NHH

THE IMPACT OF PROVIDING BUSINESS TRAINING TO MICROFINANCE CLIENTS:

Empirical Evidence from Tanzania

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ABSTRACT

This master thesis studies the impact of providing business training to microfinance clients in Tanzania. Based on data collected six months after the programme ended, we cannot confirm positive treatment effects from business training on the micro entrepreneurs' profits. However, treated entrepreneurs have higher likelihood of operating multiple businesses; increased their engagement within commerce and reduced their engagement within manufacturing. Based on the market situation at the time, these changes all represent advancement towards business structures associated with higher profitability. Moreover, findings of low profitability in new establishments can serve as an explanation to the small effect from business training on profits, and imply that treatment effects will be manifested in higher future profits of the entrepreneurs.

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1. INTRODUCTION

"I firmly believe that all human beings have an innate skill. I call it the survival skill. The fact that the poor are alive is clear proof of their ability. They do not need us to teach them how to survive; they already know. So rather than waste our time teaching them new skills, we try to make maximum use of their existing skills. Giving the poor access to credit allows them to immediately put into practice the skills they already know..."

Professor Muhammad Yunus: *Banker to the Poor* (1999, page 140)

The concept of microfinance started out as a small idea in 1976, where the US educated economist and pioneer, Muhammad Yunus, from his own pocket gave a loan of US$ 27 to a small group of self employed women in a poor Bangladeshi village. The group as a whole were accountable for the individual loans, and proved excellent payment records, interest included. Grameen Bank was founded on the positive outcome of this experiment, and the belief that access to credit can promote income growth and development for poor entrepreneurs, women in particular.

The Grameen Bank model has served as the foundation of the global microfinance movement, now replicated at five continents and serving more than 155 million poor entrepreneurs [2007 estimate]. The United Nations designated 2005 as the International Year of Microcredit, and in 2006 Professor Yunus and Grameen Bank were awarded the Nobel Peace Prize.

Despite the substantial public attention captured by microfinance, its success cannot be taken for granted. Research show that financial constraints are substantial among poor entrepreneurs, but indicate that the microfinance movement has been too optimistic on the potential of its products: Small-scale entrepreneurs are likely to face several obstacles to enterprise growth, while microfinance only addresses one of them. The growth effect of finance may critically depend on the entrepreneur's individual characteristics, such as business knowledge and skills. In hard contrast to the quoted beliefs of Professor Yunus, this master thesis evaluates the impact of incorporating business training in a microfinance programme.

The evaluation draw on empirical data originating from a larger and ongoing research project in Tanzania, *"Teaching Entrepreneurship to Microfinance Clients: Financial and Human Capital for Development"*. Through a randomised field study, the project seeks to investigate the impact from offering business training and a cash transfer to small-scale entrepreneurs in Dar es Salaam. Responsible for the research project are the NHH professors, Kjetil Bjorvatn

and Bertil Tungodden, in company with Professor Dean S. Karlan from Yale University and the NHH Phd. Candidate, Lars Ivar Berge. Major collaborators to the project are the microfinance institution PRIDE Tanzania, where the entrepreneurs in the sample of are borrowers, and University of Dar es Salaam, responsible for the design and implementation of the business-training programme.

Clients from two of five PRIDE branches in Dar es Salaam were randomly assigned to a treatment group and a control group. Clients assigned to the treatment group received an invitation to participate in the business-training programme; while clients in the control group remained as they were, not subject to any training. The business-training programme was launched in August 2008, consisting of 21 tuition-free lectures given after the weekly loan meeting at PRIDE.

In order to evaluate the impact from the business training, a comprehensive follow-up survey was conducted in Dar es Salaam the summer of 2009. In addition, a baseline survey was completed before the programme started, and a lab experiment was carried out in March 2009. Being two out of seven research assistants, we participated to the data collection and production of the dataset in the follow-up survey. Together with Swahili translators, we interviewed 530 small-business entrepreneurs at their business premises, whereas approximately fifty percent had been offered business training. The statistics resulting from these interviews, as well as the data collected in the baseline and the lab experiment constitute the dataset subject to analysis in this thesis. Assuming a successful randomisation, the only difference between the treatment group and the control group is that the treatment group could take part in the business training, something which allows us to acquire unbiased and valid estimates of the average treatment effect.

