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Pathways to Profits: The Impact of Marketing vs. Finance Skills on Business Performance

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Abstract. This paper examines the impact of improvements in marketing skills relative to finance skills among small-scale entrepreneurs. It addresses three important questions: (1) What is the impact of marketing or finance skills on business profits? (2) How do improvements in marketing and finance skills respectively affect different business outcomes? (3) When are increases in marketing relative to finance skills more beneficial? Through a randomized control study of 852 firms in South Africa, the analysis finds significant improvements in profitability from both types of business skills training. However, the pathways to achieve these gains differ substantially between the two groups. The marketing group achieves greater profits by adopting a growth focus on higher sales, greater investments in stock and materials, and hiring more employees. The finance group achieves similar profit gains but through an efficiency focus on lower costs. Both groups show significantly higher adoption of business practices related to their respective training program. Consistent with a growth focus, marketing/sales skills are significantly more beneficial to businesses run by entrepreneurs with ex ante less exposure to different market contexts. In contrast and in line with an efficiency focus, it is the more established businesses that benefit significantly more from finance/accounting skills.

1. Introduction

What is the impact of improved marketing or finance skills among businesspersons on the performance of the firms they run? Do those with better marketing skills run their businesses differently than those with better finance skills—and if so, how? Which businesses are helped most by improvements in marketing skills relative to finance skills?

These are questions of fairly universal relevance to businesses, policy makers, and academics. Many among those who run businesses—and many among those who aspire to do so—enroll in marketing or finance classes in the hope that the skills they pick up will influence their thinking, actions, and outcomes for the better. Some scholars have suggested that better skills in specific functional areas of business may help explain the higher productivity of certain firms, sectors, and even entire nations over others (Bloom and Van Reenen 2007; also see Birkinshaw et al. 2008). Others have been sharply skeptical about

the value of such skills training, emphasizing the value of judgment gained through experience over skills obtained through training programs and calling for a clear-eyed assessment of the latter (Livingston 1971, Mintzberg 2004, Pfeffer and Fong 2002).

This paper examines the questions noted in the introductory paragraph by studying the impact of marketing versus finance skills training among entrepreneurs in emerging markets. Although these questions (and the related controversies) are likely relevant to businesses in all markets, they have particular resonance among entrepreneurs in emerging markets. Most businesses in these markets tend to be small, few generate much employment, most remain stunted in growth, and very few yield enough to let their owners break out of poverty (Hsieh and Klenow 2014, Hsieh and Olken 2014, Jensen and Miller 2014, Tybout 2000, Nichter and Goldmark 2009). Yet, given the high self-employment rates in emerging markets,[1] the growth and prosperity of small businesses is vital for poverty reduction

and for generating jobs for a young and rapidly growing labor force (World Bank 2013, de Mel et al. 2010). Further, as multinational organizations look to emerging markets for new sources of growth, they discover that their fates are in many ways intertwined with the fates of millions of small firms and entrepreneurs on whom they have to rely as customers, suppliers, and distributors (Viswanathan et al. 2010, Prahalad 2005). A consequence of this fact is that the much-discussed fortune at the bottom of the pyramid is unlikely to fully manifest itself unless those at the bottom today see improvements in their own prosperity. Even managers with no interest in the welfare of small businesses per se will recognize that their own ability to operate efficiently and effectively in emerging markets is severely constrained if their potential customers, suppliers, and distributors lead a precarious existence.

In search of policies that foster small business growth, the literature has often emphasized the importance of alleviating constraints on access to credit (Banerjee et al. 2015, Bruhn and Love 2014, de Mel et al. 2008). Other research has emphasized the importance of access to better institutions, better sources of information, and better sources of human capital (Banerjee and Duflo 2011, Karlan and Appel 2011, Jensen 2007, Beck and Demirguc-Kunt 2006, Acemoglu et al. 2005). A recent and growing body of work has also sought to examine the impact of business skills in general on the performance of small businesses in emerging markets. However, most studies so far on the effects of business skills among small businesses in emerging markets have yielded disappointingly weak results (McKenzie and Woodruff 2014; see Bloom et al. 2013 for an exception in the context of operations management consulting in large firms). In fact, some prominent practitioners and policy makers have—in parallel with skeptical academics—questioned the efficacy of interventions designed to improve business skills (Yunus 1999; also see Karlan and Valdivia 2011). Importantly, no study, to the best of our knowledge, has specifically and separately examined the impact of marketing versus finance skills on business performance. There exist few answers to the questions we note in the introductory paragraph.

Many business school academics may intuitively believe that improvements in marketing or finance skills should lead to improvements in the performance of businesses. But translating this belief into concerted action by practitioners and policy makers requires rigorous evidence that identifies the causal impact of marketing or finance skills after isolating all the other effects that exist in the noisy environment in which small businesses in emerging markets operate. Such evidence is not easily available. In cross-sectional studies, for example, endogeneity as a result of omitted variables can confound the researcher's ability to quantify effects

(see Shugan 2004). Self-selection by entrepreneurs into formal or informal training programs can similarly cause biased estimates of effects. And reverse causality concerns can preclude directional conclusions about the impact of marketing or finance skills (e.g., does better performance offer an entrepreneur the luxury of taking skills training courses?).

This paper presents results from, to our knowledge, the first randomized controlled trial of the impact of marketing versus finance skills on business performance. Based on evidence from 852 small firms in South Africa, we seek to make causal inferences about the impact of marketing versus finance skills on business performance. Our results show positive and statistically significant improvements in profits among those businesses whose entrepreneurs were randomly assigned to receive finance skills training or marketing skills training. The magnitudes of the effects measured 12 months after training are large with a 41% increase for the finance group (0.2 standard deviation improvement) and 61% for the marketing group (0.3 standard deviation improvement) compared with businesses that did not receive skills training. These effects are not only statistically significant, but also substantively important. For example, the increase in monthly profits in either training group is within the salary range of a full-time employee in a regular job with a large South African retailer (e.g., KFC, Shoprite). Next, the analysis identifies mechanisms of change, specifically the pathways to profits for the two treatment groups.

We find that entrepreneurs in the marketing training group adopt a growth focus: they implement policies and practices related to increasing overall sales and hiring more employees. Sales increase by 64% (0.3 standard deviation improvement) over the control group, and this effect is two-and-a-half times higher than the sales growth in the finance group. Both of these differences are statistically significant. The number of employees also goes up significantly over both the control and finance groups with the effect size equivalent to hiring one additional worker. Given that firms in the control group hire on average two employees, the treatment effect for marketing training represents a 57% increase in employment. This boost in sales and employment is substantive, especially given that such small firms typically find it very difficult to scale up operations and struggle to contribute much to local employment (La Porta and Shleifer 2014, de Mel et al. 2010). Furthermore, we find that businesses in the marketing training program are significantly more likely to adopt marketing practices related to market research, marketing tactics, and sales. Finally, the analysis focuses on differential impacts. We find that firms run by entrepreneurs with narrow exposure, defined as a lack of prior experience in a variety of market contexts, show significantly greater improvement in profits when offered the marketing training. Consistent

with a growth focus, participating in a training program that builds marketing and sales skills appears to help individuals overcome a lack of exposure by encouraging them to look beyond their existing business context and to develop new views on products, customers, distributors, and suppliers.

In contrast, those in the finance training group adopt an efficiency focus: they implement policies and practices linked to reducing costs and effectively managing finances. Despite the improvement in profits, businesses in the finance training group do not increase costs significantly more than the control group whereas the costs of the marketing group increase by as much as 66% (a 0.3 standard deviation increase). The difference between the two treatment groups is also statistically significant. In addition, businesses in the finance training group exhibit a significantly higher output–input ratio, a measure of efficiency, than the control group: a 0.3 standard deviation improvement. The coefficient for businesses in the marketing program is much smaller and not statistically significant. The analysis also finds significantly greater adoption of financial practices related to tracking, analyzing, and planning finances among businesses in the finance training program. Finally, we examine heterogeneous effects and find significantly higher profits for (ex ante) more established firms that were offered the finance training. In line with an efficiency focus, our results suggest that developing finance and accounting skills may be especially worthwhile when entrepreneurs are operating more established businesses as there exists greater opportunity for applying the skills to reduce costs and increase efficiencies in the business.

Overall, our results and analysis provide new insights on the important questions we noted earlier: *what* is the impact of marketing or finance skills, *how* do they affect business performance, and *when* are they most beneficial. The remainder of the paper proceeds as follows. Section 2 develops the key hypotheses tested in this paper. Section 3 describes the empirical setting and methodology, and Section 4 presents summary statistics and analyses of attrition and attendance. Finally, Section 5 discusses the main regression results and Section 6 concludes.

2. Hypotheses on Pathways to Profits

Managerial capital, the skills associated with management of customers, money, operations, and people within businesses, can be postulated as an important component of a firm's production function. Bruhn et al. (2010) propose two ways through which improved managerial capital can lead to increased firm performance. Their "utilization" argument suggests that managerial capital can increase the marginal productivity of other inputs, such as increasing the efficiency of financial capital investments or enhancing the motivation of employees. Their "allocation"

argument predicts that managerial capital can lead to better strategic planning regarding inputs, including the type, amount, and timing of capital or labor used in firm activities. Bloom et al. (2013) for large firms and McKenzie and Woodruff (2017) for small firms further explain how better business practices among firms in emerging markets can lead to productivity and performance gains.

Many recent studies on the topic of managerial capital in emerging markets use a randomized controlled trial design to isolate the causal effect of a consulting or training intervention on business outcomes (see McKenzie and Woodruff 2014 for a review). In studies examining consulting programs (e.g., Bloom et al. 2013, Bruhn et al. 2018), the interventions have tended to focus on general business practices with a particular emphasis on operations and human resources. While marketing skills are touched on (in some studies), it is usually in a broad consultancy package rather than as a separate channel for profit growth.

In studies examining training programs—such as those studied by Bruhn and Zia (2013), Drexler et al. (2014), Giné and Mansuri (2014), and Karlan and Valdivia (2011)—the focus tends to mainly be on developing bookkeeping and accounting skills with cursory exposure to marketing skills. Also, while there has been support for changes in business practices and sales, the training interventions used to date do not seem to have an impact on business profits or employment. Two related studies (Berge et al. 2015, de Mel et al. 2014) do show profit results but only for the combined effect of a cash grant with a business training program. The work of Berge et al. (2015) is closest in many respects to the current study. However, that paper (1) addresses business skills training in general (and the effects of a cash grant) whereas our paper addresses the effects of marketing versus finance skills training (and the associated pathways to profits); (2) employs a sample of clients from a single micro-finance institution whereas our study employs a more diverse sample across several business sectors, 94% of whom did not have access to formal business credit and thus represent the typical operational environment of small businesses in emerging markets; (3) draws conclusions on the effects of business skills training from a sample of 193 businesses whereas we draw conclusions from a sample that is more than four times as large (852 businesses); (4) finds no significant main effects of business training on business performance whereas our study demonstrates effects on performance that are statistically significant, economically meaningful, and consistent with our conceptual arguments on pathways to profits; and (5) focuses on a single source of heterogeneous treatment effects (gender) whereas our paper examines multiple, theoretically motivated sources of heterogeneous treatment effects.

