur to review and confirm – and potentially iteratively adjust – the cost estimates provided on a summary page formatted similar to an income statement. Once the entrepreneur agreed with the cost estimates, the second profit estimate was calculated automatically.

Using these measures, we created the following composite sales measures:

1. A winsorized sales composite, which is the average of the aided-recall and anchored-adjusted sales measures after winsorizing each at 1% (i.e., 1st and 99th percentiles).
2. An inverse-hyperbolic-sine⁷ (IHS) transformed sales composite, which is the average of the aided-recall and anchored-adjusted sales measures after IHS-transforming each.

⁷ Inverse hyperbolic sine (IHS) transformation: $IHSy_i = \log[(y_i) + ((y_i)^2 + 1)^{1/2}]$.

In addition, we created the following composite profit measures:

1. A winsorized profits composite, which is the average of the aided-recall and anchored-adjusted profit measures after winsorizing each at 1% (i.e., 1st and 99th percentiles).
2. An inverse-hyperbolic-sine (IHS) transformed profits composite, which is the average of the aided-recall and anchored-adjusted profits measures after IHS-transforming each.

Moreover, we used the following eight measures for our first index, i.e., the Monthly Sales and Profits Index 1:

1. Aided-recall sales winsorized at 1% (i.e., 1st and 99th percentiles).
2. Anchored-adjusted sales winsorized at 1% (i.e., 1st and 99th percentiles).
3. Aided-recall sales IHS-transformed
4. Anchored-adjusted sales IHS-transformed
5. Aided-recall profits winsorized at 1% (i.e., 1st and 99th percentiles).
6. Anchored-adjusted profits winsorized at 1% (i.e., 1st and 99th percentiles).
7. Aided-recall profits IHS-transformed
8. Anchored-adjusted profits IHS-transformed

We first standardized each of these eight measures using the control group as the base, and then took the average of these measures to create the Monthly Sales and Profits Index 1.

Furthermore, we used the four composite measures described above (i.e., two for sales and two for profits) for our second index, i.e., the Monthly Sales and Profits Index 2:

1. Winsorized sales composite, which is the average of the aided-recall and anchored-adjusted sales measures after winsorizing each at 1% (i.e., 1st and 99th percentiles).
2. IHS-transformed sales composite, which is the average of the aided-recall and anchored-adjusted sales measures after IHS-transforming each.
3. Winsorized profits composite, which is the average of the aided-recall and anchored-adjusted profit measures after winsorizing each at 1% (i.e., 1st and 99th percentiles).
4. IHS-transformed profits composite, which is the average of the aided-recall and anchored-adjusted profits measures after IHS-transforming each.

As with the Monthly Sales and Profits Index 1, we again first standardized each of these four measures using the control group as the base, and then took the average of these measures to create the Monthly Sales and Profits Index 2.

Estimation Methodology

We estimate the effect of exposure to a mentor as the difference in average outcomes for the treatment and control firms at endline using the following intention-to-treat regression model:

$$\begin{aligned}
Y_i = & \\
& \alpha + \beta_1 \text{Female} - \text{Female}_i + \beta_2 \text{Male} - \text{Female}_i \\
& + \beta_3 \text{Male} - \text{Male}_i + \beta_4 \text{Female} - \text{Male}_i + \beta_5 \text{Unknown}_i \\
& + \sum \gamma_s d_{i,s} + \delta Y_{i,b} + \varepsilon_i
\end{aligned}$$

Y_i is the dependent variable and captures firm growth (i.e., our different financial outcomes measures described above).

“Female-Female” is a dummy variable that equals one if a female mentor is assigned to a female entrepreneur and is otherwise zero. Accordingly, β_1 is the treatment estimate of a female mentor’s impact on a female entrepreneur’s business outcome Y_i . Thus, β_1 captures the average difference in firm growth between the treatment firms (female entrepreneur coached by females) and control firms.

“Male-Female” is a dummy variable that equals one when a male mentor is assigned to a female entrepreneur and otherwise zero, and β_2 is the treatment estimate of a male mentor’s impact on a female entrepreneur’s business outcome Y_i .

“Male-Male” (“Female-Male”) is a dummy variable and equals one when a male (female) mentor is assigned to a male entrepreneur and otherwise zero, and β_3 (β_4) is the treatment estimate of a male (female) mentor’s impact on a male entrepreneur’s business outcome Y_i .

