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Pathways to Profits

Identifying Separate Channels of Small Firm Growth through Business Training

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Abstract

This paper identifies separate and unique pathways to profits among small businesses in South Africa that are exposed to marketing or finance training in a randomized control study. 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 firm owners who ex ante have less exposure to different business contexts. In contrast and in line with an efficiency focus, entrepreneurs who have been running more established businesses prior to training benefit significantly more from finance/accounting skills.

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1. Introduction

The growth and prosperity of small businesses is vital for poverty reduction and for generating jobs for a young and rapidly growing labor force in emerging market economies (World Bank, 2013; de Mel, McKenzie, and Woodruff 2010). With self-employment rates of 40% on average and in some countries as high as 75% (compared to only 7% in the United States),[1] the economic policies surrounding small business promotion take on vital significance. 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 business owners on whom they have to rely as customers, suppliers, and distributors (Viswanathan, Rosa, and Ruth 2010; Prahalad 2005).

In search of policies that foster small business growth, the literature has long emphasized the importance of alleviating constraints on access to physical capital and external finance (Banerjee et al. 2015; Bruhn and Love 2014; de Mel, McKenzie, and Woodruff 2008). A growing body of work additionally stresses the significance of business skills and entrepreneurship training as key drivers of small firm growth and productivity (Bloom et al. 2010; Bruhn, Karlan, and Schoar 2010). However, attempts to identify the causal impact of business training programs among small firms in emerging markets have yielded disappointingly weak results (see McKenzie and Woodruff (2014) for a literature review). Even less understood are the mechanisms by which business trainings can succeed or fail to improve firm outcomes (Fischer and Karlan 2015). A better appreciation for which types of business practices can be affected by these trainings, and which outcomes these practices influence, can provide important insight on how to improve business performance.

In this paper, we study the causal links between business training, practices, and outcomes, and identify two separate pathways to profits through a randomized control study of 852 small firms in South Africa. We distinguish between two types of training programs, marketing and finance, in order to understand the process by which training influences business practices and, thus, has an impact on firm performance. Importantly, we find that certain outcomes of interest to policy

[1] See: http://data.worldbank.org/indicator/SL.EMP.SELF.ZS

makers – such as employment and revenue growth – are significantly different for marketing training relative to finance training, and occur in a manner consistent with the mechanisms we outline.

A key distinguishing feature of our study compared with 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.[2] Such an intense and practically relevant intervention might help entrepreneurs overcome the inertia that is inherent whenever there are pre-existing habits and methods of engaging in business. Indeed, McKenzie and Woodruff (2016) 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.

We measure outcomes at two intervals after the trainings, at six months (midline) and again at 12 months (endline). The data were collected using a novel electronic survey tool that was designed specifically for this study to measure key outcomes such as sales, costs, and profits using triangulation aids for anchoring across different measures and allowing for real-time adjustments to further improve the precision of estimates.[3]

Our results show strong positive and statistically significant improvements in profits for both finance and marketing groups 12 months after the trainings were delivered. The medium term results at the 6 month interval show only modest improvements in profits, suggesting that business training requires an incubation period of several months for firms to apply and test their new knowledge before improvements in firm outcomes are realized.

[2] Please see www.thebusinessbridge.org

[3] Anderson and Zia (2016) specifically test the measurement methodology of anchoring and adjusting revenues, costs, and profits against simple recall and calculated estimates (reported sales minus reported costs). The analysis finds the anchoring and adjusting method significantly improves precision, with smaller sample variation, over the other methods.

The magnitudes of the longer term effects measured at 12 months 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 to businesses that did not receive a 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 corporate (e.g., KFC, Shoprite, etc.).

Next, the analysis identifies mechanisms of change, specifically the pathways to profits for the two treatment groups. We find that small business owners in the marketing training program 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, McKenzie, and Woodruff 2010).

Furthermore, we find that businesses in the marketing training program are significantly more likely to adopt marketing practices related to market research, tactics, and sales. These businesses become significantly better at researching needs and obtaining feedback from customers and suppliers, advertising, and offering customizations based on client needs.

In contrast, those in the finance program 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 0.7 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. For example, these businesses become significantly better at separating business and personal finances; keeping business records; recording assets, liabilities, and cash flows; identifying fixed and variable costs; assessing working capital needs; and making and analyzing budgets.

Finally, the analysis focuses on differential impacts based on two important ex-ante entrepreneurship characteristics to understand who benefits more from each type of training. We define business *exposure* as the variety of market contexts in which a business owner has held previous experience. Small business owners, particularly in emerging markets, vary greatly in their level of exposure to business 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.

We find that small business owners with narrow exposure (versus broad exposure) show significantly greater improvement in profits when they receive the marketing/sales program. The treatment effect for those already with broad exposure is small and statistically insignificant. Thus, participating in a training program that builds marketing skills appears to help individuals overcome a lack of exposure by encouraging them to look beyond their existing business context and to develop new perspectives on products, customers, distributors, and suppliers.

In addition, firm owners 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/accounting

skills may be especially worthwhile for firm owners operating more established businesses as there exists greater opportunity for applying the skills to reduce costs and increase efficiencies in the business. Our results show support for this hypothesis with significantly higher profits for established firms that were exposed to the finance training. In contrast, the treatment impact on firms that are not well established is insignificant both statistically and in magnitude.

Overall, our results and analysis provide new insight on the important questions of *what* is the impact of business training, *how* does it affect business outcomes, and *for whom* is it most beneficial. These results are potentially very helpful for guiding policy makers seeking to promote small firm growth in emerging market economies.

Our paper adds to the literature on business and entrepreneurship training which has so far focused mainly on general entrepreneurship, typically emphasizing finance and accounting skills. There has been considerably little focus on the specific role of marketing and sales skills in increasing top-line revenues and creating jobs.[4] As our results show, marketing training offers an important and separate channel for stimulating profitability and employment growth. From a policy perspective, apart from benefiting targeted firms directly, this growth focus has the potential to lead to positive multiplier effects in the economy.

Our work also contributes to the traditional marketing literature, which so far finds that the impact of marketing practices on firm performance exists among a cacophony of other effects, making it difficult to isolate marketing's voice in order to identify its ultimate impact (McAlister 2005; Day and Montgomery 1999). Additionally, our research focus on small firms provides evidence on a group often excluded from existing studies on the role of marketing in business and society (see Lehmann, McAlister, and Staelin 2011; Lilien 2011; Sheth 2011; Wilkie and Moore 1999; Reibstein, Day, and Wind 2009; Kotler and Levy 1969).

[4] Classroom based programs such as those studied in Bruhn and Zia (2011), Gine and Mansuri (2011), and Drexler, Fischer, and Schoar (2014) focus mainly on developing book-keeping and accounting skills, with cursory exposure to marketing skills. Other studies on consulting services for small firms, such as Bruhn, Karlan, and Schoar (2012) and Karlan, Knight, and Udry (2014) include some marketing skills in a broad consultancy package rather than studying and identifying it as a separate channel for profit growth.

One shortcoming of our paper is that the impacts are measured only for 12 months and not beyond, so we cannot study the longevity of the treatment effects. Berge, Bjorvatn, and Tungodden (2011), for instance, find that profit effects of business training in Tanzania attenuate dramatically over time, losing statistical significance after 30 months. de Mel, McKenzie, and Woodruff (2013) find similar attenuation in a sample of poor urban women in Sri Lanka. We acknowledge this shortcoming, but note that the underlying sample in our paper consists of relatively larger firms as compared to these studies. Businesses in our sample were pre-screened to meet a set of minimum standards related to their operational history and commitments to improving their business.[5] Of the businesses at baseline, 42% were run out of an independent physical structure, 42% were formally registered, the average business hired 2 employees, and the average business age was more than 5 years. In addition to the firm size advantage, the intensity and duration of the business trainings, as well as the significant intermediary effects on business practices, suggest the impacts would sustain over time.

This paper proceeds as follows. Section 2 develops the key hypotheses tested in this paper. Next, 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, Karlan, and Schoar (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

[5] Businesses were ranked on a composite scale consisting of several business attributes such as firm age, status of registration, and whether they were operating out of a physical structure; as well as individual entrepreneur attributes such as level of formal education, numeracy skills, and business aspirations. This screening has the benefit of encouraging higher take-up of the program and improving statistical precision (McKenzie and Woodruff 2014). Please see Section 3 for a more detailed discussion on the sampling procedure.

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 (2016) for small firms further explain how better business practices among firms in emerging markets can lead to productivity and efficiency gains.

But how do particular business skills and practices influence the channels through which profits and productivity are affected? Given that a business owner's attention and actions likely differ for developing and executing on marketing/sales skills compared to finance/accounting skills, we hypothesize that the pathway to profits for a small business owner 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.[6]

2.1. Growth Focus vs. Efficiency Focus

We define a growth focus for firms as the adoption of certain utilization activities, such as changing sales staff incentives, expanding a retail channel, and building new products from existing materials; and certain allocation activities, such as planning how to adjust product lines, evaluating sources of competitive differentiation, and determining when to target different customer segments with promotions. Such an emphasis on growth is closely linked with revenue expansion (Rust, Moorman, and Dickson 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 business owner the value of additional help in achieving sales goals and, thus, lead to her hiring new employees. Taken together, we argue that having a growth focus will encourage business owners 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 one builds through training in marketing and sales. Based on this logic, we provide the following hypothesis.