Overall, this nascent literature on the returns to business education reveals the possibility of greater impact via further research that uses a more intense training intervention (e.g., by increasing the time investment on the part of entrepreneurs) and isolates the effect of different dimensions of managerial capital (e.g., by building expertise in one functional area at a time). Many theoretically and substantively important questions remain unaddressed. Most notably, how do particular business skills and practices influence the channels through which profits and productivity are affected? Given that an entrepreneur's attention and actions likely differ for developing and executing on marketing/sales skills compared with finance/accounting skills, we hypothesize that the pathway to profits for an entrepreneur who receives marketing training will be different from that of an entrepreneur who receives finance training. Specifically, we differentiate between a growth focus and an efficiency focus.[2]

2.1. Growth Focus vs. Efficiency Focus

We define a growth focus as an emphasis on increasing the scale of a firm. In operational terms, a growth focus involves the adoption of certain utilization activities, such as changing sales staff incentives, expanding a retail channel, and building new products from existing materials; and the adoption of certain allocation activities, such a planning how to adjust product lines, evaluating sources of competitive differentiation, and determining when to target different customer segments. An emphasis on growth is closely linked with revenue expansion (Rust et al. 2002). Focusing on firm growth can also lead to investment in approaches that promote market research and the identification of new product offerings and market contexts. Further, such an emphasis likely fosters implementation of different marketing activities and sales tactics aimed at attracting new customers or differentiating from competitors. In addition, encouraging greater focus on top-line growth will likely highlight to the entrepreneur the value of additional help in achieving sales goals and, thus, lead to the entrepreneur hiring new employees. Taken together, we argue that having a growth focus will encourage entrepreneurs to scale up sales and employees and, through that channel, lead to gains in profits. These types of growth-oriented policies and practices are also closely linked to the skills and changes in knowledge one builds through training in marketing and sales (see Morgan et al. 2009). Based on this logic, we provide the following hypothesis.

Hypothesis 1. *Entrepreneurs with higher "marketing" managerial capital will increase firm profits by implementing more growth-focused policies and practices than other entrepreneurs.*

In contrast, we define efficiency focus as an emphasis on reducing costs per unit of output in a firm. In operational terms, an efficiency focus (relative to a growth focus) involves the adoption of a different set of utilization activities, such as tracking the cost of goods, managing cash flow, and purchasing supplies more effectively, and adoption of different allocation activities, such as separating personal and business investments, using equipment at optimal periods to reduce costs, and shifting staff resources to minimize expenses. These practices are more closely related to the skills and knowledge developed during finance/accounting training. Given their "cost and control" emphasis, implementing these types of finance and accounting activities are likely to have a direct impact on raising profits through gains in efficiency. A focus on efficiency is also likely to encourage greater implementation of firm practices related to tracking, analyzing, and planning finances. Following this line of reasoning, we propose our next hypothesis.

Hypothesis 2. *Entrepreneurs with higher "financial" managerial capital will increase firm profits by implementing more efficiency-focused policies and practices than other entrepreneurs.*

2.2. When Is a Growth vs. Efficiency Focus More Effective?

There is most likely heterogeneity in the extent to which entrepreneurs benefit from business skills training, including factors that make emphasizing a growth focus more applicable or other situations when focusing on efficiency is particularly effective. Using panel data from three countries, McKenzie and Woodruff (2017) find considerable heterogeneity in business practices based on individual and firm differences, such as level of human capital and firm size. In this paper, we draw insights from the literature and theory to consider which firms might benefit more from marketing training (in ways consistent with our proposed growth focus) or finance training (in line with our suggested efficiency focus).

The literature has shown that it is quite common in emerging markets for individuals to start firms because they cannot find jobs in the formal sector (Schoar 2010, Tokman 2007). Given their small, uncertain, and volatile incomes, most of these entrepreneurs are narrowly focused on basic survival—as opposed to growth or expansion (Collins et al. 2009). Further, either because of mobility barriers (social and geographic) or chronically limited resources (money and time), the majority of these entrepreneurs have rarely been exposed to novel market contexts. For instance, they have never had the opportunity to travel outside their current milieu for great lengths of time to learn that their familiar surroundings (and approaches to

business) are different from those implemented by others or to understand that preferences might vary across customer types. Likewise, they have not held a variety of professional experiences to learn that one could develop competitive advantages to stimulate growth by sourcing unique or cheaper products from different suppliers. We refer to this deficit in one's experiences with different business contexts as narrow exposure. More concretely, we define *exposure* as the variety of market contexts in which an entrepreneur has held previous experience. Building marketing and sales skills can encourage entrepreneurs to look beyond their own context, inducing more open-minded inquiry about market information from multiple sources (Dyer et al. 2009, Day and Schoemaker 2005, Day 1994). Hence, we expect it is for firms run by entrepreneurs with narrow exposure that marketing training can have a greater impact by encouraging them to look outside their existing business context and develop new approaches for managing products, customers, competitors, and suppliers, which in turn can improve "top-line" performance and profits. Based on these arguments, we propose our next hypothesis.

Hypothesis 3. *Entrepreneurs with higher "marketing" managerial capital will increase firm profits to a greater extent when these entrepreneurs also have narrow exposure.*

Next, we consider which firms might benefit more from finance training and its "efficiency"-focused policies and practices. The reality for most emerging market firms is that few manage to scale up into larger businesses, formalize processes, or register with the government (Hsieh and Klenow 2014, Schoar 2010). These entrepreneurs vary in the extent to which they are running established businesses. We define being *established* as the extent to which an entrepreneur has been operating the entrepreneur's current business in a more permanent manner. Established businesses typically operate at greater scale than others. And it is for entrepreneurs running more established businesses that we expect finance training to have a greater impact on profits. For one, there likely is a minimum level of sales coming "in" to the business before the entrepreneur can learn how to manage this money more effectively. Likewise, reaching a sufficient scale of operations may be required before an efficiency focus is particularly valuable. Increased size and structure provides greater potential for improvements in reducing costs, managing inventory, and allocating inputs optimally. Indeed, existing research on medium- and large-sized firms in emerging markets suggests that performance can be enhanced when professional consultants intervene to improve operational efficiency (Bloom et al. 2013, Bruhn et al. 2018). It is therefore likely that by developing their finance and accounting skills, entrepreneurs of more established businesses can better implement policies aimed at decreasing

costs and increasing efficiencies, thereby improving "bottom-line" performance and profits. Based on this logic, we provide our final hypothesis.

Hypothesis 4. *Entrepreneurs with higher "financial" managerial capital will increase firm profits to a greater extent when these entrepreneurs are also operating more established firms.*

3. Research Design
As noted, obtaining rigorous evidence on the impact of business skills is not easy given the empirical challenges that limit causal inference. These challenges include omitted variables bias (e.g., unobserved ability could be driving changes in performance), self-selection bias (decisions to participate in training could be influenced by reasons unknown to the researcher), or reverse causality issues (e.g., better performance may be required first so that an entrepreneur can afford to take training). To address these empirical challenges and test our hypotheses, we implemented a randomized control trial with 852 small businesses in the Cape Town area of South Africa. The study design comprises two treatment arms with 266 businesses randomly assigned to finance training and 270 businesses to marketing training. A third group of 316 businesses, the control arm, did not receive any training but was surveyed in the same manner as the treatment groups at baseline and follow-ups. Businesses in the control group were promised (and provided) a business training course in 18 months once the study period was over to retain participation in all surveys.

3.1. Sample Selection and Timeline
Businesses were selected into the study sample using a three-stage process. In stage one, using a systematic and geographically exhaustive sampling plan, a team of 12 research administrators (RAs) worked for 10 weeks starting in July of 2012 to approach approximately 10,000 businesses in the greater Cape Town area. The only requirement for recruitment at this stage was that the businesses had to be operating out of a physical structure (e.g., small shop, shipping container, or larger retail space). The RAs were instructed to exclude businesses operating in mobile street stands, roadside carts, or other nonpermanent structures. Each entrepreneur approached was given a sales pitch for our business training program and the opportunity to apply for the program by participating in a short recruiting survey conducted by the RA, and 2,168 recruiting surveys were obtained through this process. Next, the research manager and field coordinators examined basic financial and operating questions as well as open-ended text responses describing the business and its customers and products to assess whether a firm was in fact operational and running a

business in which money exchanges hands (i.e., real customers currently pay for the products/services); 116 observations were dropped because the businesses were nonoperational, and another 101 observations were dropped because of duplicate entries, missing data, or inconsistent responses (e.g., person signed up was not a firm owner). Our sampling frame therefore included 1,951 small businesses operating out of a physical structure in and around Cape Town, South Africa.

In stage two, we used the data collected in the recruiting survey to further narrow our sampling frame. This screening stage involved ranking businesses based on questions covering formal education levels, years in business operation, formal registration status, motivation, and commitment as well as several interviewer impression questions evaluated by the RA (e.g., business aspirations, English level, literacy, and numeracy). Entrepreneurs were then ranked on their composite score.

In stage three, beginning in September 2012, the top 1,500 businesses on our composite scale were invited to attend a registration session to learn more about the next steps for their training and complete additional forms. This number was chosen for two main reasons: first, based on statistical power calculations, we were aiming for an initial sample of 750 businesses (approximately 250 in each of the three groups). Second, we conservatively anticipated a 50% take-up rate between the invitations and registration attendance, meaning it was important to ensure the program was oversubscribed.

During the notification call, each of the 1,500 invited participants was told that they had qualified for a free scholarship to receive a two-month business training course offered by our training partner, Business Bridge, but that they had to attend a registration session in person to pick up their scholarship letter. In total, 852 entrepreneurs attended these registration sessions, signed for their scholarship letter, and fully completed the baseline survey. This survey was administered in person at the registration sessions by staff of our training partner.

Randomization was done after the baseline by computer, so that any pretreatment differences between the groups are the result of pure chance. The three groups were not perfectly equal in size because we performed a stratified randomization to balance our sample on several variables (gender, education, firm size, and formalization status). Our training partner also indicated a capacity constraint of 13 classes of approximately 20 students each for both finance and marketing courses.

Participants assigned to a training course did not know that another type of course was also offered, and the classes for marketing and finance were held on alternate days of the week to avoid any chance of spillovers. Finally, during the registration sessions, the participants were told that because of popular demand there were more people interested in the training than there were available seats, so some participants would get the training this year, and the others would get it in 18 months. These steps were necessary to maintain commitment throughout the study period and to guard against any systematic attrition from the control group.

In terms of timeline, after treatment assignment, the trainings were held over a two-month period between October and December 2012. We then visited all sample businesses for a midline survey after six months in May and June 2013 and then again for an end-line survey after one year in October and November, 2013. Figure 1 outlines the stages of the project and respective sample sizes.

3.2. Business Training Description

A key distinguishing feature of our study from previous literature is the intensity of the underlying business training program. The program included 10 weeks of high-quality and focused training with approximately eight hours per week of face-to-face classroom time and additional application exercises and e-learning sessions for both marketing and finance, delivered by a local business development and training organization. Such an intense and practically relevant intervention might help entrepreneurs overcome the inertia that is inherent whenever there are preexisting habits and methods of engaging in business. Indeed, McKenzie and Woodruff (2017) conclude that the reason most business training studies struggle to find effects is that they offer fairly short training courses that fail to improve business practices and hence have limited power for measuring impacts on sales and profits.

The business training intervention studied in this paper consists of two courses of our partner's program: making sales (marketing training) and managing money (finance training). Our training partner has been in operation in the Cape Town area of South Africa since 2008 with a mandate to help small entrepreneurs build business skills needed to expand and create a sustainable business model. All of its courses are delivered by volunteer business professionals who have academic qualifications (e.g., MBA, CA, etc.) and corporate experience in marketing and finance, and many run successful businesses. These instructors are recruited through a variety of business schools and forums and themselves attend a course provided by our training partner that introduces them to the course materials and a number of past instructors (and entrepreneurs) who share their experiences of teaching (or taking) a course. Instructors are provided with handbooks for each course, covering the content as well as advice on successful facilitation strategies.