“Unknown” is a dummy variable and equals one when the gender of the mentor or entrepreneur is unknown and otherwise zero.

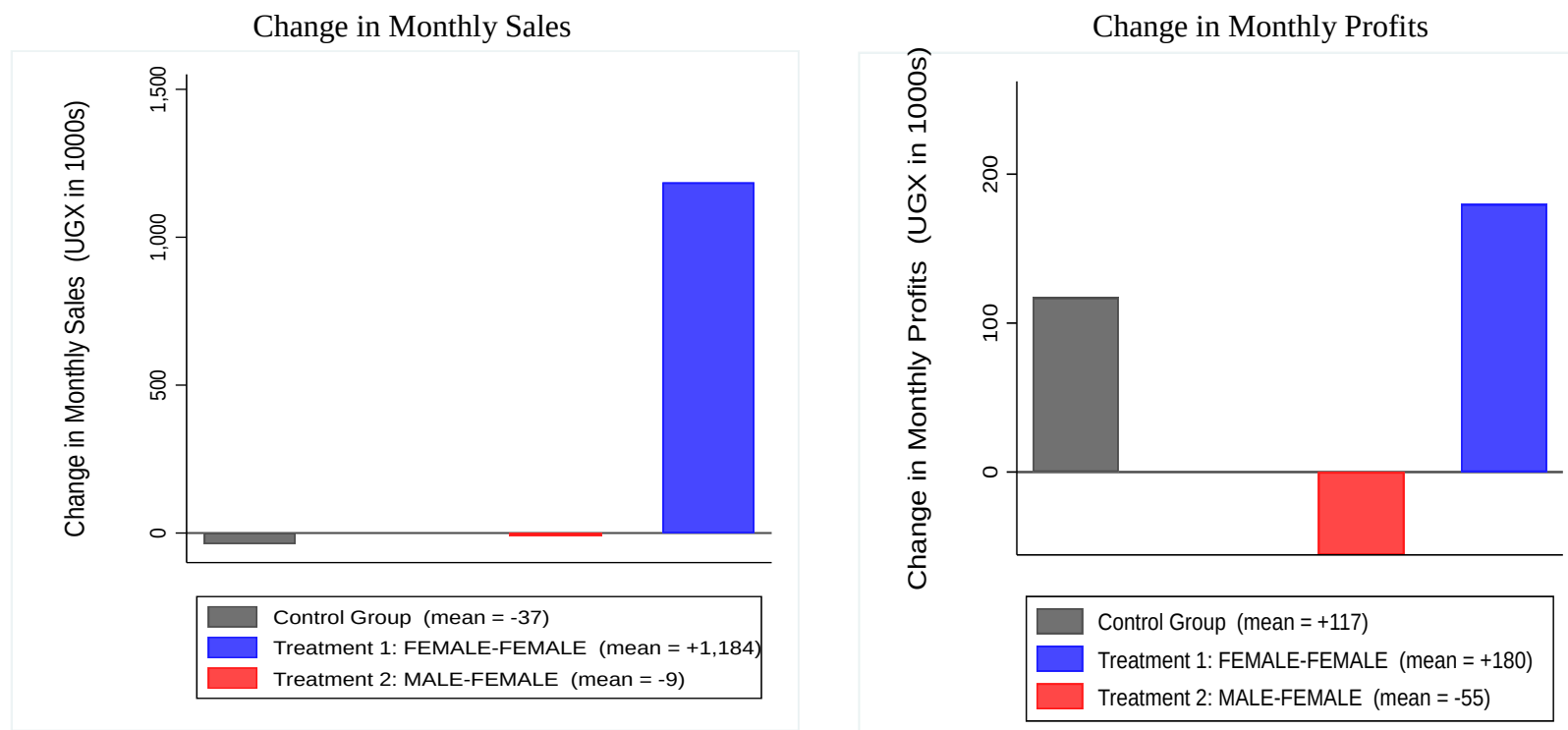
We include several control variables, captured by $\sum \gamma_s d_{i,s}$, to improve precision and, although we have randomization, account for any potential differences between groups on pre-treatment characteristics. Specifically, we include ten controls for entrepreneur characteristics at baseline (gender, age, ethnicity, marital status, children, education level, business program, prior salaried job, previous ownership experience, commitment); fifteen controls for business characteristics at baseline (founder, operating years, start-up capital, formal loans, separation of business-personal affairs, days open per week, sales frequency, business premises, location, registration, size, business practices, product competition, B2B customers, markets outside neighborhood) and three controls for baseline values of the alternative firm growth measure (sales or profits) as well as assets and employees at baseline; and ten industry fixed effects (the full set of two digit SIC codes). Finally, we also control for the baseline value of the dependent variable $\gamma_{i,b}$. We report robust standard errors and, as the dependent variable is continuous, estimate the model using ordinary least squares regression.