[6] The hypotheses proposed in this section and the corresponding analyses were initially conceptualized at the research proposal stage of this project. Please see Web Appendix 1 for the full research proposal submitted for funding prior to project implementation. Note that the credit arm of the research study, as explained in the proposal, could not be implemented due to unexpected logistical constraints related to a partner organization.

H1: Business owners with higher 'marketing' managerial capital will increase firm profits by implementing more growth focused policies and practices than other business owners.

In contrast, we define an efficiency focus for firms as 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 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 developed during finance/accounting training. Given their 'cost and control' emphasis, implementing these types of finance and accounting activities is 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.

H2: Business owners with higher 'financial' managerial capital will increase firm profits by implementing more efficiency focused policies and practices than other business owners.

2.2. Who Benefits More From Business Skills Training?

There is most likely heterogeneity in the extent to which firm owners benefit from business skills training, including individual level 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 (2016) find considerable heterogeneity in business practices based on individual and firm level outcomes such as level of human capital and firm size.

In this paper, we draw insights from the literature and theory to explicitly consider who might benefit more from marketing and/or finance training. 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 business owners 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 small business owners have rarely been exposed to novel business contexts. Thus, one factor that may lead some entrepreneurs to realize greater returns from marketing training is their (lack of) prior experience with different business contexts or markets.

We propose that having a lack of exposure can limit the extent to which a small business owner understands issues from others' viewpoints or examines familiar situations through a different lens. For example, a casual observer walking down the bustling streets of a township in Cape Town will quickly notice row upon row of very similar shops selling the same merchandise to the same set of customers – and they might ask: why not do something different? The answer, for most of these business owners, might be that they do not know what 'different' represents. That is, they have never had the opportunity to leave their current milieu for great lengths of time or for great distances to learn that their familiar surroundings (and approaches to business) are different from those experienced (and implemented) by others. Likewise, they have not had the chance to interact with people from different backgrounds and understand that preferences might vary across customer types. They have also 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 a business owner has had experience. We hypothesize it is for those with narrow exposure that marketing training has a greater impact on business profits. Marketing skills training encourages business owners to put themselves "in someone else's shoes" (e.g., customers) and look beyond their own context, inducing more open-minded inquiry about market information from multiple sources (Dyer, Gregersen, and Christensen 2009; Day and Schoemaker 2005; Day 1994). Hence, we expect marketing and sales training to help business owners with narrow exposure by encouraging them to look outside their existing business context and to develop new perspectives on managing

products, customers, competitors, distributors and suppliers, which in turn can improve 'top line' performance on sales and profits. Based on these arguments, we propose our next hypothesis.

> *H3: Business owners with higher 'marketing' managerial capital will increase firm profits to a greater extent when these owners also have narrow exposure.*

We also consider who 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, operate out of more permanent structures, or register with the government (Hsieh and Klenow 2014; Schoar 2010). These firm owners vary in the extent to which they are running established businesses and, thus, their opportunities to enhance performance by emphasizing efficiency improvements.

We define being *established* as the extent to which a business owner has been operating her current business in a more permanent manner. We hypothesize that firm owners running more established businesses experience a greater impact on profits from finance and accounting training. For one, there likely is a minimum level of sales coming 'in' to the business before the owner 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, such as by reducing quality defects, machine downtime, or inventory wastage (Bloom et al. 2013; Bruhn, Karlan, and Schoar 2012).

It is therefore likely that by developing their finance and accounting skills, individual firm owners can learn to implement policies aimed at decreasing costs and increasing efficiencies in the business, thereby improving 'bottom line' performance. Moreover, such practices will be particularly useful to firm owners operating more established businesses since they have already reached a minimum threshold in terms of sales or scale. Based on this logic, we provide our final hypothesis.

H4: Business owners with higher 'financial' managerial capital will increase firm profits to a greater extent when these owners are also operating more established firms.

3. Sample Selection and Research Design

We test the four hypotheses developed in the previous section in a sample of 852 small businesses in the Cape Town area of South Africa through a randomized control trial. 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 arm were promised (and provided) a business training course in 18 months once the study period was over, in order 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 ten 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 non-permanent 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 screening survey conducted by the RA. Through this process, 2,168 screening surveys were obtained. 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). A total of 116 observations were dropped because the businesses were non-operational and another 101 observations were dropped due to 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 screening 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 partner organization, Business Bridge, but that they had to attend a registration session in person to pick up their scholarship letter. In total, 852 small business owners attended these registration sessions and completed the baseline survey. This survey was administered in person at the registration sessions.

Randomization was done after the baseline by computer, so that any pre-treatment differences between the groups are due to pure chance. The three groups were not perfectly equal in size because we performed a stratified randomization in order to balance our sample on several variables (gender, education, firm size, and formalization status). Our partner organization, Business Bridge, also indicated a capacity constraint of 13 classes of 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 due to 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 endline survey after one year in October and November 2013.

3.2. Business Training Description

The business training intervention studied in this paper consists of two modules of the Business Bridge Program (www.thebusinessbridge.org), Making Sales (marketing) and Managing Money (finance). The Business Bridge initiative 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 Business Bridge 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 training course provided by Business Bridge introducing 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.

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 thinking about and 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). Attendance is required in at least six modules in order to obtain a Business Bridge completion certificate.

The marketing module focuses on improving entrepreneurs' marketing and sales activities. Module 1 develops an understanding of brand value, tangible vs. 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 make-up 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 module 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 non-current 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 to 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 wrap-up, as well as an emphasis on goal setting and application of concepts in one's own business.

Appendix 1 provides additional details on the content of each course.

3.3. Measurement of Outcomes

Measuring performance outcomes for small businesses in emerging markets is a major challenge since administrative data simply do not exist and recall ability and reliability vary greatly across entrepreneurs (de Mel, McKenzie, and Woodruff 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 multiple iterative processes, narrows in on more precise estimates for firm sales, costs, and profits.

The electronic surveying approach offers certain distinct 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 the precision of reported estimates, the electronic approach also reduces 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 her final

sales estimate for the prior month's total revenues. Third, after completing the cost and profit estimates (see below), 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; (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 her sales and cost estimates, the electronic survey tool presented her with a summary page, which looks like a simple income statement that listed her total sales estimate followed by each of the twelve 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 her 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. 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 over-report on revenues and under-report on costs. Indeed, the firm owners responding to this electronic survey would need to remember 100+ numbers in order 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 will show, we find significant treatment effects only at endline 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 seems to support the view that treated firms were gradually improving performance over time. Moreover, McKenzie and Woodruff (2016) conduct an audit exercise in a similar sample of small businesses in Sri Lanka who were provided business training to precisely test such over reporting, and find no significant differences and very high correlations between self-reported and auditor-recorded estimates.

3.4. Empirical Specification

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

$$Y_i = \alpha + \beta_1 \text{Finance}_i + \beta_2 \text{Marketing}_i + \sum \gamma_s d_{i.s} + \delta Y_{i,b} + \varepsilon_i \quad (1)$$

where Y_i is the outcome measure for firm *i* at either midline or endline. The variable Finance_i indicates whether a business was assigned to the finance training, while Marketing_i indicates the same for marketing training. $d_{i.s}$ 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 sixteen 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.

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 business owner background characteristics, business owner exposure, and establishment characteristics of the current business. The table shows that 45% of the sample include female business owners who are predominantly black, and 67% 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 business owners have had previous to running their current business. Business owners on average have held almost 2 salaried jobs in the past at firms with an average of 3 workers. The average sample entrepreneur has also lived outside their current state for almost 8 years and speaks more than 2 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 5 years and has more than 3 employees. Business owners 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 2 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.

Overall attendance was fairly high, with 82% of those invited to a training actually attending at least 1 out of 10 class modules. There is a slightly higher attendance rate for the marketing group (86%) compared to the finance group (77%), however these differences are not significant among participants who completed at least 6 modules, which was the minimum attendance required to receive a completion certificate. 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 trainings in the future. Finance attendees were agreeable to a slightly higher amount, $122 USD, compared to $105 USD 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 pre-test 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 strong 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) endline 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 endline, and 87% at either midline or endline.

While columns (1) and (3) do not show differential attrition across the two treatment groups compared to the control group, we do see a slightly higher attrition rate among the marketing training group at endline 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.[7]

In order 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, where we assign the baseline profit figure to endline. 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 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 survival and profits, and then differentiate between

[7] 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.

pathways to profits by analyzing sales, employees, costs, and business practices related to finance and marketing. In addition, we study heterogeneous treatment effects to test our hypotheses on who benefits more from each type of business training.

5.1. Business Survival and Profits

Table 4 present regression analysis using Equation (1) for business survival, separately for midline in column (1) and endline 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 endline. The analysis does not detect any differential effect on business survival due to either finance or marketing business training.[8]

Previous literature on the impact of business training on survival has shown very mixed results. While Mano et al. (2012) and Gine and Mansuri (2011) find small positive impacts on business survival, Valdivia (2012) reports negative impacts. Moreover, as McKenzie and Woodruff (2016) 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 where we deliberately selected firms that met a set of minimum operational criteria, as described in Section 3.1.