Figure 1. Timeline and Sample
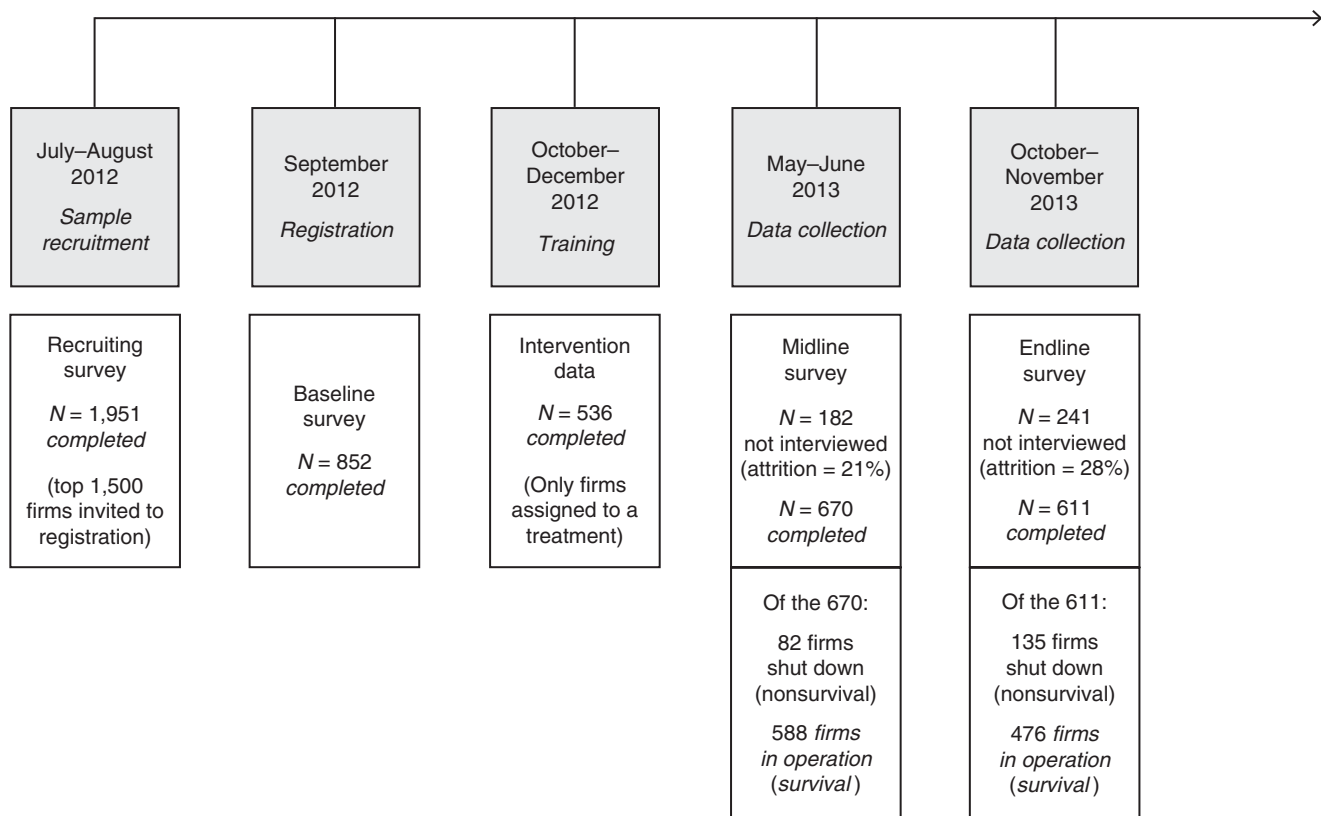
Both marketing and finance courses combine face-to-face classroom teaching sessions with engaging e-learning content and application exercises. Each course runs for 10 weeks (or 10 modules) with entrepreneurs attending one four-hour class per week. In addition, the modules include four hours of take home activities that entrepreneurs are expected to complete between classes. This homework aims to generate a habit of thinking about, gathering, and recording data on customers and competitors (e.g., marketing training) or on costs and purchases (e.g., finance training) as well as trying out practices learned in the program. In total, an entrepreneur could be exposed to 80-plus hours of training (in marketing or finance topics).[3] Attendance is required in at least six modules (approximately 50 hours of training) to obtain a completion certificate from our training partner.

The marketing course focuses on improving entrepreneurs' marketing and sales activities. Module 1 develops an understanding of brand value, tangible versus intangible value, and how to create value through promotion and brand separation. Module 2 distinguishes customer needs and studies practices and techniques businesses can adopt to meet those needs. Module 3 focuses on building a rapport with customers, finding and prioritizing sales opportunities, and setting sales objectives. Module 4 teaches how to listen

and question skillfully and how to observe and learn from competitors. Module 5 develops an understanding of customers' buying criteria and helping customers make the right choices. Module 6 moves on to customer support topics, such as handling post-sale questions and concerns, and module 7 stresses the importance of delivering on product/service promises and post-sale satisfaction. Module 8 brings all customer-related marketing topics together while module 9 serves as further revision and makeup of any missed topics. Finally, module 10 is a follow-up session on honing sales pitches and setting growth targets as well as ensuring skills have been applied to change or improve business practices.

The finance course provides entrepreneurs with basic accounting skills to improve their record-keeping practices and financial management. Module 1 introduces basic financial jargon and explains monetary flow. Module 2 discusses recording of business transactions and distinguishing between debits and credits. Module 3 explains financial statements, such as income statements and balance sheets, as well as current and noncurrent assets. Module 4 focuses on cost structures and classifications as well as understanding the concept of opportunity cost. Module 5 teaches how to analyze business and financial decisions, comparing performance with benchmarks, and interpreting profitability and liquidity ratios. Module 6 develops

an understanding of budgeting, analyzing budgeted versus actual spending, and monitoring the variance. Module 7 focuses on cash flow and understanding working capital. Module 8 talks about setting business goals, assessing financial needs, and exploring different financing options. Similar to the marketing training, modules 9 and 10 consist of revision and wrapup as well as an emphasis on goal setting and application of concepts in one's own business.[4]

Online Appendix 1 provides further details on the content of each course, as well as highlights key features of this training program that may generalize to different contexts.

3.3. Measurement of Outcomes

Measuring performance outcomes for small businesses in emerging markets is a major challenge since administrative data simply does not exist and recall ability and reliability vary greatly across entrepreneurs (de Mel et al. 2009, Fafchamps et al. 2012). To overcome inaccuracies associated with self-reports, we designed and implemented a new electronic survey tool for this research, which, through anchoring and adjusting processes, narrows in on more precise estimates for firm sales, costs, and profits. We measure these outcomes at two intervals after the trainings, at six months (midline) and again at 12 months (end line).[5] The electronic surveying approach offers certain advantages over paper surveys, including automatic calculations, unaided transitions through survey logic, comprehensive aggregation of estimates, clear summarization of information for confirmation decisions, and allowances for additional iterations for adjusting estimates (Fafchamps et al. 2012). Apart from improving precision of reported estimates, the electronic approach also increases the plausibility of final estimates by reducing respondent error in recall and enumerator error in calculations and recording.

Firm Sales (Money In). Firm sales were reported for the most recent month. We obtained this monthly sales estimate for all money collected into the business during the previous month through an iterative process. First, to reduce recall bias and overcome the general lack of financial records in these research contexts, we asked participants to provide three separate estimates of monthly sales: (i) a simple recall estimate of all money collected into the business last month; (ii) an averaged sales estimate of best and worst months over the prior six months; and (iii) an aggregated sales estimate based on aggregating up from a typical day in the last week to a monthly total. Second, these three different sales estimates were calculated, stored, and presented to the participant in the survey interface. The participant then used the three estimates to guide the participant's final sales estimate for the prior month's total revenues. Third, after completing the cost and

profit estimates, the participants were able to return to the sales section and adjust their final sales estimate as needed. Triangulating by first anchoring on the three estimates and then adjusting the monthly sales figure through this iterative process has the advantage of increasing measurement precision Anderson and Zia (2016).

Firm Costs (Money Out). Firm costs were calculated for the most recent month. A total estimate of all the money that went out of the business in the previous month was obtained by aggregating up over 12 major cost categories: (i) loans for business only, (ii) purchases of stock/inventory, (iii) purchases of supplies/materials, (iv) employees, (v) location/rent costs, (vi) energy and electricity, (vii) transport and travel, (viii) equipment rentals and repairs, (ix) food and water while at work, (x) phone and communication, (xi) services, and (xii) and fees and taxes. For every major cost category, there were sub-questions aimed at valuing each of its component costs. These components of firm costs, which could be provided daily or weekly, are then automatically converted into an estimate of the category's total monthly cost. Each of these major cost categories is represented as a separate section in the electronic survey tool. Next, the 12 costs are added together to calculate total costs, which represent the total money that left the business in the prior month.

Firm Profits (Money Left Over). Firm profits were also reported for the most recent month. Apart from asking a simple recall question, the survey tool also automatically calculated a monthly profit estimate by subtracting total costs from total sales. This alternative estimate of total profits, or the money left over after paying all expenses and bills in the prior month, was then presented to respondents and they were allowed to make further adjustments. Specifically, once the participant finished providing the participant's sales and cost estimates, the electronic survey tool presented the participant with a summary page, which looks like a simple income statement that listed the participant's total sales estimate followed by each of the 12 major cost estimates. At the bottom of this income statement, the firm's total profits were displayed. After reviewing the sales estimate and each of the cost estimates one by one, the participant was able to adjust any of the individual line items by returning to the relevant section in the survey tool. Once a change was made, the summary page updated automatically and displayed the new values, including an adjusted profit estimate. At the end of this iterative process, the participant confirmed the participant's final estimates and they were stored by the survey tool.

In a related paper, Anderson and Zia (2016) explicitly test the precision of various performance estimates obtained through this anchoring and adjustment approach using the electronic survey tool and

find the coefficient of variation across a randomly selected sample of businesses is significantly lower than simple recall measures and calculated estimates (reported sales minus reported costs). We acknowledge that other biases may still exist; for instance, treated individuals may deliberately overstate profits. However, the iterative and detailed exercise of tabulating individual costs and sales would require a great degree of sophistication to systematically overreport on revenues and underreport on costs. Indeed, the entrepreneurs responding to this electronic survey would need to remember 100+ numbers to purposefully game the survey, not to mention their responses from 6–12 months prior. In addition, our analysis is based on data from two follow-up surveys and, as later sections of this paper show, we find significant treatment effects only at end line and much smaller impacts at midline. The null/small effects at midline help allay concerns that businesses in our sample were significantly over-reporting outcomes and instead supports the view that treated firms were gradually improving performance over time. Moreover, McKenzie and Woodruff (2017) conduct an audit exercise in a similar sample of small firms in Sri Lanka who were provided business training to precisely test such overreporting and find no significant differences and high correlations between self-reported and auditor-recorded estimates.[6]

3.4. Empirical Specification

Based on the random assignment, we measure the impact of finance and marketing training at midline and end line as the difference in average outcomes in the treatment and control businesses using the following intention-to-treat (ITT) OLS regression:

$$Y_i = \alpha + \beta_1 Finance_i + \beta_2 Marketing_i$$
$$+ \sum \gamma_s d_{i \cdot s} + \delta Y_{i,b} + \varepsilon_i, \qquad (1)$$

where Y_i is the outcome measure for firm i at either midline or end line. The variable $Finance_i$ indicates whether a business was assigned to the finance training while $Marketing_i$ indicates the same for marketing training. The variable $d_{i \cdot s}$ comprises a set of baseline controls for entrepreneur gender, age, number of children, race and origin, education level, number of years in business operation, number of hours spent in business, business structure type, number of employees, and formal registration status as well as 16 industry indicator variables. These controls are included to improve precision of estimates. Finally, Equation (1) controls for the baseline value of the dependent variable, $Y_{i,b}$. Robust standard errors are reported in all regression specifications.