Section 4: Results and Robustness Checks

Model-free Evidence

Figure S7

Change in Monthly Sales and Profits Based on Raw Data



Notes: The means presented in Figure S7 are based on raw data and show the change in monthly sales and profits from before the intervention (baseline survey) to after the intervention (endline survey). As the Figure shows, both sales and profits increased more for female entrepreneurs coached by females (Treatment 1; blue bar) than female entrepreneurs coached by men (Treatment 2; red bar).

Table S5
Comparing the Main Effect of Female and Male Mentors

	(1)	(2)	(3)	(4)	(5)	(6)
	Monthly Sales [levels: UGX] [logs: IHS]		Monthly Profits [levels: UGX] [logs: IHS]		Monthly Sales & Profits [index 1] [index 2]	
Female Mentor [yes=1]	1283.700* (744.207)	0.179* (0.104)	149.744 (118.751)	0.300 (0.205)	0.104 (0.070)	0.114 (0.075)
Male Mentor [yes=1]	1415.436** (647.140)	0.221** (0.094)	112.604 (115.950)	0.194 (0.195)	0.102 (0.066)	0.106 (0.070)
<i>P</i> value from test of equality between female and male mentor	0.871	0.701	0.781	0.618	0.988	0.920
Baseline value of dependent variable included	YES	YES	YES	YES	YES	YES
Gender unknown condition control included	YES	YES	YES	YES	YES	YES
15 Business controls included	YES	YES	YES	YES	YES	YES
10 Entrepreneur controls included	YES	YES	YES	YES	YES	YES
10 Industry fixed effects included	YES	YES	YES	YES	YES	YES
Sample size	605	605	605	605	605	605
R-squared	0.372	0.427	0.309	0.144	0.330	0.318
Control group mean	4662.5	8.305	848.98	6.261	0.000	0.000

* $p < .10$

** $p < .05$

Notes: Table S5 shows the treatment effects when collapsing conditions based on mentor gender and then comparing the effects of female and male mentors. As the tests of equality show, there is no significant difference in the effects between female and male mentors, ruling out that female mentors are overall better compared to male mentors.

Robustness Checks

Table S3 shows that there are no statistically significant differences in mentor background characteristics considering the two treatment groups that had a female mentor (i.e., comparing treatment 1 and treatment 4). This offers some evidence that the female mentors who coached the female entrepreneurs were not different from (e.g., better qualified) the female mentors who coached the male entrepreneurs. It also indicates that random assignment of female mentors into the two treatment groups worked.

That said, as one might expect, Table S3 also indicates that female mentors differed on a number of background characteristics compared to the male mentors (i.e., comparing female mentors in treatments 1 & 4 with male mentors in treatments 2 & 3). In particular, female mentors tend to be more likely to have a marketing background, and less likely to have a consulting, finance, strategy, and engineering background compared to male mentors.

Extant research (Anderson, Chintagunta, Germann, and Vilcassim 2021) reports that marketing mentors are especially effective as mentors in this intervention. Hence, one concern may be that it is simply the female mentors' more prevalent marketing background that is driving the effect, and not the mentor-entrepreneur gender combination. That said, if it was the female mentors' more prevalent marketing background that is driving the effect, then the entrepreneurs in treatment 4 (female mentors – male entrepreneurs) should have also benefitted from the intervention. Yet, as the results show (see Table 1 in the paper), the entrepreneurs in treatment 4 did not do significantly better than the entrepreneurs in the control group considering any of the outcome measures. Hence, it is unlikely that it is the female mentors' more prevalent marketing background that is driving the observed effect.