While business survival tends to be fairly stationary and unaffected by treatment in our sample, we detect significant and positive treatment effects on business profits for all surviving firms due to both finance and marketing trainings. These results are reported in Table 5, where columns (1) and (2) report simple recall measures for midline and endline, respectively; columns (3) and (4) present the anchored and adjusted estimates; and columns (5) and (6) report the composite measure which averages the first two measures. All estimates are winsorized on both tails at the 1% level

[8] Appendix Table 1 compares baseline characteristics among businesses that survive till endline across the two treatment and control groups to assess balance in the endline sample. The sample is still balanced on the majority of business owner and business attributes. Compared to baseline sample, the endline sample has a slight imbalance on the race and origin of business owner, but the magnitudes of differences are small and the averages are not very different from the baseline sample. In addition, there is a small significant difference (at 10% level) in registration status when comparing the finance group to the marketing group, 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).

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, though 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 very strongly positive and highly statistically significant treatment effects at endline. 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 endline, compared to 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.[9] Figure 1 plots the cumulative density functions for both finance and marketing training groups compared to the control group and shows a rightward shift for both treatment groups.

These are fairly large effects, both in terms of statistical and economic significance, and represent a departure from previous literature where many studies simply do not collect profit data or where it is collected with substantial noise (see McKenzie and Woodruff 2014 and 2016 for literature reviews and discussion). Other studies where profit results are shown find smaller treatment impacts that attenuate over time (Berge, Bjorvatn, and Tungodden 2011; de Mel, McKenzie, and Woodruff 2013). While we do not have survey data beyond 12 months, the comparison of midline results with endline analysis finds that in fact profitability improves over a longer reporting period. Nevertheless, as mentioned in the Introduction, we acknowledge that our study did not collect longer term data to examine the persistence of these profit effects.

[9] As an additional specification, 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.

One final analysis with business profits is presented in Appendix Table 3, where 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 (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 strong and 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)-(10) 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), costs (Table 8), and the adoption of business practices related to finance (Table 9) and marketing (Table 10). We find strong 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.

First, Table 6 reports on business sales. Compared to 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 0.09 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 to finance training. Figure 2 plots the cumulative density functions for both finance and marketing training groups compared to the control group and shows a larger rightward shift for the marketing training group.

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, McKenzie, and Woodruff 2010). The fact that acquiring appropriate business skills can put firms on a path to growth is highly 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 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 highly significant and strongly 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. Appendix Table 4 breaks down the costs into sub categories 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 to the finance group, and the difference is statistically significant (p-value of 0.082). 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.

Columns (3) and (4) of Table 8 analyze the output-input ratio across the three groups, which is a measure of efficiency that compares revenues on the output side with capital investments and expenditures on stock and materials on the input side. The coefficient for the finance group on this measure is more than five times larger than the coefficient for the marketing group, and is statistically significant at the 5% level. Moreover, the effect size for the finance group represents a 0.7 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 Appendix Tables 5 and 6, report treatment impacts on business practices, separately for finance and marketing practices. The measures of business practices used in the analysis are fairly comprehensive and similar to those presented in McKenzie and Woodruff (2016).

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 13 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 48% improvement or a 0.43 standard deviation improvement over the control group. The improvement for the marketing group is also positive and statistically significant but the coefficient size is about half that of the finance group. For tracking finances, we can statistically

reject that the treatment coefficients for finance and marketing training are the same (p-value of 0.009), whereas the difference is close to being significant at conventional levels for the aggregate score (p-value of 0.132).

When examining individual finance practice questions in Appendix Tables 5a, 5b, and 5c, the analysis finds that compared to the control group, businesses exposed to finance training are significantly more likely to separate business and personal finances, create and track business records, record assets and 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 and to check sales growth, identify fixed and variable costs, and examine working capital needs. Likewise, in terms of planning finances, these businesses are significantly more likely to adopt the practices of making a business budget, analyze spending against the budget, make an income statement, and using these records to assess 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 a 12 percentage point improvement over the control group, representing a 25% or 0.54 standard deviation increase. Both the aggregate score and market research score are significantly higher than the finance group as well (p-values of 0.022 and 0.006, respectively).

Analysis of individual marketing practices in Appendix Tables 6a, 6b, and 6c shows that compared to the control group, businesses exposed to marketing training are significantly more likely to discuss products with suppliers, discuss preferences with customers, 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 invest in advertising. 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, rank products based on purchasing criteria, and evaluate sales satisfaction.

Overall, 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. Which Business Training and for Whom?

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. Business exposure and establishment are composite variables that were constructed based on questions in the baseline survey. The full set of these questions and their summary statistics are reported in Table 1 and discussed in Section 4.1.

Table 11 presents the regression results. Columns (1) and (2) present heterogeneous treatment effects based on business establishment, and Columns (3) and (4) present results based on business exposure. The results 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 strongly 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.

In line with an efficiency focus explanation, these results show that small firm owners 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 who have reached a minimum threshold in terms of scale, and so the finance and accounting skills developed by the owner can actually be put into practice to reduce costs and increase efficiencies in the business, thereby increasing profits and improving bottom line performance.

In terms of business exposure, Column (4) of Table 11 shows that firms with narrow exposure benefit disproportionately more than those who are already highly exposed at baseline. Specifically, the treatment effect for firms with narrow exposure represents a 123% increase in

business profits over the control group or a 0.63 standard deviation improvement. In contrast, the highly 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 0.29). 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 to the marketing training (p-value of difference is 0.09).

Hence, consistent with a growth focus explanation, we find that small business owners who have 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 business context and develop new perspectives on products, customers, distributors and suppliers which, in turn, assists with expanding sales and improving top line performance.

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 screening survey; other characteristics such as whether they operated out of a physical structure, education level of the owner, 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 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 small business owners in South Africa.

The comparisons in Panel A show that while race and origin of business owners 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 vs. 55% female owned in FinScope), run by slightly younger

entrepreneurs (mean age of 38 in our sample vs. 41 in FinScope), and led by better educated individuals (67% have at least matriculated in our sample vs. 42% in Finscope). In addition, these businesses are more likely to be formally registered (42% in our sample vs. 21% in Finscope) and hire more employees (2.4 employees in our sample vs. 1.24 in Finscope). Access to formal business credit is also different but notably low in both samples (6% in our sample vs. 4% in Finscope).

In Panel B of Appendix Table 7, we repeat the comparison but restrict the Finscope sample to those with above median number of employees (i.e., at least one employee) to roughly align the Finscope firms to our sample.[10] While significant differences are still present on some margins, the two samples are more similar on some key characteristics such as the gender of business owner, 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 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. 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 sub-district. Hence, the businesses in our study are not an unusual sample concentrated in one particular geographic area, but rather firms like 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. Appendix Figures 2a and 2b zoom in on two street level locations and show that businesses in our sample

[10] 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.

are, in fact, physically separated by quite some distance.[11] 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 highly 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 ten 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 highly unlikely that treatment effects among the small number of firms in our sample, spread across sixteen 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 eighteen months, which is the timeline they were provided, and for a small business owner 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

[11] These zoom in locations were chosen at random. A fully interactive map of our study sample can be found here: https://www.mapcustomizer.com/map/Map%20Three%20Colors. 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.

focus of this paper is on relative outcome differences between the finance and marketing treatment groups, both of which were compared to the same control group.

6. Conclusion

This paper develops and studies four distinct hypotheses on pathways to profits for small businesses exposed to finance and marketing training in South Africa. Through a randomized control study of 852 firms, the analysis finds significant improvements in profitability from both types of business training interventions. However, the pathways to achieve these gains differ substantially between the two groups. 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.

To test further hypotheses on benefits of each type of training, the analysis shows that marketing and sales training is significantly more beneficial to firms that ex-ante have less exposure to different business 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 and policy makers. In terms of practice, for multinationals a better understanding of the pathways to profitability and the heterogeneity in managerial capital across small businesses can enhance the success of market expansion and customer segmentation strategies. 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 promote business skills training in emerging markets. The World Bank alone invests almost $1 billion per year on skills training programs (Twose 2015), yet the evidence on their effectiveness lags far behind the policy and funding interest. “Vast armies” (de Mel, McKenzie, and Woodruff 2010) of micro businesses continue to populate the poor parts of the world, and very few appear to grow to a level that allows

them to scale up and escape poverty. Our findings show that managerial capital, delivered comprehensively and addressing the appropriate constraints, represents an intangible asset that can help in that cause, and represents business value that is developed, owned, and implemented by an individual business owner. Specifically, our findings on pathways to profits highlight the fact that different types of businesses may benefit from different types of skills training, which can help shape and target future programs.

Finally, there is the issue of program costs and benefits. The cost of delivering the business training in our study was approximately 3,880 Rand ($450 USD) per participant for either training program. Considering the monthly profit improvements reported in this paper, it would take the finance group 1.4 months and the marketing group less than one month to recoup the cost of their respective training. Hence, the returns to training appear to be highly 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, Mullainathan, and Schwartzstein (2014) propose that learning failures may stem not from lack of data, but rather from insufficient attention to available data.

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.