In addition, we also analyze the average treatment effect on the treated (ATT) by using attendance to instrument for treatment assignment (Online Appendix Tables 9 and 10). Although the ITT approach

provides unbiased estimates of the performance impact of training, the ATT estimates for this program could also be informative to policy makers and practitioners.[7] In the interest of brevity, we report results from the ITT approach here as it offers the cleanest statistical identification with clear exogenous source of variation (i.e., random assignment).[8]

4. Summary Statistics, Attendance, and Attrition

4.1. Baseline Randomization Checks

Table 1 presents summary statistics and randomization checks for the analysis sample. Column (1) provides mean and standard deviation values while columns (2)–(4) present them separately for businesses assigned to finance training, marketing training, and control, respectively. Columns (5)–(7) present p-values of tests of differences in means between the three groups.

The table presents entrepreneur background characteristics, entrepreneur exposure, and establishment characteristics of the current business. Forty-five percent of the sample include female entrepreneurs who are predominantly black. Sixty-seven percent have at least matriculated or received higher education. The mean age is 38 years.

There is variation in the level of exposure and past experience entrepreneurs have had previous to running their current business. Entrepreneurs on average have held almost two salaried jobs in the past at firms with an average of three workers. The average sample entrepreneur has also lived outside the entrepreneur's current state for almost eight years and speaks more than two languages fluently.

In terms of the current business, 42% of businesses are formally registered, 42% are run out of an independent commercial store, and the average business has been in operation for more than five years and has more than three employees. Entrepreneurs themselves spend more than 50 hours a week on their businesses, meaning that these are primary sources of income. Very few businesses, only 6% in fact, have accessed formal credit in the past.

Table 1 also shows that the randomization was successful. Out of 57 difference-in-means tests performed, only two returned statistical significance, which would be expected in random sampling. Nevertheless, we control for many baseline variables in all regression analysis as detailed in Section 3.4, including business age, which shows a slight imbalance across the three groups.

4.2. Training Attendance

Table 2 presents attendance, feedback, and evaluation statistics from the business training class for all businesses and also separately for those assigned to finance training and marketing training, respectively.

Table 1. Summary Statistics and Tests of Randomization

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Full sample	Finance training (A)	Marketing training (B)	Control group (C)	*p*-value A = B	*p*-value A = C	*p*-value B = C
	N = 852	N = 266	N = 270	N = 316			
Business owner background:							
Female	0.45	0.44	0.44	0.46	0.915	0.702	0.785
Race: Black or colored	0.87	0.86	0.84	0.89	0.436	0.435	0.11
Origin: Foreigner	0.12	0.12	0.14	0.10	0.483	0.466	0.142
Matriculated or higher education	0.67	0.68	0.67	0.66	0.734	0.571	0.83
Age	38.04 (9.82)	38.14	38.11	37.90	0.974	0.772	0.795
Number of children	1.94 (1.62)	1.97	1.97	1.91	0.997	0.647	0.651
Business owner exposure:							
# of previous salaried jobs	1.67 (1.93)	1.62	1.74	1.67	0.539	0.798	0.698
# of employees at longest-held salaried job	2.99 (2.78)	3.15	2.98	2.86	0.559	0.278	0.656
# of products at company where longest-held salaried job	1.92 (2.21)	1.92	1.98	1.88	0.801	0.861	0.663
# of years lived outside current state/province	7.52 (11.44)	8.09	6.82	7.62	0.292	0.669	0.48
# of languages spoken fluently	2.67 (1.52)	2.79	2.66	2.57	0.455	0.144	0.532
Business establishment:							
Business is formally registered	0.42	0.39	0.42	0.44	0.41	0.174	0.613
Business has independent commercial store	0.42	0.42	0.43	0.4	0.91	0.577	0.498
Age of business in years	5.06 (5.35)	5.67	4.70	4.86	0.046**	0.079*	0.692
Number of employees	2.40 (3.74)	2.52	2.40	2.30	0.717	0.487	0.743
Hours per week spent on business	53.17 (17.97)	52.56	53.19	53.66	0.691	0.465	0.753
Accessed formal business credit in last year	0.06	0.06	0.07	0.06	0.521	0.999	0.5
Start-up capital invested	31,845.64 (203,436.60)	20,541.32	51,631.16	24,455.95	0.118	0.688	0.175

Notes. This table presents baseline summary statistics for business owners and their businesses. Columns (2)–(4) present average values by treatment status, and subsequent columns present *p*-values for equality of means tests across treatments.

  *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Attendance was fairly high with 82% of those invited to a training actually attending at least 1 out of 10 class modules. The average number of modules (or class sessions) completed did not significantly differ between the marketing treatment group (mean = 6.38) and the finance treatment (mean = 6.52). The graduation rate (or percentage of students who obtained a completion certificate) also did not significantly differ between the two treatment groups: 73% for marketing training and 67% for finance training. Overall, most participants received the completion certificate (70% of those invited) with the average participant attending 6.5 modules.

The feedback from both finance and marketing trainings was very positive. On a 1–7 scale, the overall satisfaction among attendees was higher than 6 with participants particularly satisfied with the program's business relevance and value for time and money. In addition, participants were willing to pay for such training in the future. Finance attendees were agreeable to a slightly higher amount, US$122, compared with US$105 average among the marketing group. In terms of policy, this simple willingness-to-pay exercise suggests that extensions of such business training programs on a larger scale need not be subsidized down to zero.

Finally, Table 2 presents evaluation results based on test scores and shows that the trainings were effective in improving the aspects of financial knowledge they were targeting. Specifically, while the pretest

Table 2. Business Training Attendance and Feedback

	(1)	(2)	(3)	(4)
	All training	Finance training (A)	Marketing training (B)	*p*-value A = B
	Assigned N = 536	Assigned N = 266	Assigned N = 270	
Attendance:				
Attended at least 1 class module (out of 10)	0.82	0.77	0.86	0.011**
Received completion certificate (at least 6 modules attended)	0.7	0.67	0.73	0.127
# of modules attended	6.45	6.52	6.38	0.452
	(2.07)			
Distance from business location to training program (in miles)	4.98	4.54	5.36	0.058*
	(4.42)			
Feedback (1–7 scale):				
Overall satisfaction with training program	6.26	6.32	6.21	0.137
	(0.75)			
Satisfaction with the program's length and difficulty	4.62	4.66	4.59	0.742
	(2.06)			
Satisfaction with the program's business relevance	6.18	6.17	6.18	0.882
	(0.77)			
Satisfaction with the program's value for time and money	5.98	6.11	5.85	0.016**
	(1.05)			
Willingness to pay for the program in future (SA rand)	960.85	1,041.32	890.34	0.078*
	(815.48)			
Evaluation:				
Average score on exercises and applications (out of 7)	4.14	4.28	4.03	0.098*
	(1.31)			
Average score on engagement and participation (out of 7)	4.62	4.72	4.53	0.303
	(1.62)			
Score on finance pretest (out of 16)	6.3	6.41	6.21	0.519
	(3.06)			
Score on finance posttest (out of 16)	7.42	8.12	6.8	0.000***
	(2.90)			
Score on marketing pretest (out of 16)	3.59	3.38	3.76	0.152
	(2.59)			
Score on marketing posttest (out of 16)	7.65	6.98	8.25	0.001***
	(3.71)			

Notes. This table presents summary statistics for attendance, feedback, and evaluation of business training. Columns (2) and (3) present average values by treatment status, and column (4) presents *p*-values for equality of means tests between the two treatment groups.

   *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

average scores on finance and marketing are no different between the two training groups, the post-training finance test scores are significantly higher among the finance group, and likewise, the post-training marketing test scores are significantly higher among the marketing group.

In sum, Table 2 provides evidence that both the finance and marketing training programs were well attended, well received, and successful in improving the business knowledge of attendees.

4.3. Survey Attrition

Table 3 presents regression analysis on survey attrition. Column (1) studies midline attrition, column (2) end-line attrition, and column (3) the overall attrition across both surveys. Overall, we were able to reach 81% of the sample at midline, 76% of the sample at end line, and 87% at either midline or end line.

Although columns (1) and (3) do not show differential attrition across the two treatment groups compared with the control group, we do see a slightly higher attrition rate among the marketing training group at end line in column (2)—while we were able to reach 76% of businesses in the control group, we only reached 68% in the marketing training group, and this difference is statistically significant at the 5% level.[9]

To account for this attrition imbalance, we perform three different bounding exercises on our main outcome variable, business profits. First, we assign the average profit growth of the control group to all attritors. Next, we assume a profit growth of zero for all attritors, and we assign the baseline profit figure to end line. Finally, as an even more stringent bounding exercise, we assign the average profit growth of the control group to all attritors who were assigned to the

Table 3. Attrition Analysis

	(1)	(2)	(3)
	Present in midline survey	Present in end-line survey	Present in either survey
Assigned to finance training (A)	−0.044	−0.050	−0.043
	(0.034)	(0.037)	(0.030)
Assigned to marketing training (B)	−0.022	−0.075**	−0.040
	(0.033)	(0.037)	(0.029)
R-squared	0.002	0.005	0.003
Sample size	852	852	852
Mean of dependent variable in control group	0.807	0.756	0.873
Test: A − B = 0 (*p*-value)	0.543	0.526	0.938

Notes. This table presents attrition analysis for each follow-up survey round in columns (1) and (2) and overall attrition in column (3). Robust standard errors are reported in parentheses.
   **Denotes statistical significance at the 5% level.

control group and an average profit growth of zero to all attritors who were assigned to either treatment group. We discuss the results of this analysis in the next section, Section 5, where we present the main regression outcomes.

5. Regression Analysis and Discussion
In this section, we explicitly test the four main hypotheses developed in Section 2 using regression analysis. We start by reporting results on profits and then differentiate between pathways to profits by analyzing sales, employees, costs, and business practices related to finance versus marketing training. In addition, we study heterogeneous treatment effects to test our hypotheses on when firms might benefit more from each type of business training.

5.1. Business Profits
We first conduct a check on business survival rates. Table 4 presents regression analysis using Equation (1), separately for midline in column (1) and end line in

column (2). On average, the survival rate in the control group is high with 86% of firms still operational at midline and 78% still operational at end line. The analysis does not detect any differential effect on business survival as a result of either finance or marketing business training.[10] Previous literature on the impact of business training on survival has shown very mixed results. While Mano et al. (2012) and Giné and Mansuri (2014) find small positive impacts on business survival, Valdivia (2012) reports negative impacts. Moreover, as McKenzie and Woodruff (2017) highlight, many studies struggle to distinguish business survival from survey attrition, which tends to be fairly high. One important differentiation of our study is that even businesses in the control group have a fairly high survival rate, which we attribute to the baseline sampling frame with which we deliberately screened firms that met a set of minimum operational criteria as described in Section 3.1.