Results including the inverse Mills ratio from 1st stage Probit model

However, as a robustness check, we used the Heckman two-step estimation (Heckman 1979) to check and, if needed, correct for potential bias caused by female mentors with a certain background (e.g., marketing) self-selecting into treatment 1 (i.e., female mentor – female entrepreneur). In a first step, we estimated a probit model in which treatment 1 (yes, no) serves as the dependent variable (DV) and all control variables from our main model plus the mentor's background (e.g., marketing) serve as the independent variables. Based on the probit model, we then constructed the inverse Mills ratio which we included in our main model as the self-selection correction parameter. We repeated this analysis for all functional backgrounds (i.e., besides marketing, we also assessed if female mentors with a strategy etc. background self-selected into treatment 1) and report the results in Table S6. For brevity, we only present the results for the two monthly sales and profits indices (our main performance outcome DVs). As can be seen in Table S6, the treatment 1 effect remains consistent across all models. Also, columns (1) and (2) in Table S6 show that the inverse Mills ratio from the probit regression where mentor background = marketing was included as an additional variable is not significant in either model, suggesting that there is no sample selection problem. Hence, it indeed appears unlikely that it is the female mentors' more prevalent marketing background that is driving the observed effect.

Table S6
Results including the inverse Mills ratio from 1st stage Probit model

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Monthly Sales & Profits [index 1] [index 2]		Monthly Sales & Profits [index 1] [index 2]		Monthly Sales & Profits [index 1] [index 2]		Monthly Sales & Profits [index 1] [index 2]		Monthly Sales & Profits [index 1] [index 2]	
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	0.171*	0.188*	0.171*	0.195*	0.162*	0.182*	0.197**	0.219**	0.202**	0.225**
	(0.092)	(0.101)	(0.092)	(0.100)	(0.089)	(0.097)	(0.087)	(0.094)	(0.087)	(0.094)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	0.003	0.003	-0.012	-0.007	-0.031	-0.031	0.009	0.011	0.024	0.028
	(0.077)	(0.083)	(0.082)	(0.089)	(0.082)	(0.089)	(0.075)	(0.082)	(0.075)	(0.081)
Mentor background variable included in 1st stage probit	Marketing		Consulting		Finance		Strategy		Engineering	
P value from test of equality between treatment 1 & 2	0.083	0.077	0.056	0.049	0.049	0.043	0.047	0.041	0.059	0.052
Inverse Mills ratio significant	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES
Baseline value of dependent variable included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Gender unknown condition control included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
15 Business controls included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
10 Entrepreneur controls included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
10 Industry fixed effects included	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Sample size	208	208	208	208	208	208	208	208	208	208
R-squared	0.370	0.355	0.373	0.357	0.388	0.372	0.403	0.390	0.408	0.395

Notes: Table S6 summarizes analysis for the main effects of the focal treatment groups on the monthly sales & profits indices when including the inverse Mills ratio from a 1st stage Probit model. Robust standard errors are in parentheses. Statistically significant p-values are highlighted by: * (10% significance level); ** (5% significance level).

Results using Lasso to select control variables

Table 1 in the main paper makes evident that we included quite a few control variables to improve precision of the focal variables. A potential concern may be that the model suffers from overfitting. To address this potential concern, we used Lasso to select the control variables. Table S7 shows the Lasso-based results for the two monthly sales and profits indices.

As can be seen in Table S7, we obtain a very similar pattern of results as in our main analyses, in support of the robustness of our findings. Lasso selects 3 control variables, i.e., the baseline value of the respective dependent variable, a dummy variable capturing gender of the entrepreneur, and a dummy variable capturing firms that belong to standard industrial classification (SIC) 7.

Table S7
Results using Lasso for Control Variable Selection

	Monthly Sales & Profits	
	[index 1]	[index 2]
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	0.159* (0.083)	0.181** (0.089)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	0.040 (0.070)	0.042 (0.076)
Treatment 3: Male Mentor - Male Entrepreneur [yes=1]	0.162* (0.096)	0.168 (0.103)
Treatment 4: Female Mentor - Male Entrepreneur [yes=1]	0.071 (0.096)	0.073 (0.103)
Mentor Gender Unknown variable Included	YES	YES
Baseline value of dependent variable selected by LASSO	YES	YES
Entrepreneur gender variable selected by LASSO	YES	YES
Industry SIC Code = 7 variable selected by LASSO	YES	YES
Sample size	605	605