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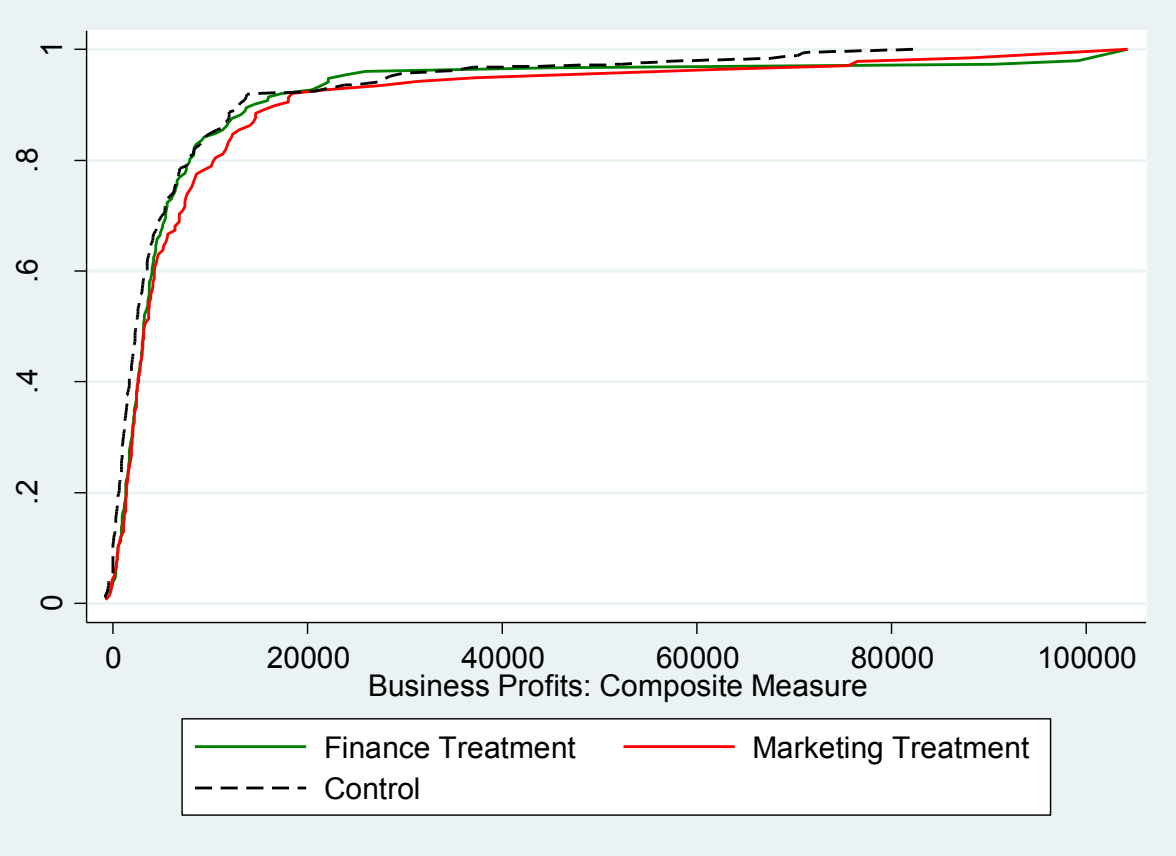
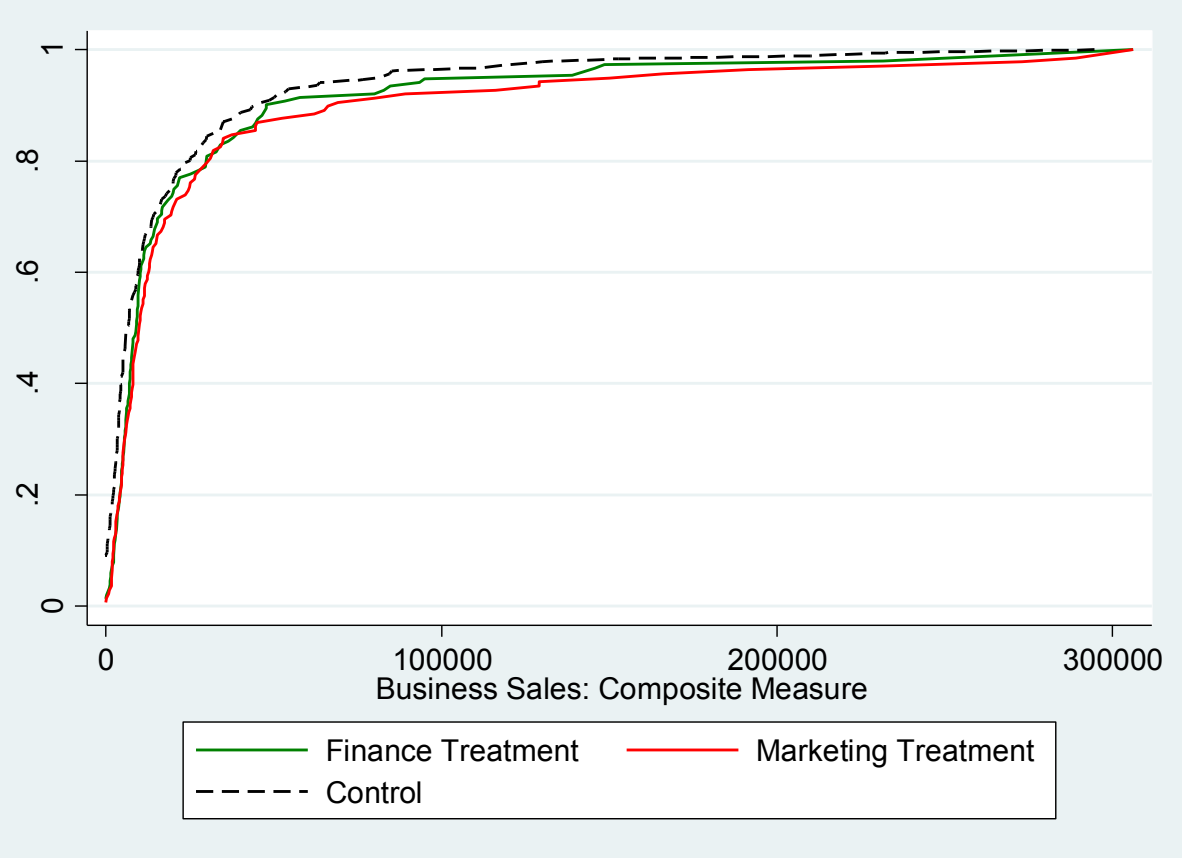
Figure 1: Cumulative Density Function: Business Profits



This figure plots the cdfs for business profits at endline 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.

Figure 2: Cumulative Density Function: Business Sales



This figure plots the cdfs for business sales at endline for businesses in the finance and marketing treatment groups, as well as businesses in the control group. The composite measure of business sales is the average of the simple recall measure and the anchored and adjusted measure.

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	38.14	38.11	37.90	0.974	0.772	0.795
	(9.82)						
Number of Children	1.94	1.97	1.97	1.91	0.997	0.647	0.651
	(1.62)						
Business Owner Exposure:							
# of Previous Salaried Jobs	1.67	1.62	1.74	1.67	0.539	0.798	0.698
	(1.93)						
# of Employees at Longest-Held Salaried Job	2.99	3.15	2.98	2.86	0.559	0.278	0.656
	(2.78)						
# of Products at Company where Longest-Held Salaried Job	1.92	1.92	1.98	1.88	0.801	0.861	0.663
	(2.21)						
# of Years Lived Outside Current State/Province	7.52	8.09	6.82	7.62	0.292	0.669	0.48
	(11.44)						
# of Languages Spoken Fluently	2.67	2.79	2.66	2.57	0.455	0.144	0.532
	(1.52)						
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	5.67	4.70	4.86	0.046 **	0.079 *	0.692
	(5.35)						
Number of Employees	2.40	2.52	2.40	2.30	0.717	0.487	0.743
	(3.74)						
Hours per Week Spent on Business	53.17	52.56	53.19	53.66	0.691	0.465	0.753
	(17.97)						
Accessed Formal Business Credit in Last Year	0.06	0.06	0.07	0.06	0.521	0.999	0.5
Sales Last Month	16541.42	17913.29	15389.1	16371.2	0.304	0.528	0.646
	(27865.14)						
Startup Capital Invested	31845.64	20541.32	51631.16	24455.95	0.118	0.688	0.175
	(203436.60)						

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. Statistically significant p-values are highlighted by: * (10% significance level), and ** (5% significance level).

Table 2: Business Training Attendance and Feedback

	(1) All Training	(2) Finance Training (A)	(3) Marketing Training (B)	(4) 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	1041.32	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 Pre-Test (Out of 16)	6.3	6.41	6.21	0.519
	(3.06)			
Score on Finance Post-Test (Out of 16)	7.42	8.12	6.8	0.000 ***
	(2.90)			
Score on Marketing Pre-Test (Out of 16)	3.59	3.38	3.76	0.152
	(2.59)			
Score on Marketing Post-Test (Out of 16)	7.65	6.98	8.25	0.001 ***
	(3.71)			

This table presents summary statistics for attendance, feedback, and evaluation of business training. Columns (2) and (3) present averag e values by treatment status and column (4) presents p-values for equality of means tests between the two treatment groups. Statistically significant p -values are highlighted by: * (10% significance level), and ** (5% significance level).

Table 3: Attrition Analysis

	(1)	(2)	(3)
	Present in Midline Survey	Present in Endline 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

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. Statistically significant coefficients are highlighted by: ** (5% significance level).