While business survival tends to be fairly stationary, we detect significant and positive treatment effects on business profits for all surviving firms as a result

Table 4. Business Survivorship

	(1)	(2)
	Operational at midline survey	Operational at end-line survey
Assigned to finance training (A)	0.027	−0.020
	(0.030)	(0.037)
Assigned to marketing training (B)	0.024	−0.049
	(0.031)	(0.039)
Baseline controls and industry dummies	Yes	Yes
R-squared	0.120	0.219
Sample size	670	611
Mean of dependent variable in control group	0.855	0.778
Test: A−B = 0 (*p*-value)	0.930	0.462

Notes. This table presents business survivorship analysis for each follow-up survey round in columns (1) and (2). The dependent variable is binary and equal to 1 if the business was still operational at the time of the survey. All regressions include controls for owner and business characteristics at baseline as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

Table 5. Business Profits

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Business profits: Simple recall		Business profits: Anchored and adjusted		Business profits: Composite measure		Business profits: IHS transformation	
	Midline	End line	Midline	End line	Midline	End line	Midline	End line
Assigned to finance training (A)	—	2,577.321**	1,647.280*	2,835.735**	1,647.280*	2,706.528**	−0.035	0.895**
		(1,237.428)	(966.666)	(1,404.372)	(966.666)	(1,239.376)	(0.379)	(0.377)
Assigned to marketing training (B)	—	4,637.880***	1,469.458*	3,432.613**	1,469.458*	4,035.247***	0.412	1.040**
		(1,597.052)	(853.535)	(1,619.281)	(853.535)	(1,488.821)	(0.366)	(0.410)
Baseline dependent variable, other controls, and industry dummies		Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared		0.401	0.356	0.461	0.356	0.462	0.085	0.117
Sample size		476	588	476	588	476	588	476
Mean of dependent variable in control group		5,369.495	6,143.161	7,846.996	6,143.161	6,608.245	7.848	7.452
Std. dev. of dependent variable in control group		11,625.495	10,365.689	16,076.829	10,365.689	12,867.043	3.883	4.053
Test: A − B = 0 (p-value)		0.194	0.865	0.710	0.865	0.375	0.230	0.728

Notes. This table presents analysis for business profits. Columns (1) and (2) present the simple recall estimate, which asked respondents for their profits over the last month. This question was not asked at midline. Columns (3) and (4) present anchored and adjusted measures for profits that were estimated by going through detailed steps of calculating sales and costs with the respondent, allowing for adjustments and comparison. The estimates in the first four columns are winsorized on both tails at the 1% level. Columns (5) and (6) present a composite measure of profits, which is simply the average of the first two measures. Columns (7) and (8) present the inverse hyperbolic sine transformation measures for profits. All regressions include the baseline value of the dependent variable, controls for owner and business characteristics at baseline, as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

of both finance and marketing trainings. These results are reported in Table 5, where columns (1) and (2) report simple recall measures for midline and end line, respectively; columns (3) and (4) present the anchored and adjusted estimates; and columns (5) and (6) report the composite measure that averages the first two measures. All estimates are winsorized on both tails at the 1% level to account for outlier values. As a separate functional form, columns (7) and (8) present the inverse hyperbolic sine transformation (IHS) estimate for business profits, which are used instead of log of profits to account for negative values.

As discussed in Section 3.3, the anchored and adjusted measures are a more robust measure of business outcomes although the results do not change when we report on either these measures or the composite measures. The analysis of the composite measure in columns (5) and (6) shows small treatment effects at midline that are statistically significant at the 10% and larger positive and statistically significant treatment effects at end line. This trend suggests that the effects of business training are not immediately realized, but rather require an incubation period for the newly learned knowledge and practices to be adopted, applied, and translated into improved outcomes.

At end line, compared with the control group, businesses assigned to the finance training improve profits by 41%, which represents an increase of 0.2 standard deviation. Similarly, businesses assigned to marketing

training improve profits by 61%, a 0.3 standard deviation improvement.[11] Figure 2 plots the cumulative density functions for both finance and marketing training groups compared with the control group and shows a rightward shift for both treatment groups. In addition, the average treatment effects on the treatment (ATT) are stronger: a 65% improvement in monthly profits (0.33 standard deviation increase) for entrepreneurs

Figure 2. (Color online) Cumulative Density Function for Business Profits
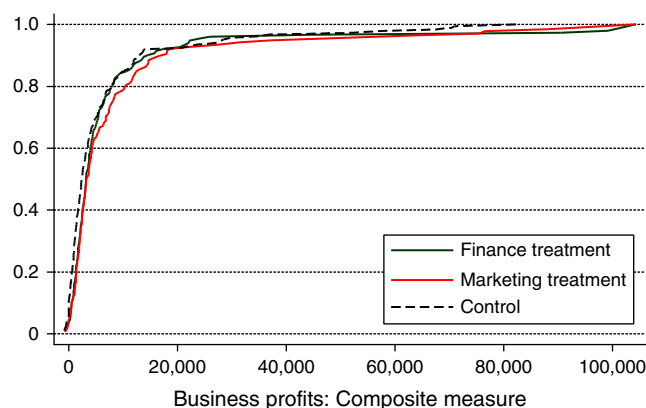
Notes. This figure plots the cumulative density functions for business profits at end line for businesses in the finance and marketing treatment groups as well as businesses in the control group. The composite measure of business profits is the average of the simple recall measure and the anchored and adjusted measure.

who completed the finance training and a 91% profit gain (0.47 standard deviation increase) for those who complied with the marketing training (see Online Appendix Table 10).

These are fairly large effects, in terms of both statistical and economic significance, and represent a departure from previous literature in which many studies simply do not collect profit data or where it is collected with substantial noise (see McKenzie and Woodruff 2014 and 2017 for literature reviews and discussion). Other studies in which profit results are shown (although only for the combined effect of a cash grant and training) find smaller treatment impacts that attenuate over time (Berge et al. 2015, de Mel et al. 2014). While we do not have survey data beyond 12 months, the comparison of midline results with end-line analysis finds that in fact profitability improves over a longer reporting period. Nevertheless, we acknowledge that our study did not collect longer term data to examine the persistence of these profit effects.

One final analysis with business profits is presented in Online Appendix Table 3, in which we report regressions results from three different bounding exercises to account for the differential attrition documented in Section 4.3. Moving from column (1) to column (3), with column (3) representing the most stringent bounding, the analysis shows that while the coefficient sizes for both finance and marketing training groups decrease, they remain statistically significant across all columns.

In sum, the analysis on profitability shows positive treatment effects of both finance and marketing trainings. The pathways to profits for the two trainings, however, are quite dissimilar. We turn to this analysis next.

5.2. Pathways to Profits—Business Sales, Employees, and Costs

Tables 6–8 present statistical tests for the first two hypotheses developed in Section 2. Specifically, we report regression analysis on business sales (Table 6), employees (Table 7), and costs and output–input ratios (Table 8). We find statistical support for both hypotheses: namely, businesses assigned to marketing training achieve higher profits through a growth focus whereas those assigned to finance training achieve higher profits through an efficiency focus.[12]

First, Table 6 reports on business sales. Compared with the control group, column (6) shows that sales in the marketing group increase by 64%, representing a 0.3 standard deviation improvement. The coefficient on sales for the finance group is less than half that of the marketing group, and it is only significant at the 10% level in the anchored and adjusted measure. Importantly, the difference between the treatment effects for marketing and finance is statistically significant (*p*-value of 0.093 for anchored and adjusted and 0.075 for composite measure). These results show a much stronger push for sales among businesses exposed to marketing training as compared with finance training.

Table 6. Business Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	Business sales: Simple recall		Business sales: Anchored and adjusted		Business sales: Composite measure	
	Midline	End line	Midline	End line	Midline	End line
Assigned to finance training (A)	1,162.863	4,834.887	802.564	5,333.951*	786.963	4,869.309
	(2,761.285)	(3,302.379)	(2,128.599)	(3,226.759)	(2,170.043)	(3,063.636)
Assigned to marketing training (B)	1,531.589	11,284.401**	3,714.357*	13,421.336***	2,665.645	12,393.655***
	(2,607.805)	(4,605.771)	(2,014.429)	(5,021.810)	(2,118.170)	(4,572.990)
Baseline dependent variable, other controls, and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.517	0.494	0.656	0.548	0.643	0.554
Sample size	588	476	588	476	588	476
Mean of dependent variable in control group	19,079.797	17,200.435	20,229.571	21,268.700	19,654.684	19,234.568
Std. dev. of dependent variable in control group	34,625.901	37,220.671	32,852.959	40,044.510	32,130.592	37,882.218
Test: A − B = 0 (*p*-value)	0.899	0.123	0.196	0.093	0.427	0.075

Notes. This table presents analysis for business sales. Columns (1) and (2) present the simple recall estimate, which asked respondents for their sales over the last month. Columns (3) and (4) present anchored and adjusted measures for sales that were estimated by going through detailed steps of calculating sales and costs with the respondent, allowing for adjustments and comparison. The estimates in the first four columns are winsorized on both tails at the 1% level. Columns (5) and (6) present a composite measure of sales, which is simply the average of the first two measures. All regressions include the baseline value of the dependent variable and controls for owner and business characteristics at baseline as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

 *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7. Business Employees

	(1)	(2)	(3)	(4)	(5)	(6)
	Number of employees: Full-time		Number of employees: Part-time		Number of employees: Total	
	Midline	End line	Midline	End line	Midline	End line
Assigned to finance training (A)	−0.060	0.049	0.376	0.224	0.311	0.439
	(0.162)	(0.307)	(0.241)	(0.293)	(0.254)	(0.362)
Assigned to marketing training (B)	0.369	0.174	0.234	0.773**	0.511	1.180***
	(0.286)	(0.332)	(0.255)	(0.386)	(0.340)	(0.437)
Baseline dependent variable, other controls, and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.440	0.526	0.382	0.691	0.523	0.633
Sample size	588	476	588	476	588	476
Mean of dependent variable in control group	1.349	1.392	1.261	0.946	2.271	2.056
Std. dev. of dependent variable in control group	2.602	4.075	2.751	2.050	3.633	4.874
Test: A − B = 0 (*p*-value)	0.110	0.610	0.583	0.151	0.547	0.035

Notes. This table presents analysis for business employees. Columns (1) and (2) present total full-time employees; columns (3) and (4) present total part-time employees; and columns (5) and (6) present total head count of employees giving full weight to full-time employees and half weight to part-time employees. All regressions include the baseline value of the dependent variable and controls for owner and business characteristics at baseline as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Next, Table 7 studies business employees and again finds a large, positive, and statistically significant treatment effect on the number of employees hired by businesses in the marketing group with an effect size of hiring one additional worker (a 57% improvement over the control group). The effect for the finance group is not statistically significant. In fact, the coefficient on marketing is significantly higher than the coefficient on finance (*p*-value of difference is 0.035). The majority of the employment effect is in part-time workers,

which in our sample means sales staff. Hence, businesses exposed to marketing training are significantly more likely to employ sales staff to support the higher sales reported in Table 6.

The treatment effects on employment are important for several reasons. First, higher employment indicates that firms are scaling up operations and becoming larger. The literature on small businesses has highlighted the difficulty such firms face growing from a subsistence scale (La Porta and Shleifer 2014, de Mel

Table 8. Business Costs

	(1)	(2)	(3)	(4)
	Total business costs		Output–input ratio	
	Midline	End line	Midline	End line
Assigned to finance training (A)	−1,638.702	2,279.877	0.965	3.463*
	(1,723.619)	(2,449.147)	(2.271)	(1.813)
Assigned to marketing training (B)	1,734.663	8,814.428**	−0.112	1.478
	(1,613.768)	(3,749.653)	(2.136)	(1.395)
Baseline dependent variable, other controls, and industry dummies	Yes	Yes	Yes	Yes
R-squared	0.627	0.497	0.143	0.187
Sample size	588	476	588	476
Mean of dependent variable in control group	13,931.308	13,432.953	9.615	6.815
Std. dev. of dependent variable in control group	24,521.129	26,532.027	24.240	11.145
Test: A − B = 0 (*p*-value)	0.042	0.064	0.597	0.328

Notes. This table presents analysis for business costs. Columns (1) and (2) present total business costs, winsorized on both tails at the 1% level, which are estimated by going through detailed steps of calculating costs with the respondent. Regressions on individual components of the cost measure are provided in Online Appendix Table 2. Columns (3) and (4) present the output–input ratio, which is the ratio of sales over expenditures on raw materials and energy. The ratio is winsorized on both tails at the 1% level. All regressions include the baseline value of the dependent variable and controls for owner and business characteristics at baseline as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

et al. 2010). The fact that acquiring appropriate business skills can put firms on a path to growth is policy relevant. In addition, these firms are creating jobs in the economy, which indicates positive multiplier effects outside of a firm's own profitability gains.