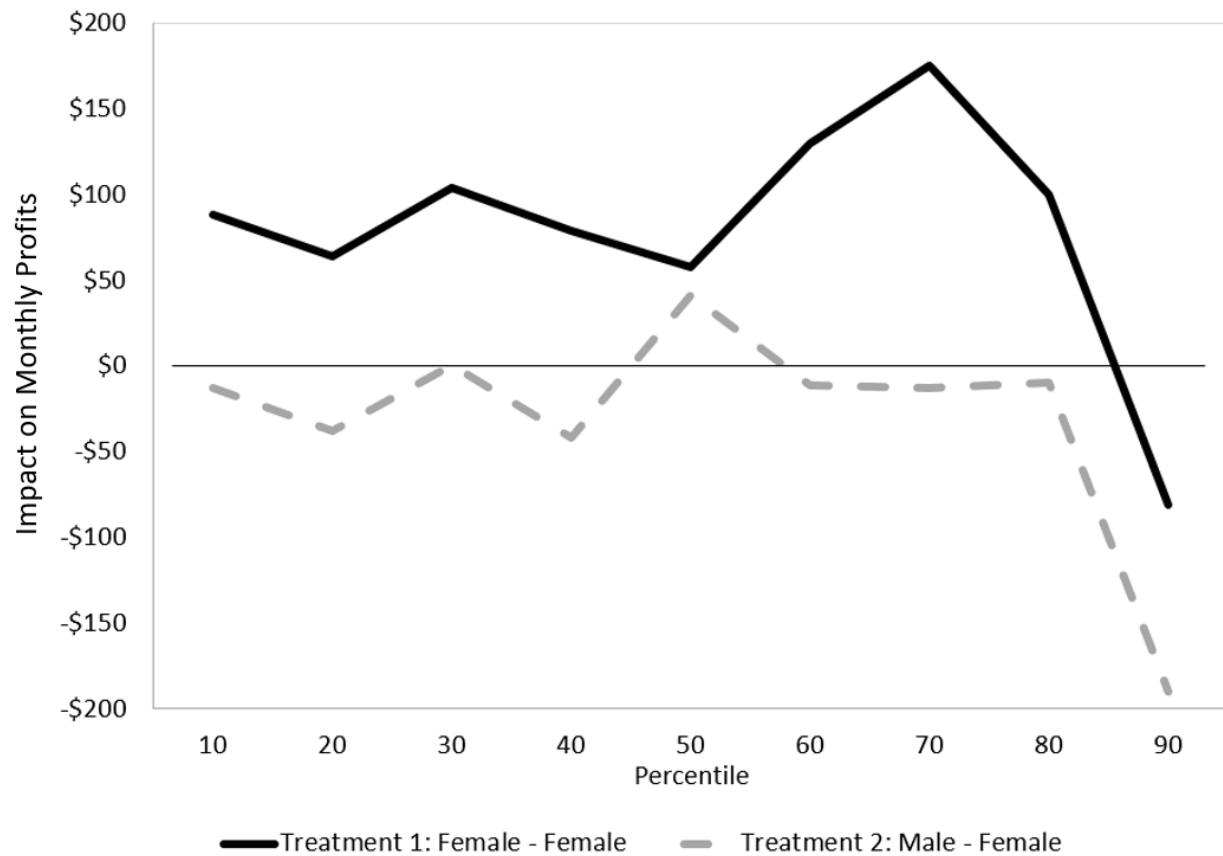
Notes: Table S7 summarizes analysis for the main effects of the four treatment groups on the monthly sales & profits indices when selecting the control variables using lasso. Robust standard errors are in parentheses. Statistically significant p-values are highlighted by: * (10% significance level); ** (5% significance level).

Quantile treatment effects

We also assessed if the treatment effect occurred across the distribution using quantile regression. As shown in Figure S8, female entrepreneurs coached by women earned higher profits than female entrepreneurs coached by men at every percentile. The *p* values for testing equality between the effects are shown below Figure S8; the difference between the two interventions is statistically significant at the 10% level or lower for five of the nine percentiles.

We find consistent results considering the other performance measures, i.e., female entrepreneurs coached by women consistently outperform female entrepreneurs coached by men.