In accordance with the general intention of microfinance, the overall aim of the business-training programme was to increase the profitability to the participating entrepreneurs. The natural starting-point to analysis of treatment effect from the programme is therefore to test its impacts on measures of profits. Because total profits do not reflect the entrepreneurs' effort in production, we also carry out analyses of their profits per working hour. When performing the regression analyses however, we do not find significant differences in profits between the entrepreneurs in the treatment group and in the control group. Albeit the impact from business training appear positive on total profits; and more so when working hours are taken into

account; the evidences are not sufficient to confirm these findings at any conventional significance level.

Recognising that we are unable to find direct treatment effects on the entrepreneurs' profits, we take a step back and search for plausible explanations to this somewhat puzzling result. Considering the entrepreneurs' positive commitment and actual participation to the business-training programme, our understanding is that the entrepreneurs find the training beneficial. This was also our impression from the interview settings, where many of the participants uttered appreciation for the opportunity, and announced that they were willing to spend time and even money on additional business training.[1] Additionally, one may expect relatively high returns from investment in human capital among micro entrepreneurs with modest level of education. In view of the above reflections, we hold on to our expectation of a positive effect from business training, suspecting that our direct analysis on profits is not adequate to capture this treatment effect.

Underpinning our suspicion, is an assumption of divergence between short-term and long-term treatment effects, alleging that business training leads to practices that for most part increase long-term profits, and possibly lower short-term profits. Since the follow-up survey were carried out only six months after the completion of the business training, it is logical that long-term effects were not fully embodied in the profits accruing to the entrepreneur. On the other hand, short-term effects may still be present in the profitability of his business operations at the time of the interview. That being so, the direct analysis on the short-term profit misses out on potential treatment effects with long-term implications on profits.

Endeavouring to come across such treatment effects, we look for entrepreneurial characteristics that we assume to have explanatory power on profits and which are susceptible to influence from participation in the business-training programme. Comparisons of statistics from the two surveys make us aware of substantial alterations as to the general organisation of the entrepreneurs' business operations, namely their business structure. Widespread activities of establishing new businesses and closing down existing businesses have resulted in growth of the total number of businesses, as well as adjustments in the sector composition. The activities of changing business structure might be a first move towards higher profitability in

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[1] On average, the entrepreneurs stated that they were willing to pay kTS 53 in total for a 21-session business-training programme similar to that one implemented in the field study. Although the willingness to pay was lower among the entrepreneurs in the treatment group, they were prepared to pay on average kTS 47 for an additional business-training programme suited their level of skills.

the future, but are not necessarily profitable in the short-term. For example, we expect that the profits and work hours of the entrepreneur will increase along with his number of businesses and we imagine that operations within some sectors are more profitable than operation within other sectors. At the same time, we direct lower expectations to the short-term profitability of new establishments than towards mature businesses well settled in the market.

Our hypothesis is therefore that entrepreneurs with business training have made changes to their business operations that are not reflected in their profitability at the time of the follow-up survey, yet likely to increase their profits in the future. Addressing the problem at hand, we aspire to investigate the long-term implications for profits indirectly, through tests for treatment effects on the business structures of the micro entrepreneurs.

The analysis for long-term treatment effects consists of two steps, where the first step aims to illustrate the typical business structures to profitable micro entrepreneurs. The second step tests for treatment effects from the business-training programme on the entrepreneurs' business structures. Given the assumption of a valid randomisation, significant variation between the treatment group and the control group are in its entirely ascribed to the business-training programme. Based on the results in Step 1, we aspire to translate potential treatment effects on the entrepreneurs' business structure into general implications for their expected long-term profits.

The remaining of this thesis is organised as follows: Chapter 2 continues the above introduction to microfinance and human capital through a summary of recent literature and research on the topics. Chapter 3 presents the setting in Tanzania and Dar es Salaam, including a description of small-business entrepreneurship and microfinance institutions in the country. The chapter ends with a section about PRIDE Tanzania, its microfinance clients and loan conditions. Chapter 4 goes into details concerning the project design and the methodology of randomisation. It discusses the implementation of the research project in Tanzania, emphasising the process of sample selection. Chapter 5 provides descriptive and empirical analyses, comprising the above introduced analyses for treatment effect on profitability. Chapter 6 concludes.

2. LITERATURE REVIEW: ENTREPRENEURSHIP AND MICROFINANCE

This chapter explains the concept of microfinance, both from a theoretical and empirical point of view. Further, it reviews recent research on the impact of microfinance initiatives, before discussing the literature on human capital constraints among micro entrepreneurs.