Table 8 then reports on business costs, and Online Appendix Table 4 breaks down these costs into stock and material expenses; wages and salaries; rent, energy, and transport; business services and fees; and business loan repayments. Results from Table 8 show a significant and positive increase in total business costs among the marketing group, representing a 66% increase over the control group, equivalent to 0.3 standard deviation (refer to column (2)). In contrast, the coefficient on costs for the finance group is a quarter in magnitude of the marketing group and not statistically significant. Moreover, the difference between the two groups is statistically significant (p-value of 0.064).

Hence, while costs go up for businesses in the marketing group, in line with higher sales and employees, costs for businesses in the finance group are not statistically distinguishable from the control group. Online Appendix Table 4 breaks down the costs into subcategories and finds the most significant increase in costs for the marketing group comes from higher stock and material costs as well as higher wages and salaries. In fact, the coefficient on wages and salaries is nearly five times as high for the marketing group as compared with the finance group, and the difference is statistically significant (p-value of 0.082). This is what one might expect to happen in growth-focused businesses that are increasing sales (i.e., costs rise for stock/materials) and adding employees (i.e., costs rise for salaries/wages). In contrast, business loan repayments are significantly higher for the finance group relative to control, which suggests a focus on lowering interest payments over the loan term and hence supports a focus on efficiency and cost reduction.

To measure efficiency directly, we construct an output–input ratio in the spirit of La Porta and Shleifer (2008), which compares revenues on the output side with capital investments and expenditures on stock and materials on the input side. Columns (3) and (4) of Table 8 analyze the output–input ratio across the three groups. The coefficient for the finance group on this measure is more than two times larger than that of the marketing group and is statistically significant. Moreover, the effect size for the finance group represents a 0.3 standard deviation improvement in the output–input ratio over the control group.

Together, these results show that businesses exposed to marketing training achieved higher profits through an aggressive growth strategy whereas those exposed to finance training did the same through a conservative cost-efficiency strategy.

Next, the analysis delves into mechanisms further by studying specific business practices that were influenced by both business training programs.

5.3. Pathways to Profits—Business Practices

Tables 9 and 10 and Online Appendix Tables 5 and 6, report treatment impacts on business practices, separately for finance and marketing practices. This analysis provides further support for our first two hypotheses by examining changes in behavior induced through finance training (i.e., efficiency-related practices) and marketing training (i.e., growth-related practices).[13] The measures of business practices used in the analysis are fairly comprehensive and similar to those presented in McKenzie and Woodruff (2017).

Table 9 reports on finance business practices and shows that businesses exposed to finance training are significantly more likely than the control group to adopt practices related to tracking, analyzing, and planning finances. Column (4) reports an aggregate measure across all individual scores and finds a 11.8 percentage point improvement in aggregate finance business practice scores for the finance training group over the control group. This coefficient size is fairly large in magnitude, corresponding to a 41% improvement or a 0.39 standard deviation improvement over the control group. In contrast, the improvement for the marketing group is not statistically significant, and we can statistically reject that the treatment coefficients for finance and marketing are the same (p-value of 0.007).

When examining individual finance practice questions in Online Appendix Tables 5a–5c, the analysis finds that compared with the control group, businesses exposed to finance training are significantly more likely to create and track business records, record assets, record liabilities, and record all money in and out. Further, in terms of analyzing finances, these businesses are significantly more likely to use their records to assess available cash, check sales growth, and identify fixed and variable costs. Likewise, in terms of planning finances, these businesses are significantly more likely to adopt the practices of making a business budget, analyzing spending against the budget, making an income statement, and using these records to assess the affordability of a loan or investment.

Table 10 reports on marketing business practices and, in line with our hypothesis, finds that businesses exposed to marketing training are significantly more likely to adopt practices related to market research and marketing tactics as well as sales tactics. The aggregate score shows an 8 percentage point improvement over the control group, representing a 16% or 0.38 standard deviation increase. Analysis of individual marketing practices in Online Appendix Tables 6a–6c shows that compared with the control group, businesses exposed to marketing training are significantly more likely to

Table 9. Finance Business Practices

	(1)	(2)	(3)	(4)
	Tracking finances Aggregate score	Analzying finances Aggregate score	Planning finances Aggregate score	All finance Aggregate score
Assigned to finance training (A)	0.139***	0.097***	0.117***	0.118***
	(0.033)	(0.036)	(0.034)	(0.030)
Assigned to marketing training (B)	0.012	0.032	0.050	0.032
	(0.032)	(0.035)	(0.032)	(0.029)
Baseline controls and industry dummies	Yes	Yes	Yes	Yes
R-squared	0.219	0.150	0.222	0.229
Sample size	588	588	588	588
Mean of dependent variable in control group	0.326	0.324	0.207	0.286
Std. dev. of dependent variable in control group	0.343	0.350	0.326	0.305
Test: A − B = 0 (p-value)	0.00	0.082	0.068	0.007

Notes. This table presents analysis for business practices related to finance. Each of the three aggregate scores in columns (1)–(3) are made up of five individual practices. The full composite score in column (4) is aggregated over the complete set of 15 finance practices. Online Appendix Table 1 presents results for each individual practice. The data comes from the midline survey when the business practice questions were asked. All regressions include controls for owner and business characteristics at baseline as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

  ***Denotes statistical significance at the 1% level.

discuss products with suppliers, elicit feedback from former customers, and research the needs of new customers. In terms of marketing tactics, these businesses significantly improve the quality or design of a product or service, and also change pricing. Similarly, in terms of sales tactics, these businesses are significantly more likely to analyze their own business capabilities, offer advice to customers on product suitability, study body language of customers, and rank products based on purchasing criteria. Given that several of these practices are not exclusive to individual skills, there is some overlap in learning with the finance group also improving on some aspects, most notably on sales tactics with significant improvements in the practice of analyzing their own business capabilities.

In general, we note that such "cross-learning" is possible, whereby participants in the marketing treatment group could have learned about some finance related practices—or students in finance learned about marketing practices. Many of the topics covered in the

Table 10. Marketing Business Practices

	(1)	(2)	(3)	(4)
	Market research Aggregate score	Marketing tactics Aggregate score	Sales tactics Aggregate score	All marketing Aggregate score
Assigned to finance training (A)	0.030	0.041	0.069***	0.047**
	(0.030)	(0.027)	(0.026)	(0.022)
Assigned to marketing training (B)	0.102***	0.069**	0.081***	0.084***
	(0.028)	(0.027)	(0.026)	(0.021)
Baseline controls and industry dummies	Yes	Yes	Yes	Yes
R-squared	0.122	0.146	0.093	0.132
Sample size	588	588	588	588
Mean of dependent variable in control group	0.511	0.414	0.611	0.512
Std. dev. of dependent variable in control group	0.280	0.278	0.268	0.220
Test: A − B = 0 (p-value)	0.021	0.349	0.647	0.115

Notes. This table presents analysis for business practices related to marketing. Each of the three aggregate scores in columns (1)–(3) are made up of five individual practices. The full composite score in column (4) is aggregated over the complete set of 15 finance practices. Online Appendix Table 2 presents results for each individual practice. The data comes from the midline survey when the business practice questions were asked. All regressions include controls for owner and business characteristics at baseline as well as a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

  *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

marketing training have finance roots and vice versa. For example, module 10 of either course is focused on application exercises and practical tools with broad cross-cutting coverage of topics. Some of the marketing material covers concepts related to financial records and goal setting, which can explain the significant improvement in practices related to planning finances among the marketing group. Similarly, the finance group shows significant improvement in the sales tactic of analyzing their own business capabilities. Indeed, many aspects of the finance course focus on analyzing one's own business capabilities by encouraging better record keeping and analysis. In addition, some type of "human capital stimulation" may have also occurred, whereby the very fact that entrepreneurs get enrolled in either of the treatment conditions spurred participants to acquire certain new business skills outside of the training sessions. Nevertheless, on average, the results presented in this section lend support to the efficiency focus among finance training recipients and the growth focus among marketing training recipients.

5.4. Pathways to Profits—When Is a Growth vs. Efficiency Focus More Effective?

The analysis next presents statistical tests for Hypotheses 3 and 4 developed in Section 2. Specifically, we test whether the growth focus of marketing training is more valuable for firms with narrow exposure and whether the efficiency focus of finance training is more valuable for larger, more established firms. The full set of questions used to measure business exposure and establishment as well as their summary statistics are reported in Table 1 and discussed in Section 4.1.[14]

First, entrepreneurs, particularly in emerging markets, vary greatly in their level of exposure to market contexts that are novel or different from what they are familiar with. In our baseline sample, there is variation in the number and type of previously held salaried jobs, the mix of past business colleagues and clients, the number of years worked outside of one's own hometown, and the number of languages spoken. We use these variables to create a composite measure of prior business exposure and test whether firms run by entrepreneurs with narrow exposure (versus broad exposure) realize greater profit gains when offered the marketing training program.

In terms of business exposure, column (6) of Table 11 shows that firms with narrow exposure benefit disproportionately more than those that are already highly exposed at baseline. The negative and statistically significant coefficient on the interaction variable shows that the effect on businesses with high exposure is significantly lower and overall statistically insignificant (*p*-value of sum of interaction and main variable is 0.35). Note that firms with narrow exposure tend to benefit significantly more from the finance training as

well, but the magnitudes are statistically much smaller when compared with the marketing training. In addition, columns (1)–(5) show a similar pattern of results for the individual components of business exposure as those obtained for the composite measure.

Hence, consistent with a growth-focus explanation, we find that firms run by entrepreneurs with narrow exposure tend to do significantly better when they receive the marketing and sales training program. Participating in a training program to build marketing skills helps these firms overcome a lack of exposure by encouraging them to look beyond their existing market context and to develop new views on products, customers, distributors, and suppliers, which, in turn, assists with expanding sales and improving top-line performance.

Second, entrepreneurs vary in the extent to which their businesses are established and have reached sufficient scale. In our baseline sample, there is variation in registration status, age and size of business, and amount of capital invested. We use these variables to construct a composite measure of business establishment and test the hypothesis that developing finance and accounting skills may be especially worthwhile for entrepreneurs operating more established businesses as there exists greater opportunity for applying the skills to reduce costs and increase efficiencies in the business.

Table 12 presents heterogeneous treatment effects based on business establishment. The results in column (7) show that the finance training did not improve business profits for firms with a below-median score on the composite measure of business establishment. However, in contrast, the interaction term is positive and statistically significant, showing that businesses with above-median scores benefited significantly from the finance training. In terms of magnitude, the treatment effect for more established firms is equivalent to a 68% increase in business profits over the control group or a 0.35 standard deviation improvement. Further, results on the individual components of business establishment, in columns (1)–(6), are consistent with those from the composite measure.