Table 4: Business Survivorship

	(1)	(2)
	Operational at Midline Survey	Operational at Endline 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

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	Endline	Midline	Endline	Midline	Endline	Midline	Endline
Assigned to Finance Training (A)	--	2577.321**	1647.280*	2835.735**	1647.280*	2706.528**	-0.035	0.895**
		(1237.428)	(966.666)	(1404.372)	(966.666)	(1239.376)	(0.379)	(0.377)
Assigned to Marketing Training (B)	--	4637.880***	1469.458*	3432.613**	1469.458*	4035.247***	0.412	1.040**
		(1597.052)	(853.535)	(1619.281)	(853.535)	(1488.821)	(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		5369.495	6143.161	7846.996	6143.161	6608.245	7.848	7.452
Std Dev of Dependent Variable in Control Group		11625.495	10365.689	16076.829	10365.689	12867.043	3.883	4.053
Test: A-B = 0 (p-value)		0.194	0.865	0.710	0.865	0.375	0.230	0.728

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 which were estimated by going through detailed steps of calculating sales and costs with the re spondent, 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 measure s. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 6: Business Sales

	(1)	(2)	(3)	(4)	(5)	(6)
	Business Sales: Simple Recall		Business Sales : Anchored and Adjusted		Business Sales: Composite Measure	
	Midline	Endline	Midline	Endline	Midline	Endline
Assigned to Finance Training (A)	1162.863	4834.887	802.564	5333.951*	786.963	4869.309
	(2761.285)	(3302.379)	(2128.599)	(3226.759)	(2170.043)	(3063.636)
Assigned to Marketing Training (B)	1531.589	11284.401**	3714.357*	13421.336***	2665.645	12393.655***
	(2607.805)	(4605.771)	(2014.429)	(5021.810)	(2118.170)	(4572.990)
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	19079.797	17200.435	20229.571	21268.700	19654.684	19234.568
Std Dev of Dependent Variable in Control Group	34625.901	37220.671	32852.959	40044.510	32130.592	37882.218
Test: A-B = 0 (p-value)	0.899	0.123	0.196	0.093	0.427	0.075

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 which 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, 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

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	Endline	Midline	Endline	Midline	Endline
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

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, 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 8: Business Costs

	(1)	(2)	(3)	(4)
	Total Business Costs		Output-Input Ratio	
	Midline	Endline	Midline	Endline
Assigned to Finance Training (A)	-1638.702	2279.877	-5.566	8.298**
	(1723.619)	(2449.147)	(8.038)	(4.158)
Assigned to Marketing Training (B)	1734.663	8814.428**	-8.055	1.609
	(1613.768)	(3749.653)	(8.272)	(1.898)
Baseline Dependent Variable, Other Controls, and Industry Dummies	YES	YES	YES	YES
R-squared	0.627	0.497	0.059	0.116
Sample Size	588	476	588	476
Mean of Dependent Variable in Control Group	13931.308	13432.953	17.573	6.918
Std Dev of Dependent Variable in Control Group	24521.129	26532.027	123.925	12.100
Test: A-B = 0 (p-value)	0.042	0.064	0.405	0.142

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 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. Both numerator and denominator values are winsorized on both tails at the 1% level. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

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)	0.151***	0.116***	0.123***	0.130***
	(0.037)	(0.040)	(0.038)	(0.034)
Assigned to Marketing Training (B)	0.041	0.069*	0.109***	0.073**
	(0.038)	(0.041)	(0.038)	(0.035)
Baseline Controls and Industry Dummies	YES	YES	YES	YES
R-squared	0.272	0.209	0.271	0.288
Sample Size	439	439	439	439
Mean of Dependent Variable in Control Group	0.305	0.309	0.192	0.269
Std Dev of Dependent Variable in Control Group	0.340	0.350	0.322	0.305
Test: A-B = 0 (p-value)	0.009	0.283	0.751	0.132

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 fifteen finance practices. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

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)	0.050	0.050*	0.078***	0.059**
	(0.033)	(0.030)	(0.030)	(0.024)
Assigned to Marketing Training (B)	0.149***	0.093***	0.122***	0.122***
	(0.033)	(0.031)	(0.030)	(0.024)
Baseline Controls and Industry Dummies	YES	YES	YES	YES
R-squared	0.169	0.235	0.126	0.210
Sample Size	439	439	439	439
Mean of Dependent Variable in Control Group	0.495	0.404	0.584	0.494
Std Dev of Dependent Variable in Control Group	0.276	0.281	0.277	0.227
Test: A-B = 0 (p-value)	0.006	0.200	0.155	0.022

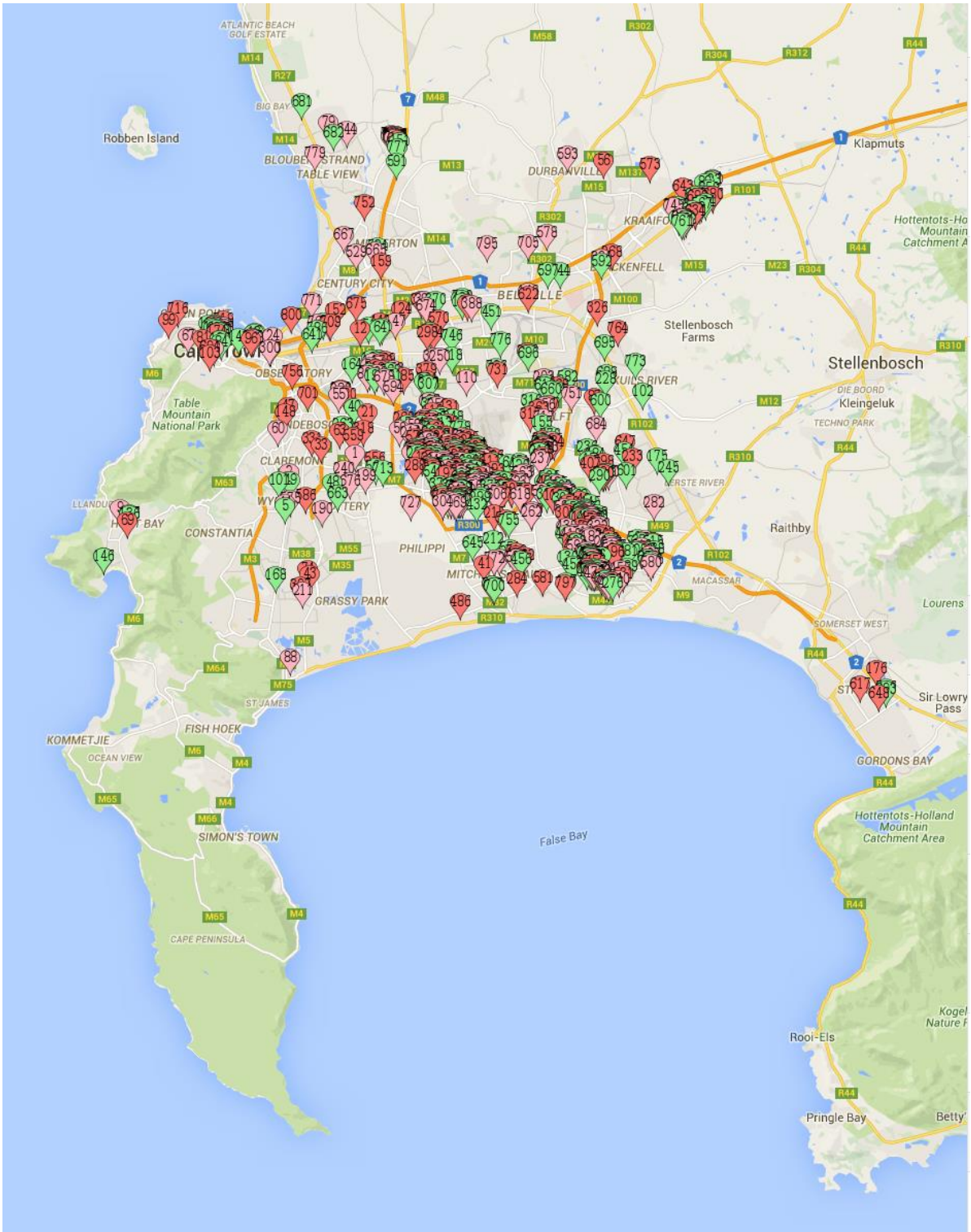
This table presents analysis for business practices related to marketing. Each of the three aggregate scores in Columns (1)-(3) are made up of five individual practices. the full composite score in Column (4) is aggregated over the complete set of fifteen finance practices. Appendix Table 2 presents 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Table 11: Heterogeneous Effects on Business Profits

	(1)	(2)	(3)	(4)
	Business Profits: Composite Measure		Business Profits: Composite Measure	
	Midline	Endline	Midline	Endline
Assigned to Finance Training (A)	404.01	69.16	65.45	3524.39**
	(893.69)	(1143.92)	(1684.95)	(1707.31)
Assigned to Marketing Training (B)	523.38	2920.69	539.49	8102.96***
	(848.51)	(2179.56)	(1876.94)	(2689.02)
Above Median Established * Finance Training	2084.11	4453.22*		
	(1739.47)	(2340.54)		
Above Median Established * Marketing Training	1658.26	2003.22		
	(1551.75)	(2884.65)		
Above Median Exposure * Finance Training			1886.69	-1288.90
			(2281.20)	(2473.37)
Above Median Exposure * Marketing Training			520.85	-6201.53*
			(2309.09)	(3264.43)
Baseline Controls and Industry Dummies	YES	YES	YES	YES
R-squared	0.36	0.47	0.39	0.47
Sample Size	588	476	477	476
Mean of Dependent Variable in Control Group	6143.16	6608.25	6143.16	6608.25
Std Dev of Dependent Variable in Control Group	10365.69	12867.04	10365.69	12867.04
Test: A-B = 0 (p-value)	0.88	0.18	0.80	0.09
Test: A + Interaction = 0 (p-value)	0.09	0.02	0.15	0.19
Test: B + Interaction = 0 (p-value)	0.09	0.01	0.29	0.29