Figure S8
Quantile Treatment Effects on Monthly Profits Across the Distribution

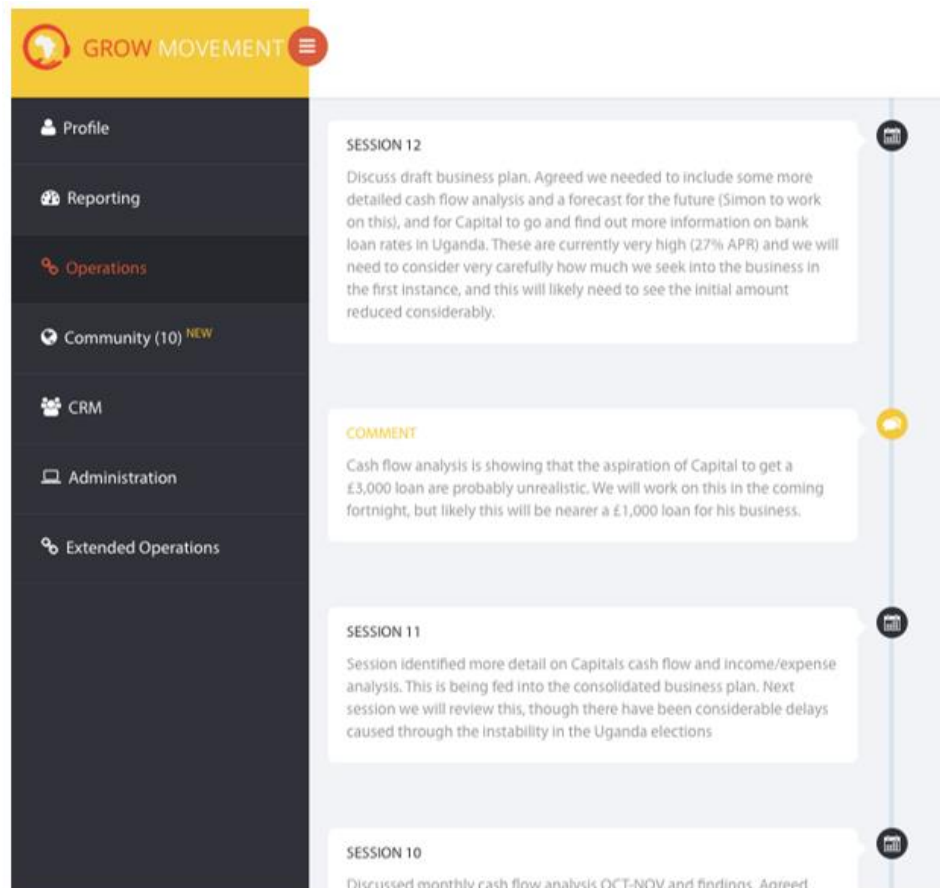


Percentile	10	20	30	40	50	60	70	80	90
Test of Equality Treatment 1 vs. Treatment 2	0.037	0.039	0.076	0.032	0.798	0.184	0.066	0.426	0.695

Section 5: Meeting Summaries

All mentors were encouraged to provide summaries after each meeting in an online project management system provided by our partner, Grow Movement. Figure S9 shows a screenshot of the project management system along with examples of the entries provided by one mentor.

Figure S9
Screenshot of the Online Project Management System



We analyzed the summaries provided by the mentors using Linguistic Inquiry and Word Count (LIWC; pronounced ‘luke’) to detect emotionality, social relationships, and, more generally, individual differences in the mentors’ writing (Pennebaker, Boyd, Jordan, Blackburn 2015). In a nutshell, LIWC calculates the degree to which words used in a text fall into different categories. The LIWC dictionary contains almost 6400 words, and each of these words is assigned to specific categories. For example, words such as “look”, “heard”, and “feeling” are assigned to the “perceptual processes” category. When analyzing a text, LIWC first determines the total number of words used in the text and then calculates the percentage of words that fall into the specific categories measured by the software.

Using LIWC2015 (Pennebaker, Chung, Frazee, Lavergne, and Beaver 2014), we first calculated each mentors' individual scores along several categories, including the categories capturing social processes (e.g., mate, talk, they; total words that belong to this category in LIWC: 436), perceptual processes (e.g., look, heard, feeling; total words that belong to this category in LIWC: 436), affiliation (e.g., ally, friend, social; total words that belong to this category in LIWC: 248), assent (e.g., agree, OK, yes; total words that belong to this category in LIWC: 36), and personal pronouns (e.g., her, us, she; ; total words that belong to this category in LIWC: 93).

In a next step, we averaged the mentors' respective scores within each of the four treatment groups and then compared the average scores among the treatment groups using t-tests. The results from these analyses are shown in Table S8.