In line with an efficiency-focus explanation, these results show that entrepreneurs who have been running more established businesses prior to training tend to achieve greater profit gains when they receive the finance and accounting training program. Building finance skills is particularly helpful for firms that have reached a minimum threshold in terms of scale, and so the finance and accounting skills developed by the entrepreneur can actually be put into practice to reduce costs and increase efficiencies in the business, thereby increasing profits and improving bottom line performance.[15, 16]

Table 11. Heterogeneous Effects on Business Profits by Exposure

Heterogeneity variable	(1) Exposure 1 Number of years lived in other cities	(2) Exposure 2 Number of languages spoken	(3) Exposure 3 Number of previous jobs	(4) Exposure 4 Size of previous company where employed	(5) Exposure 5 Number of of products at previous company	(6) Exposure Composite measure
Assigned to finance training (A)	3,841.82*	8,556.56	3,774.30**	2,761.29**	3,774.30**	3,390.17**
	(1,971.31)	(5,722.86)	(1,731.22)	(1,374.42)	(1,731.22)	(1,551.54)
Assigned to marketing training (B)	4,272.73*	8,580.19	8,501.91***	6,809.27***	8,501.91***	7,148.90***
	(2,294.31)	(7,167.83)	(2,762.79)	(1,981.53)	(2,762.79)	(2,331.86)
Above median exposure variable × Finance training	−2,284.15	−6,170.18	−1,634.43	−212.58	−1,634.43	−1,140.85
	(2,435.05)	(5,817.89)	(2,474.33)	(2,381.34)	(2,474.33)	(2,382.72)
Above median exposure variable × Marketing training	−384.68	−4,955.53	−6,710.08**	−5,442.21*	−6,710.08**	−5,339.69*
	(2,924.95)	(7,335.45)	(3,308.01)	(2,972.05)	(3,308.01)	(3,063.61)
Baseline controls and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.46	0.47	0.47	0.47	0.47	0.47
Sample size	476	476	476	476	476	476
Mean of dependent variable in control group	6,608.25	6,608.25	6,608.25	6,608.25	6,608.25	6,608.25
Std. dev. of dependent variable in control group	12,867.04	12,867.04	12,867.04	12,867.04	12,867.04	12,867.04
Test: A − B = 0 (p-value)	0.85	1.00	0.09	0.05	0.09	0.11
Test: A + Interaction = 0 (p-value)	0.29	0.06	0.20	0.19	0.20	0.21
Test: B + Interaction = 0 (p-value)	0.02	0.01	0.31	0.53	0.31	0.35

Notes. This table presents heterogeneous analysis for business profits by baseline levels of business exposure. In all columns, the dependent variable is business profits at end line, winsorized on both tails at the 1% level. Columns (1)–(5) present regression results with individual measures of exposure as the heterogeneous variable. Column (6) presents analysis using the composite measure, which aggregates the five individual components. The title of each column defines the exposure variable being analyzed. *Above median exposure* is a binary variable equal to 1 if the firm was above median in the respective measure of business exposure. All regressions include the interacted variables themselves as well as controls for owner and business characteristics at baseline and a full set of business industry fixed effects. Robust standard errors are reported in parentheses.
    *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

5.5. External Validity, Spillovers, and General Equilibrium Effects

The results presented and discussed above are consistent with the hypotheses developed in this paper. In this subsection, we address three potential concerns related to the field research.

First is the issue of external validity or generalizability of the results to other settings. Given the sample-selection methodology explained in Section 3.1, businesses in our starting sample were selected based on their interest in business training and willingness to complete a recruiting survey; other characteristics, such as whether they operated out of a physical structure, education level of the entrepreneur, and business registration status, also factored in the screening process. Hence, it is instructive to understand how our sample differed from a typical business in South Africa. In Online Appendix Table 7, we compare sample characteristics between our study and the 2010 FinScope Small Business Survey, which utilizes a nationally representative sample of 5,676 entrepreneurs in South Africa.

The comparisons in Panel A show that while race and origin of entrepreneurs are not different across the two samples, other differences are present. Businesses in our sample are more likely to be owned by men (45% female owned versus 55% female owned in FinScope), run by slightly younger entrepreneurs (mean age of 38 in our sample versus 41 in FinScope), and led by better educated individuals (67% have at least matriculated in our sample versus 42% in Finscope). In addition, these businesses are more likely to be formally registered (42% in our sample versus 21% in Finscope) and hire more employees (2.4 employees in our sample versus 1.24 in Finscope). Access to formal business credit is also different but notably low in both samples (6% in our sample versus 4% in Finscope).

In Panel B of Online Appendix Table 8, we repeat the comparison but restrict the Finscope sample to those with an above-median number of employees (i.e., at least one employee) to roughly align the Finscope firms to our sample.[17] While significant differences are still present on some margins, the two samples are more similar on some key characteristics, such as the gender of entrepreneur, formal registration status, and access to credit. Hence, while we cannot claim our sample is nationally representative of a typical South African small business, the comparisons with FinScope data

Table 12. Heterogeneous Effects on Business Profits by Establishment

Heterogeneity variable	(1) Established 1	(2) Established 2	(3) Established 3	(4) Established 4	(5) Established 5	(6) Established 6	(7) Established
	Number of employees	Start-up capital invested	Business formally registered	Business has commercial store	Business sales	Business age	Composite measure
Assigned to finance training (A)	−809.58 (958.96)	902.10 (1,175.79)	296.96 (1,093.72)	−28.90 (1,152.65)	1029.84 (767.94)	3617.16* (2,130.09)	−328.59 (1,097.74)
Assigned to marketing training (B)	−104.64 (1,512.90)	5,483.96*** (2,107.08)	2,246.59 (1,599.70)	5,021.15** (2,233.26)	2,476.41** (1,063.78)	5,224.71** (2,432.88)	2,159.04 (2,082.35)
Above median established variable × Finance training	7,236.59*** (2,386.19)	3,816.36 (2,679.96)	6,394.56** (2,961.60)	5,815.77** (2,676.87)	3,520.46 (2,551.32)	−1,491.49 (2,761.96)	5,217.09** (2,474.50)
Above median established variable × Marketing training	8,424.60*** (2,901.25)	−2,928.71 (3,253.15)	4,308.77 (3,175.23)	−2,199.31 (2,792.36)	3,069.76 (2,940.01)	−2,055.26 (3,079.71)	3,204.59 (2,976.15)
Baseline controls and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.48	0.47	0.47	0.47	0.46	0.46	0.47
Sample size	476	476	476	476	476	476	476
Mean of dependent variable in control group	6,608.25	6,608.25	6,608.25	6,608.25	6,608.25	6,608.25	6,608.25
Std. dev. of dependent variable in control group	12,867.04	12,867.04	12,867.04	12,867.04	12,867.04	12,867.04	12,867.04
Test: A − B = 0 (p-value)	0.61	0.02	0.24	0.02	0.19	0.52	0.19
Test: A + Interaction = 0 (p-value)	0.00	0.04	0.02	0.01	0.06	0.19	0.02
Test: B + Interaction = 0 (p-value)	0.00	0.27	0.02	0.10	0.04	0.09	0.01

Notes. This table presents heterogeneous analysis for business profits by baseline levels of business establishment. In all columns, the dependent variable is business profits at end line, winsorized on both tails at the 1% level. Columns (1)–(6) present regression results with individual measures of establishment as the heterogeneous variable. Column (7) presents analysis using the composite measure, which aggregates the six individual components. The title of each column defines the established variable being analyzed. *Above median established* is a binary variable equal to 1 if the firm was above median in the respective measure of business establishment. For columns (3) and (4) the interaction is with a dummy for "business formally registered" and "business has commercial store," respectively. All regressions include the interacted variables themselves as well as controls for owner and business characteristics at baseline and a full set of business industry fixed effects. Robust standard errors are reported in parentheses.

*, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

suggest our study sample is more similar to the average business that employs at least one worker.

An important aspect to note is that such businesses are highly prevalent in the economy. To illustrate this point, we use the recorded GPS coordinates of all businesses from the baseline survey to plot their precise locations on a map. Online Appendix Figure 1 shows that our sample has wide coverage and is spread all across the greater Cape Town area rather than being geographically confined to one particular neighborhood or subdistrict. Hence, the businesses in our study are not an unusual sample concentrated in one particular geographic area, but rather, firms such as these are present throughout the region.

The GPS mapping also helps allay a second concern of knowledge spillovers to control group businesses from businesses in the treated groups. Note that such spillovers will only undermine treatment effects; nevertheless, our study design minimizes the potential for such effects. Online Appendix Figures 2a and 2b zoom in on two street-level locations and show that businesses in our sample are, in fact, physically separated by quite some distance.[18] More precisely,

we use the GPS software to calculate linear distances between firms and find that the average distance from a treated firm to the nearest control firm in our sample is 1.160 kilometers (0.723 miles). Given that linear distances typically underestimate true travel time, it is unlikely that there were geographic spillovers from firms located more than a kilometer away.

Next, there is the related issue of general equilibrium effects. Specifically, did the extra profitability for treated firms come at the expense of the control group or other businesses in the economy? We again turn to the map of businesses in our sample and reemphasize that these businesses are spread throughout the greater Cape Town area, which contains thousands of small businesses outside of our sample. Even in our sample selection process, we started with 10,000 firms that we identified over 10 weeks. Our study sample of 852 firms represents less than 10% of this initial listing. Moreover, the actual number of similar businesses in the Cape Town area is significantly greater than 10,000. Hence, it is unlikely that treatment effects among the small number of firms in our sample, spread across

16 industries, led to any significant market or general equilibrium effects.

One final concern is anticipation effects among the control group firms. Since these firms were promised a business training program after the end of the study period, they could have purposefully delayed certain improvement actions, waiting until the training to undertake them. While theoretically possible, the likelihood of such strategic withholding of investments and improvements is small for several reasons. First, these firms would have to wait and forego investment opportunities for 18 months, which is the timeline they were provided, and for an entrepreneur, that is a very long time to wait for enacting business improvements. Further, these firms were not informed about which type of training they would eventually receive, so it would be impossible for them to pick and choose which business decisions to delay. And ultimately, even if there were some strategic delays among firms in the control group, the main focus of this paper is on relative outcome differences between the finance and marketing treatment groups, both of which were compared with the same control group.

6. Conclusion and Implications

This paper seeks to address three important questions: (1) *What* is the impact of marketing or finance skills on business profits? (2) *How* do improvements in marketing and finance skills, respectively, affect different business outcomes? (3) *When are* increases in marketing relative to finance skills more beneficial? Through a randomized control study of 852 firms in South Africa, the analysis finds significant improvements in profitability from both types of business skills training. However, the pathways to achieve these gains differ substantially between the two groups who received training. The marketing group achieves greater profitability by adopting a growth focus of significantly higher sales, improvements in inventory, and hiring more employees. In contrast, the finance group adopts an efficiency focus of significantly lower costs. To precisely identify pathways, the analysis finds that these profitability gains are achieved by both groups adopting business practices related to their respective training. The analysis further shows that marketing and sales training is significantly more beneficial to firms that ex ante have less exposure to different market contexts while entrepreneurs who have been running more established businesses prior to training benefit significantly more from finance and accounting skills. These results have important implications for practitioners, policy makers, and researchers.

6.1. Implications for Practice and Policy

This paper's evaluation of the impact of marketing and finance skills on the performance of emerging market businesses has several implications for managers of multinationals and domestic firms. It offers validation for large firms in emerging markets who are considering whether to actively engage themselves in building management skills among small businesses who might serve as their partners in these markets. Such partnerships can be invaluable for successfully entering new markets, sourcing supplies, distributing goods, and competing in difficult business environments. Our results suggest that by growing the small businesses run by the participants of such training or by making these businesses more efficient, management training could potentially improve the ability of their much larger partners to operate effectively in these markets. In addition, our results provide useful benchmarks that multinational firms can use to learn how best to develop business skills among their distributors and suppliers in emerging markets.