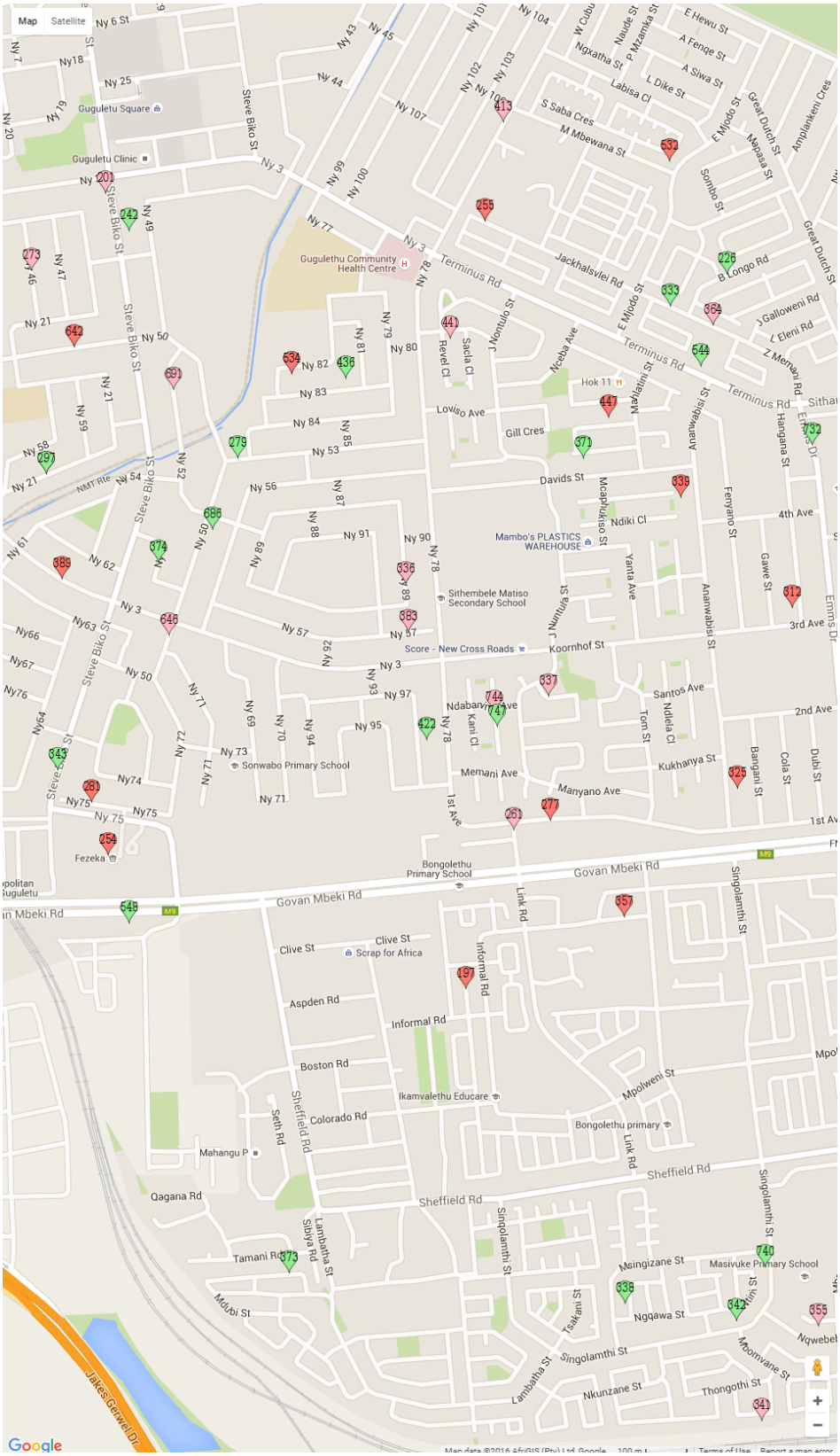
This table presents heterogeneous analysis for business profits. Columns (1) and (2) present heterogeneous regressions by business establishment, with an interaction with "Above Median Established", which is a binary variable equal to 1 if the firm was above median in a measure of business establishment at baseline. Columns (3) and (4) present heterogeneous regressions by business exposure, with an interaction with "Above Median Exposure", which is a binary variable equal to 1 if the firm was above median in a measure of sales and marketing exposure at baseline. All regressions in clude 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Figure 1: GPS Location of Businesses in Study Sample

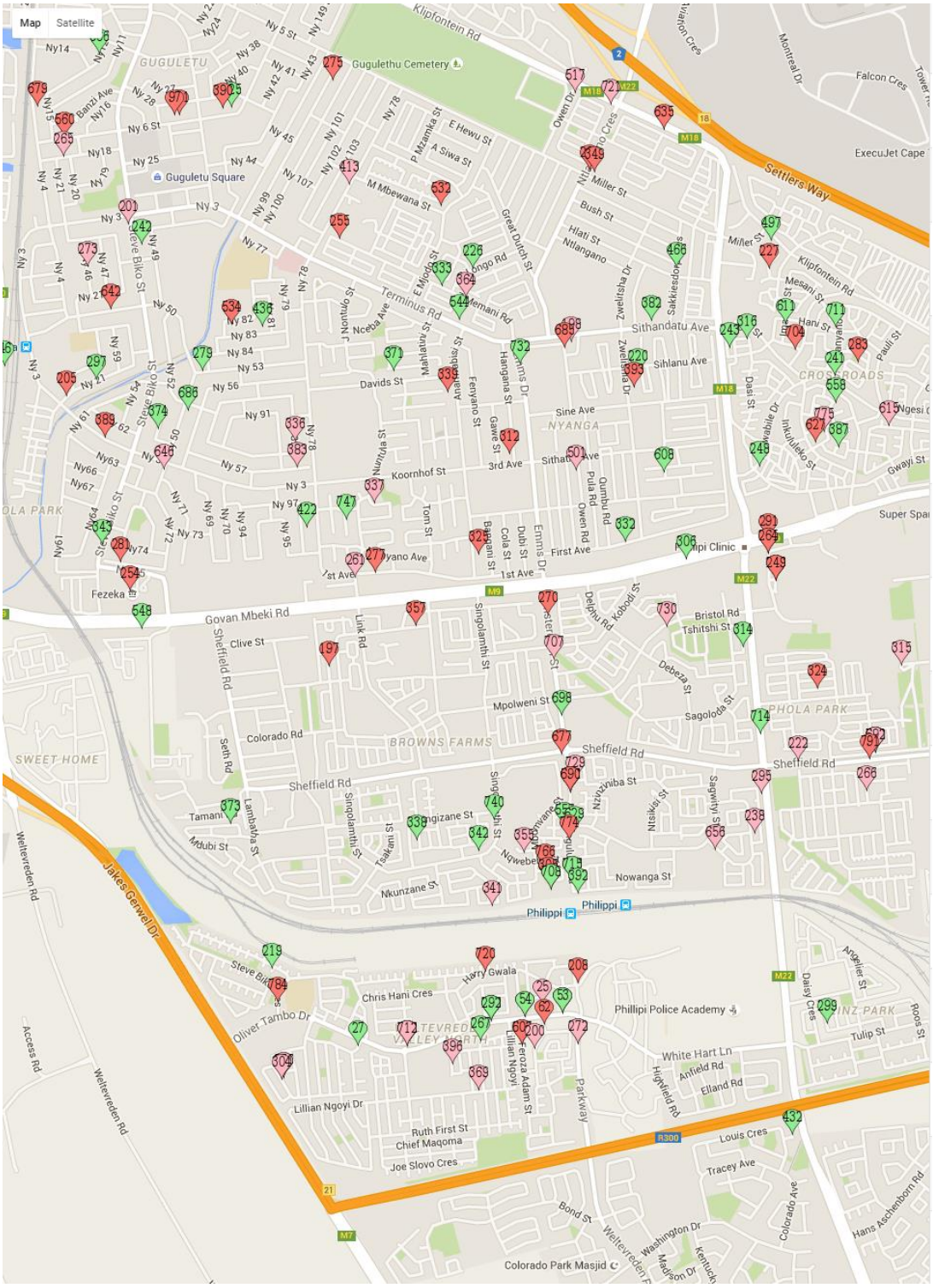


This figure plots the GPS based location of businesses in the study sample. Each pin on the map represents a separate business. Pink pins represent businesses in the finance treatment and red pins represent those in the marketing treatment. Green pins represent businesses in the control group. A fully interactive map of the study sample can be found here: https://www.mapcustomizer.com/map/Map%20Three%20Colors.

Appendix Figure 2a: Zoom in Location of Sample Businesses



Appendix Figure 2b: Alternate Zoom in Location of Sample Businesses



These figures zoom in on two randomly selected locations in the study area. Each pin on the map represents a separate business. 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. A fully interactive map of the study sample can be found here: https://www.mapcustomizer.com/map/Map%20Three%20Colors.