Table S8
Content Analysis / LIWC Results

	(1)	(2)	(3)	(4)	(5)	(6)
	Personal Pronouns	Social Processes	Affiliation	Perceptual Processes	Assent	Five Categories Combined
Treatment 1: Female Mentor - Female Entrepreneur [yes=1]	7.123 (0.615)	11.039 (0.665)	2.495 (0.303)	1.292 (0.192)	0.023 (0.009)	21.972 (1.317)
Treatment 2: Male Mentor - Female Entrepreneur [yes=1]	4.859 (0.392)	8.804 (0.527)	1.910 (0.177)	0.851 (0.089)	0.005 (0.003)	16.429 (0.976)
Mean comparison test (<i>t</i> -test)	-3.262	-2.636	-1.785	-2.327	-2.136	-3.44
<i>p</i> -value	0.001	0.009	0.076	0.021	0.035	<0.001
Sample Size Treatment 1	55	55	55	55	55	55
Sample Size Treatment 2	86	86	86	86	86	86

Notes: Table S8 shows the average percentage of total words used in any given mentor report that fall into the respective category (personal pronouns, social processes, affiliation, perceptual processes, and assent). Standard errors are in parentheses.

Section 6: Customer Relationship Measures

The enumerators asked the entrepreneurs to respond to the following questions:

Customer Closeness

Yes (coded as 1) or no (coded as 0), do you implement sales tactics such as:

- (i) Understanding a customer's needs and convincing them?
- (ii) Building rapport and closer relations when you interact?
- (iii) Contacting a customer after he bought your offering to ask if he was satisfied?

Customer Transactions

How many customer transactions did you have in the last month?

- (i) I did not sell anything (coded as 0)
- (ii) Between 1 and 10 (coded as 5)
- (iii) Between 11 and 20 (coded as 15)
- (iv) Between 21 and 30 (coded as 25)
- (v) Between 31 and 40 (coded as 35)
- (vi) Between 41 and 50 (coded as 45)
- (vii) Between 51 and 60 (coded as 55)
- (viii) Between 61 and 70 (coded as 65)
- (ix) Between 71 and 80 (coded as 75)
- (x) Between 81 and 90 (coded as 85)
- (xi) Between 91 and 100 (coded as 95)
- (xii) More than 100 (coded as 105)

Customer Bundling

When a customer comes in to buy a [product], how often do they buy something else with it?

- (i) Never (0 times in the last month (coded as 1)
- (ii) Sometimes (less than 50% of the time in the last month) (coded as 2)
- (iii) Often (more than 50% of the time in the last month) (coded as 3)
- (iv) Always (100% of the time in the last month) (coded as 4)

Section 7: Heterogenous Treatment Effects

As part of the baseline survey, the enumerators evaluated all entrepreneurs on three dimensions using 4-point scales. The three dimensions and scale items were as follows:

1.) How would you describe the entrepreneur's aspiration to achieve a high level of success?

___ Excellent (4) ___ Good (3) ___ Not so Good (2) ___ Very Bad (1)

2.) How would you describe the entrepreneur's understanding of business?

___ Excellent (4) ___ Good (3) ___ Not so Good (2) ___ Very Bad (1)

3.) How serious is the entrepreneur to succeed in business?

___ Excellent (4) ___ Good (3) ___ Not so Good (2) ___ Very Bad (1)

We averaged the ratings of each entrepreneur on these three dimensions and thus formed the aspiration composite.

Section 8: References

- Anderson SJ, Chandy R, Zia B (2018) Pathways to profits: The impact of marketing vs. finance skills on business performance. *Management Sci.* 64(12):5559-5583.
- Anderson SJ, Chintagunta P, Germann F, Vilcassim N (2021) Do marketers matter for entrepreneurs? Evidence from a field experiment in Uganda. *J. Marketing* 85(3):78-96.
- Anderson SJ, Lazicky C, Zia B (2021) Measuring the unmeasured: Aggregating, anchoring, and adjusting to estimate small business performance. *J. Development Econom.* 151:102655
- Campos F, Frese M, Goldstein M, Iacovone L, Johnson HC, McKenzie D, Mensmann M (2017) Teaching personal initiative beats traditional training in boosting small business in West Africa. *Sci.* 357(6357):1287-1290.
- Heckman JJ (1979) Sample selection bias as a specification error. *Econometrica* 47:153-161.
- Pennebaker JW, Boyd RL, Jordan K, Blackburn K (2015) *The development and psychometric properties of LIWC2015*. The University of Texas at Austin.
- Pennebaker JW, Chung CK, Frazee J, Lavergne GM, Beaver DI (2014) When small words foretell academic success: The case of college admissions essays. *PloS one* 9(12): e115844.