This research is also important to policy makers wishing to stimulate growth and prosperity in emerging markets. Research on small business development and entrepreneurship is central to the goal of poverty alleviation. The first reason has to do with the sheer numbers involved. "Vast armies" (de Mel et al. 2010) of micro and small businesses populate the poor parts of the world. But few appear to grow to a level that allows them to escape poverty. The frustrations of the vast armies of small-scale entrepreneurs can easily explode into chaos and conflict. Yet the energies of these tiny firms can also yield growth and prosperity. Second, improvements in economic outcomes would provide a way of "helping people help themselves" (Nopo 2007, p. 2). Business skills represent an intangible asset that is developed, owned, and implemented by an individual entrepreneur. Thus, investments in business skills training at a micro-level may offer an alternative for effective use of scarce development funds, and for economic transformation more generally. Third, in the absence of systematic research, potentially promising approaches to improve the lives of small-scale entrepreneurs may fail to get implemented. As de Mel et al. (2010) note, "we need a much more nuanced and detailed understanding of [micro and small businesses] before appropriate policies can be devised" (p. 84). This research may offer a voice for marketing and management at the policy making table: marketing appears to offer a path to employment-led increases in growth and prosperity.

Finally, there is the issue of program costs and benefits. The cost of delivering the business training in our study was approximately 7,760 Rand (US$900) per participant for either training program. Considering the monthly profit improvements reported in this paper, it would take an entrepreneur in the finance group about three months and one in the marketing group about two months to recoup the cost of their respective training. Hence, the returns to training appear to be worthwhile. An important policy implication, therefore, is to

make the returns of these programs clearer to firms who are typically unaware or unsure of potential benefits (Bloom et al. 2013, Karlan and Valdivia 2011). In fact, McKenzie and Woodruff (2014) argue that businesses with the most to gain from business training may have the most difficulty understanding the benefits because they do not realize how poorly run their businesses are. Indeed, Hanna et al. (2014) propose that learning failures may stem not from lack of data, but rather from insufficient attention to available data (also see Pauwels 2014).

Combined with these information failures are market failures related to access to credit and insurance. Formal credit access in our sample and for similar businesses elsewhere is extremely low, and together with lack of insurance against future program payoffs, it may significantly hurt the appeal and take-up of business training programs if offered at market prices. Hence, from a policy perspective, there may be reason to subsidize such programs to account for lack of credit access and uncertainty of benefits.

6.2. Implications for Future Research

This research can also provide useful insights for academics. First, by giving small businesses in emerging markets a central role in our research efforts, this paper highlights the opportunities that marketers have to solve the challenges of the "other 99%" of firms (in contrast to the large Western firms that are often the focus of academic research). Micro and small businesses in emerging markets differ from businesses in developed countries (Burgess and Steenkamp 2006, Sheth 2011, Sudhir 2016). Crucially, most entrepreneurs in emerging markets suffer from stunted growth (Collins et al. 2009, Jensen and Miller 2014). We hope that this research offers a glimpse of the many opportunities that exist for marketing and management researchers to be agents of change—in areas where change can have a huge economic and social impact—through their ideas and their consequences. Second, while an increasing number of economists are examining how small businesses can scale up and transition into larger firms (see de Mel et al. 2010), extant research has typically focused on reducing constraints related to financial capital and institutions, but ignored the role of marketing. Thus, there are opportunities for marketing academics to study firm behavior in emerging markets and not only extend the knowledge in the field of marketing, but also that of other disciplines.

Third, this study represents the first randomized controlled trial (RCT) of the impact of marketing or finance skills on the performance of businesses.[19] Using an RCT provides three key benefits that can help to overcome challenges that otherwise make it difficult to study firm-level marketing phenomena. One, researchers can actively shape the intervention and its implementation. For instance, we were able to work with the partner organization to design the rollout of the training intervention in a way that let us separate the development of marketing/sales skills from finance/accounting skills. Thus, we were able to examine the research questions of interest and could control (a priori) how the theoretical variables of interest were manipulated, thus maintaining construct validity and ensuring that exogenous variation was created where and when it was needed.[20] Two, researchers can implement randomization (and data collection) more directly, including the random assignment of firms into treatment and control groups to address potential endogeneity concerns. Three, the RCT approach allows for field studies with hundreds of real firms as the unit of analysis. While experimental approaches are common in marketing, such studies typically focus on consumers or at most a few firms (to the extent that field studies have been conducted at the firm level). This paper shows the promise of using RCTs with a large number of firms to address theoretically and substantively important marketing questions.

Finally, the results from this study may offer glimpses, which could serve as the basis for further research, about the impact of marketing and finance skills on businesses and businesspeople far beyond the context we study here. The results offer some reassurance to those who offer and those who take courses designed to improve marketing or finance skills that—despite skeptical voices that imply otherwise—their efforts may not be useless or counterproductive. Not only can marketing and finance skills improve profits, they do so via different paths: marketing skills yield higher growth whereas finance skills yield higher efficiency.

Endnotes

[1] According to the World Bank Development Indicators, self-employment rates average around 40% in emerging market economies with rates in some countries as high as 75%. In comparison, the self-employment rate in the United States is 7%. See http://data.worldbank.org/indicator/SL.EMP.SELF.ZS (accessed August 1, 2016).

[2] The hypotheses proposed in this section and the corresponding analyses were initially conceptualized at the research proposal stage of this project. A copy of the full research proposal submitted for funding prior to project implementation is available from the authors upon request.

[3] For comparison, the total time spent by entrepreneurs was substantially higher than in the training programs studied elsewhere: ~16 hours in Berge et al. (2015); ~18 hours in Drexler et al. (2014); and ~40 hours in de Mel et al. (2014).

[4] Notably, there could be synergies between the modules given each course is structured such that students build upon knowledge as they progress from one set of topics to the next. For instance, in the finance course, a student could attend module 3 and learn about how to report on the business, but there are synergies to having first developed an understanding about key financial terms and the difference between money "in" and money "out" (module 1) as well as learned how to record business transactions (module 2). Likewise, in the marketing course, a student could attend module 3 and build skills on matching needs and solutions to create optimal value propositions; however, greater synergies may be realized if the student first learned about different sources of value (module 1) and how to uncover customer needs (module 2).

[5] The midline and endline surveys were completed by an independent survey organization using our new electronic survey tool. The baseline survey was implemented by the training partner using a paper-based instrument.

[6] Despite our efforts to collect accurate measures of firm performance, there is still a possibility of response bias since we do not have administrative data. Readers should therefore interpret our results with this caveat in mind. That said, our main results focus on the *comparison* between two treatment groups (marketing versus finance) and not simply treatment with control: this means that most potential biases would apply to both treatment groups and will likely cancel out.

[7] On the one hand, the objective of a policy maker or program provider might be to scale up a program such as this to an inclusive (potentially nationwide) set of entrepreneurs. Moreover, the experience of our training partner (and other similar organizations) suggests that funders (e.g., government) would pay the training provider for every classroom seat that it has allocated to an individual entrepreneur (regardless of how often the entrepreneur attends). In this case, any estimate of the effectiveness of the program should take into account the fact that not all entrepreneurs who are offered training will actually take up the program. Moreover, many of them will not attend all of the sessions (i.e., take up intensity will vary) simply because of the day-to-day exigencies in the lives of entrepreneurs in emerging markets. Thus, the ITT estimate may be more relevant to the policy maker, both in terms of measuring overall impact and carrying out reasonable cost–benefit analyses. On the other hand, the training provider or policy maker could be interested in understanding the impact of the treatment for those entrepreneurs who actually comply with the training. For example, they could provide incentives for entrepreneurs to complete the program. Or they could target the program to entrepreneurs who they believe are most likely to take it up (the challenge of course is that predicting up front who will take it up is very difficult). In these cases, the goal would be to estimate the effectiveness of the program for the subset of entrepreneurs who complete the training (i.e., comply with treatment). Under such situations, the ATT estimate can be helpful.

[8] Notably, a potential issue with ATT analysis is essential heterogeneity: the assignment to treatment may have an influence on business performance outside the channel of marketing or finance training which, in turn, would violate the exclusion restriction (Heckman et al. 2006).

[9] One explanation for this pattern of attrition is that the control group were promised a business training program at the end of the study and hence were more likely to continue in the project and answer surveys.

[10] Online Appendix Table 1 compares baseline characteristics among businesses that survive until end line across the two treatment and control groups to assess balance in the end-line sample. The sample is still balanced on the majority of entrepreneur and business attributes. Compared with the baseline sample, the end-line sample has a slight imbalance on the race and origin of entrepreneur, but the magnitudes of differences are small, and the averages are not very different from the baseline sample. In addition, there are small significant differences in years lived outside current state and independent commercial store, but even here, the magnitude difference from the baseline sample is very small. On all other attributes, the sample remains balanced as in baseline. Furthermore, we control for these attributes in all empirical specifications as per Equation (1).

[11] As an additional specification, Online Appendix Table 2 reports quantile regressions for business profits, separately for each decile. The results show the treatment effects on profitability are widespread across the distribution with firms in the median decile and also above and below the median decile reporting statistically significant effects.

[12] This pattern of results is reinforced by the ATT estimates (see Online Appendix Table 10), which are also significant and larger in magnitude for sales, employees, and costs.

[13] These results are further supported by the ATT analysis of business practices (see Online Appendix Table 9) that shows stronger effects for businesses completing the finance training (i.e., greater changes in financial tracking, analyzing, and planning) as well as for those completing the marketing training (i.e., greater changes in market research, marketing tactics, and sales tactics).

[14] For ease of interpretation, we have normalized all scores between 0 and 1 (for the business exposure composite and the business establishment composite).

[15] We also examined whether the effects of marketing and finance skills on profits are different for those who have had high levels of exposure or are highly established (e.g., an inverted U-shaped effect). We do not find evidence for such an effect.

[16] In addition, we also conducted exploratory analyses of heterogeneity in treatment effects using three additional entrepreneur characteristics: gender, age, and formal education (see Online Appendix Table 7). We do not find the effects of the intervention to be different for those who vary on these characteristics. First, unlike previous literature, we find that female-headed businesses do just as well as male-headed businesses that are offered a training program. This may be a result of the fact that our starting sample consisted of businesses operating out of a minimum physical structure and not businesses run "on the street" or out of homes (which, in many emerging markets, tend to be female-run businesses that borrow from microfinance). Another possible reason is that the businesses in our starting sample were owned and operated by full-time rather than part-time entrepreneurs (refer to the average time spent by entrepreneurs on their businesses). Overall, our finding that female-headed businesses perform as well as their male counterparts builds on previous business training studies with which (i) gender differences could not be analyzed because samples consisted almost entirely of female-run businesses (e.g., de Mel et al. 2014, Drexler et al. 2014, Karlan and Valdivia 2011) or (ii) gender differences were compared but significant effects for sales or profits were only found for male-run businesses (e.g., Berge et al. 2015, Giné and Mansuri 2014). Second, our

pattern of results also holds irrespective of the entrepreneur's age or ex ante level of education, thereby increasing the generalizability of our findings. However, we did not have strong a priori arguments on these entrepreneur characteristics and so did not develop formal hypotheses.

[17] The FinScope survey did not elicit interest in business training, nor did it ask whether firms were operating out of an independent physical structure. Hence, it is difficult to precisely replicate the screening process of our study sample.

[18] These zoom-in locations were chosen at random. A fully interactive map of our study sample can be found at https://www.mapcustomizer .com/map/Map%20Three%20Colors (accessed August 1, 2016). Each pin on the map represents a business in our sample. Pink pins represent businesses in the finance treatment and red pins represent those in the marketing treatment. Green pins represent businesses in the control group.

[19] Field experiments in marketing have become increasingly popular (for reviews, see Simester 2017, Gneezy 2017). However, most all of these studies focus on consumers as the unit of analysis and typically only involve a single firm (e.g., Li and Kannan 2014, Blake et al. 2015, Wiesel et al. 2011).

[20] Given our specific research questions, the chosen experimental design did not include a treatment arm in which some participants were randomly assigned to receive both marketing and finance training. However, we acknowledge that the "What is the value of learning both marketing and finance?" question offers a promising avenue for future research.

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