Appendix Table 1: Summary Statistics and Tests of Randomization for Businesses that Survive till Endline

	(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 = 611	*N = 188*	*N = 184*	*N = 239*			
Business Owner Background:							
Female	0.46	0.46	0.43	0.47	0.661	0.753	0.438
Race: Black or Colored	0.87	0.85	0.83	0.90	0.607	0.096 *	0.027 **
Origin: Foreigner	0.12	0.13	0.15	0.09	0.497	0.185	0.041 **
Matriculated or Higher Education	0.62	0.64	0.60	0.62	0.423	0.546	0.806
Age	38.55	38.70	38.83	38.22	0.900	0.626	0.533
	(10.04)						
Number of Children	2.00	2.10	1.92	1.97	0.295	0.392	0.782
	(1.60)						
Business Owner Exposure:							
# of Previous Salaried Jobs	1.67	1.62	1.74	1.67	0.539	0.798	0.698
	(1.93)						
# of Employees at Longest-Held Salaried Job	2.99	3.15	2.98	2.86	0.559	0.278	0.656
	(2.78)						
# of Products at Company where Longest-Held Salaried Job	1.92	1.92	1.98	1.88	0.801	0.861	0.663
	(2.21)						
# of Years Lived Outside Current State/Province	7.52	8.09	6.82	7.62	0.292	0.669	0.48
	(11.44)						
# of Languages Spoken Fluently	2.67	2.79	2.66	2.57	0.455	0.144	0.532
	(1.52)						
Business Establishment:							
Business is Formally Registered	0.40	0.35	0.44	0.40	0.062 *	0.237	0.427
Business has Independent Store or Physical Structure	0.43	0.46	0.46	0.38	0.931	0.132	0.112
Age of Business in Years	5.33	6.09	4.80	5.13	0.038 **	0.095 *	0.514
	(5.70)						
Number of Employees	2.25	2.33	2.30	2.14	0.936	0.562	0.623
	(3.27)						
Hours per Week Spent on Business	53.86	53.89	53.89	53.82	0.999	0.969	0.968
	(18.18)						
Accessed Formal Business Credit in Last Year	0.06	0.05	0.09	0.05	0.203	0.957	0.19
Sales Last Month	16780.73	18012.58	15366.53	16900.49	0.413	0.723	0.583
	(30567.93)						
Startup Capital Invested	24794.83	18110.86	32569.13	24067.28	0.460	0.642	0.682
	(179743.91)						

This table presents baseline summary statistics for business owners and their businesses that survive till the endline survey. Columns (2)-(4) present average values by treatment status and subsequent columns present p-values for equality of means tests across treatments. Statistically significant p-values are highlighted by: * (10% significance level), and ** (5% significance level).

Appendix Table 2: Quantile Regressions for Business Profits

	(1)	(2)
	Business Profits: Composite Measure	
	Midline	Endline
1st Decile:		
Assigned to Finance Training (A)	46.884	319.493
	(374.796)	(341.583)
Assigned to Marketing Training (B)	573.952	585.052*
	(348.387)	(330.049)
2nd Decile:		
Assigned to Finance Training (A)	-141.685	697.203**
	(319.047)	(344.958)
Assigned to Marketing Training (B)	281.088	759.309**
	(309.889)	(359.421)
3rd Decile:		
Assigned to Finance Training (A)	-35.868	626.860*
	(340.842)	(376.427)
Assigned to Marketing Training (B)	510.041	881.546**
	(340.430)	(413.799)
4th Decile:		
Assigned to Finance Training (A)	10.916	1027.599**
	(406.381)	(426.869)
Assigned to Marketing Training (B)	523.850	971.825**
	(391.699)	(465.629)
5th Decile:		
Assigned to Finance Training (A)	1.806	1566.057***
	(461.790)	(479.427)
Assigned to Marketing Training (B)	941.404**	1424.396***
	(425.943)	(516.409)
6th Decile:		
Assigned to Finance Training (A)	-44.876	1686.085***
	(606.473)	(540.227)
Assigned to Marketing Training (B)	896.137*	1620.277**
	(533.498)	(654.205)
7th Decile:		
Assigned to Finance Training (A)	566.035	970.861
	(716.090)	(668.425)
Assigned to Marketing Training (B)	833.793	1600.446**
	(606.571)	(760.289)
8th Decile:		
Assigned to Finance Training (A)	1354.373	1005.267
	(900.209)	(934.747)
Assigned to Marketing Training (B)	1432.262**	2166.685**
	(727.800)	(923.386)
9th Decile:		
Assigned to Finance Training (A)	1278.866	1744.486
	(1338.823)	(1417.943)
Assigned to Marketing Training (B)	1163.109	2581.765*
	(1083.050)	(1532.983)
10th Decile:		
Assigned to Finance Training (A)	544.638	214.829
	(406.710)	(356.280)
Assigned to Marketing Training (B)	286.272	460.340
	(401.317)	(314.461)
Baseline Dependent Variable, Other Controls, and Industry Dummies	YES	YES
Sample Size	588	476
Dependent Variable Mean in Control Group	6143.161	6608.245
Dependent Variable Standard Deviation in Control Group	10365.689	12867.043

This table presents quantile regression results for business 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. The output presents treatment effects for each decile. Standard errors in parentheses are bootstrapped with 1,000 replications. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 3: Bounding Exercises for Business Profits

	(1)	(2)	(3)
	Bounding 1: Profit Growth = Control Group Profit Growth for all Attriters	Bounding 2: Profit Growth = 0 for all Attriters	Bounding 3: Profit Growth = 0 if Treatment Attriter; Profit Growth = Control Group Growth if Control Attriter
Assigned to Finance Training (A)	1945.301**	1931.597**	1854.676**
	(856.212)	(858.217)	(857.770)
Assigned to Marketing Training (B)	2698.672***	2674.666***	2596.444***
	(999.346)	(996.924)	(997.143)
Baseline Dependent Variable, Other Controls, and Industry Dummies	YES	YES	YES
R-squared	0.468	0.463	0.464
Sample Size	717	717	717
Mean of Dependent Variable in Control Group	6282.882	6204.663	6282.882
Std Dev of Dependent Variable in Control Group	11578.783	11515.333	11578.783
Test: A-B = 0 (p-value)	0.466	0.472	0.473

This table presents analysis for three different bounding exercises for endline business profits as robustness for differential attrition. Column (1) assigns the average profit growth of the control group to all attriters; Columns (2) assigns a profit growth rate of zero to all attriters; and column (3) assigns all attriters in the control group the average profit growth of the control group and all attriters in the treatment group a profit growth rate of zero. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 4: Individual Business Costs

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(7)	(8)
	Stock and Material Costs		Wages and Salaries		Rent, Energy, and Transport Costs		Business Services and Fees		Business Loan Repayments	
	Midline	Endline	Midline	Endline	Midline	Endline	Midline	Endline	Midline	Endline
Assigned to Finance Training (A)	-1313.561	2404.719	-97.089	526.278	-320.149	-302.953	-157.068	114.567	154.743	245.116*
	(1779.199)	(1754.440)	(862.425)	(754.260)	(287.118)	(607.961)	(187.578)	(312.127)	(148.821)	(136.936)
Assigned to Marketing Training (B)	1890.073	6796.854**	2672.347	2418.420*	-436.956	62.806	-128.547	1221.754	8.134	217.180
	(1486.314)	(3146.390)	(2336.069)	(1324.327)	(267.203)	(502.689)	(166.803)	(1500.702)	(88.272)	(240.007)
Baseline Dependent Variable, Other Controls, and Industry Dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R-squared	0.292	0.578	0.297	0.517	0.452	0.322	0.315	0.074	0.241	0.139
Sample Size	588	476	588	476	588	476	588	476	588	476
Mean of Dependent Variable in Control Group	6993.345	6771.774	3546.641	3568.573	2292.456	2096.949	1123.261	846.869	297.775	106.438
Std Dev of Dependent Variable in Control Group	18867.096	15653.582	8483.841	9333.895	3941.134	6237.101	2229.810	2017.430	1585.503	505.285
Test: A-B = 0 (p-value)	0.037	0.153	0.310	0.082	0.671	0.401	0.865	0.454	0.316	0.884

This table presents analysis for individual business costs. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 5a: Individual Finance Business Practices - Tracking Finances

	(1)	(2)	(3)	(4)	(5)
	Separated Business and Personal Finances	Created and Tracked Business Records	Recorded Total Assets	Recorded Total Liabilities	Recorded All Money In and Out
Assigned to Finance Training (A)	0.095*	0.189***	0.147***	0.111**	0.214***
	(0.055)	(0.054)	(0.054)	(0.052)	(0.054)
Assigned to Marketing Training (B)	0.022	0.061	0.049	0.022	0.053
	(0.056)	(0.054)	(0.051)	(0.049)	(0.056)
Baseline Controls and Industry Dummies	YES	YES	YES	YES	YES
R-squared	0.186	0.203	0.164	0.175	0.201
Sample Size	439	439	439	439	439
Mean of Dependent Variable in Control Group	0.392	0.287	0.234	0.216	0.398
Test: A-B = 0 (p-value)	0.219	0.034	0.087	0.109	0.009

This table presents analysis for business practices related to finance. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 5b: Individual Finance Business Practices - Analzying Finances

	(1)	(2)	(3)	(4)	(5)
	Used Records to Assess Available Cash	Used Records to Check Sales Growth	Identified Fixed and Variable Costs	Compared Performance Against Targets	Examined Working Capital of Business
Assigned to Finance Training (A)	0.170***	0.126**	0.124**	0.035	0.127**
	(0.054)	(0.054)	(0.055)	(0.057)	(0.056)
Assigned to Marketing Training (B)	0.119**	0.141**	-0.003	0.004	0.085
	(0.055)	(0.055)	(0.054)	(0.056)	(0.057)
Baseline Controls and Industry Dummies	YES	YES	YES	YES	YES
R-squared	0.195	0.146	0.157	0.124	0.162
Sample Size	439	439	439	439	439
Mean of Dependent Variable in Control Group	0.269	0.263	0.322	0.351	0.339
Test: A-B = 0 (p-value)	0.401	0.795	0.028	0.601	0.478

This table presents analysis for business practices related to finance. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 5c: Individual Finance Business Practices - Planning Finances

	(1)	(2)	(3)	(4)	(5)
	Made a Business Budget	Analyzed Spending Against Budget	Made an Income Statement	Made a Balance Sheet	Used Records to Assess Affordability of Loan or Investment
Assigned to Finance Training (A)	0.144***	0.143***	0.099**	0.054	0.176***
	(0.053)	(0.051)	(0.047)	(0.041)	(0.049)
Assigned to Marketing Training (B)	0.132**	0.141***	0.049	0.096**	0.130***
	(0.055)	(0.053)	(0.046)	(0.043)	(0.050)
Baseline Controls and Industry Dummies	YES	YES	YES	YES	YES
R-squared	0.194	0.169	0.221	0.223	0.221
Sample Size	439	439	439	439	439
Mean of Dependent Variable in Control Group	0.263	0.199	0.181	0.146	0.170
Test: A-B = 0 (p-value)	0.846	0.975	0.336	0.379	0.408

This table presents analysis for business practices related to finance. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 6a: Individual Marketing Business Practices - Market Research

	(1)	(2)	(3)	(4)	(5)
	Observed a Competitor	Discussed Products with a Supplier	Discussed Preferences with a Customer	Asked a Former Customer for Feedback	Researched the Needs of Customers
Assigned to Finance Training (A)	0.035	0.119**	0.021	-0.007	0.081
	(0.054)	(0.054)	(0.054)	(0.059)	(0.058)
Assigned to Marketing Training (B)	0.043	0.203***	0.155***	0.160***	0.183***
	(0.053)	(0.057)	(0.051)	(0.059)	(0.059)
Baseline Controls and Industry Dummies	YES	YES	YES	YES	YES
R-squared	0.120	0.167	0.128	0.105	0.104
Sample Size	439	439	439	439	439
Mean of Dependent Variable in Control Group	0.649	0.327	0.655	0.415	0.427
Test: A-B = 0 (p-value)	0.891	0.173	0.012	0.007	0.099

This table presents analysis for business practices related to marketing. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 6b: Individual Marketing Business Practices - Marketing Tactics

	(1)	(2)	(3)	(4)	(5)
	Improved Quality or Design of a Product/Service	Advertised Business in Any Form	Opened a New Distribution Channel	Changed Pricing of a Product/Service	Developed a New Product/Service to Create Value
Assigned to Finance Training (A)	0.111**	0.049	0.031	0.005	0.052
	(0.053)	(0.054)	(0.048)	(0.057)	(0.057)
Assigned to Marketing Training (B)	0.135**	0.115**	0.039	0.083	0.093
	(0.055)	(0.058)	(0.048)	(0.056)	(0.059)
Baseline Controls and Industry Dummies	YES	YES	YES	YES	YES
R-squared	0.185	0.138	0.120	0.162	0.136
Sample Size	439	439	439	439	439
Mean of Dependent Variable in Control Group	0.532	0.357	0.187	0.485	0.456
Test: A-B = 0 (p-value)	0.668	0.272	0.881	0.209	0.514

This table presents analysis for business practices related to marketing. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 6c: Individual Marketing Business Practices - Sales Tactics

	(1)	(2)	(3)	(4)	(5)
	Analyzed Own Business Capabilities	Offered Advice to Customers on Suitable Products/Services	Matched Body Language, Voice, and Expressions of a Customer	Ranked Products/Services Based on Customer Purchasing Criteria	Contacted Customer After Sale to Evaluate Satisfaction
Assigned to Finance Training (A)	0.124**	0.102**	0.005	0.088	0.069
	(0.052)	(0.043)	(0.050)	(0.059)	(0.053)
Assigned to Marketing Training (B)	0.140***	0.129***	0.093**	0.152***	0.098*
	(0.052)	(0.041)	(0.047)	(0.057)	(0.053)
Baseline Controls and Industry Dummies	YES	YES	YES	YES	YES
R-squared	0.129	0.119	0.072	0.094	0.086
Sample Size	439	439	439	439	439
Mean of Dependent Variable in Control Group	0.222	0.760	0.749	0.520	0.667
Test: A-B = 0 (p-value)	0.786	0.500	0.079	0.299	0.599

This table presents analysis for business practices related to marketing. 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. Statistically significant p-values are highlighted by: * (10% significance level), ** (5% significance level), and *** (1% significance level).

Appendix Table 7: Sample Comparison with 2010 FinScope Survey

	(1)	(2)	(3)
	Our Study	FinScope Study	P-value of Difference in Means
Panel A: Comparison with All FinScope Businesses	*N = 852*	*N = 5676*	
Female	0.45	0.55	0.00 ***
Race: Black or Colored	0.87	0.87	0.79
Origin: Foreigner	0.12	0.12	0.74
Matriculated or Higher Education	0.67	0.42	0.00 ***
Age	38.04	41.06	0.00 ***
Business is Formally Registered	0.42	0.21	0.00 ***
Age of Business in Years	5.06	5.50	0.02 **
Number of Employees	2.40	1.24	0.00 ***
Hours per Week Spent on Business	53.17	59.12	0.00 ***
Accessed Formal Business Credit in Last Year	0.06	0.04	0.00 ***
Panel B: Comparison with FinScope Businesses with at least One Employee	*N = 852*	*N = 1961*	
Female	0.45	0.42	0.22
Race: Black or Colored	0.87	0.75	0.00 ***
Origin: Foreigner	0.12	0.11	0.54
Matriculated or Higher Education	0.67	0.60	0.00 ***
Age	38.04	41.51	0.00 ***
Business is Formally Registered	0.42	0.45	0.16
Age of Business in Years	5.06	6.51	0.00 ***
Number of Employees	2.40	3.59	0.00 ***
Hours per Week Spent on Business	53.17	59.55	0.00 ***
Accessed Formal Business Credit in Last Year	0.06	0.05	0.12

This table presents a comparison between sample characterstics of this study versus the 2010 nationally representative survey of small businesses in South Africa conducted by FinScope. Panel A presents comparisons with all FinScope businesses, and Panel B restricts the FinScope sample to business with above median number of employees (i.e. at least one employee).. Columns (1) and (2) present average values for both studies and column (3) presents p-values for equality of means tests. Statistically significant p-values are highlighted by: ** (5% significance level), and *** (1% significance level).

Appendix 1: Overview of Finance and Marketing Interventions

Making Sales [marketing intervention]	**Managing Money** [finance intervention]
Module 1: What is Value? *Price versus value; tangible versus intangible value; communicating and creating value.*	**Module 1: Financial Jargon** *The money flow; introducing financial jargon (liability, equity, revenue, expenses and assets).*
Module 2: Finding Customer Needs & Solutions *Distinguishing customer needs versus wants; finding the sweet spot; discovering business capabilities.*	**Module 2: Recording Business Transactions** *The financial process; transactions versus cash flow; the balance of accounts; debits and credits.*
Module 3: Matching Solutions & Making Contact *Finding and prioritising opportunities; setting objectives and opening a call; building rapport with customers.*	**Module 3: Reporting on the Business** *Explaining financial statements (income statement and balance sheet); asset types (current, non-current).*
Module 4: Listening & Questioning Skillfully *Listening versus hearing; understanding content versus context; asking the right questions; knowing competition.*	**Module 4: Cost Structures** *Explaining costs and cost classifications; costing; understanding opportunity costs.*
Module 5: Helping Customers Make the Right Choice *Understanding customers' buying criteria; the value map; value winners, killers and sleepers.*	**Module 5: Analysing Business and Financial Decisions** *Comparing performance to benchmarks and to historical performance; interpreting ratios (profitability, liquidity).*
Module 6: Handling Questions & Concerns *Understanding objections; dealing with objections and questions through products, pricing, promotions, etc.*	**Module 6: Budgeting** *Understanding and constructing a budget; analysing budgeted versus actual spending; monitoring variances.*
Module 7: Delivering on Product/Service Promises *Meeting customer expectations; after sale responsibility; customers' post-purchase experience and satisfaction.*	**Module 7: Cash Flow** *Understanding and predicting cash flows; distinguishing between cash and profits; understanding working capital.*
Module 8: Bringing it All Together *Consolidation and recap of learning; students share their marketing challenges, examples and solutions.*	**Module 8: Funding your Growth** *Setting business goals; assessing financial needs; understanding different funding options.*
Module 9: Revision & Make-Up Session *Extra sessions are held, covering modules 1-2, 3-4, 5-6 or 7-8, for students to catch up or further refine skills.*	**Module 9: Revision & Make-Up Session** *Extra sessions are held, covering modules 1-2, 3-4, 5-6 or 7-8, for students to catch up or further refine skills.*
Module 10: Follow-Up & Application Session *Recording sales, products and customer information; honing a sales pitch; setting SHARP goals.*	**Module 10: Follow-Up & Application Session** *Recording sales and expenses; analysing costs and margins; setting SHARP goals.*