2.1 INTRODUCTION

Small and informal enterprises are the source of employment for more than fifty percent of the labour force in many developing countries. It is widely recognised that some of these entrepreneurs can play a significant role in the development process and potential growth in poor countries (de Mel et al, 2008).

It is however evident that current and potential entrepreneurs in poor countries face a variety of obstacles with respect to their daily business operations. Capital constraints loom as an important barrier in this matter, making it difficult to build assets as well as managing working capital and risk. Formal banks have traditionally not considered poor people within their customer portfolio, leaving them to the utilisation of informal financial instruments. Examples are saving clubs, rotating savings [ROSCA], credit associations, family and friends. These tend to be both costly and unreliable (Collins et al., 2009).

Microfinance institutions [MFIs] are designed to address the abovementioned problems by offering poor entrepreneurs access to formal financial services. Even though microfinance has increased rapidly worldwide the last two decades, covering more than 155 million clients by the end of 2007, there is no consensus among academics on the actual impact from microfinance on the business outcome (Daley-Harris, 2009).

Microfinance cannot address all obstacles faced by poor entrepreneurs, partly because some obstacles are related to the characteristics of the entrepreneurs themselves. Individual characteristics, in particular human capital aspects, are likely to be crucial determinants of entrepreneurial success. It is logical that *Business skills* and *knowledge* such as pricing strategies, cost control, customer care and market structure, affects the entrepreneur's decision-making process. Business training may improve the entrepreneurs' level of business knowledge and skills, enabling them to make better strategic decisions and optimise their business operations. Furthermore, it may help them to better deal with other obstacles, such as capital constraints, regulations, poor infrastructure and demand deficiency.

2.2 THE CONCEPT OF MICROFINANCE

Microfinance is a collective term for basic financial services made available to poor people, women in particular [67 percent]. Loans [microcredit], savings, money transfer services and insurance are all included in the microfinance term (CGAP, 2010). It is common to associate microfinance with microcredit, leaving the other financial services as by-products.

Poor borrowers have traditionally been viewed as a risky segment, and therefore excluded from formal financial services. Microfinance has made us rethink the concept of banking, demonstrating that poor people are both willing and capable of repaying their loans at relatively high interest rates. The Grameen Bank, founded by Mohammed Yunus in 1983, stands out as the major pioneer on the microfinance initiative, and the "Grameen model" has served as a benchmark for similar initiatives around the globe.

A central feature of the Grameen model is that loans are granted to *groups* of five borrowers rather than individuals. Moreover, in the event of default, no group member is allowed to borrow again. This way of making borrowers accountable for each other's loans implies that the individuals must form a group carefully not to include someone who endangers the creditworthiness of the whole group (Ray, 1998). The group dynamic promotes repayment incentives, contributing to an average repayment rate of 97.5 for microfinance institutions (Rosenberg, 2010). The group-lending approach also makes it possible to abandon the requirement of a loan deposit, which sometimes is difficult for the poor to provide.

Microfinance clients are likely to operate one-man enterprises or small enterprises with few emplyees, experiencing both fluctuating and relatively low cash flows. MFI services can enable them to deal with the financial constraints they face in their business operations. Moreover, microfinance represents opportunities to smooth household consumption; take care of unforeseen events; invest in children's education and improve their household bargaining position (Collins et al, 2009).

The rapid increase in development funding directed towards microfinance is partly founded on the belief that small-scale enterprises can earn high return to capital if they are given the opportunity. If these returns exceed market interest rates, the use of microfinance may have the potential of promoting income growth among poor entrepreneurs.

2.2.1 FINANCIAL CONSTRAINTS

A recent and comprehensive study by de Mel, McKenzie and Woodruff (2008, 2007) analyse the returns to capital through supply of grants to *randomly selected*[2] enterprises in Sri Lanka. The grants were either US$100 or US$200, both substantial amounts given the baseline median level of invested capital of US$180. One subsample received the grants in cash, without any restrictions, and another through in-kind grants, consisting of equipment equivalent to the amounts given in cash.

De Mel et al. (2008) measure treatment effects on three dimensions: *change in capital stock*, *profits*, and *hours worked by the owner*. By using different estimates of the marginal productivity of the owner's additional work effort, the average return of the grants is 4.6%-5.3% per month [55%-63% per year] - far higher than market interest rates. Returns to capital they find to vary with entrepreneurial ability, but not with risk aversion and uncertainty.

Digging deeper, the study by De Mel et al. (2008) shows that returns to capital are generally higher for entrepreneurs with relatively severe financial constraints. The traditional arguments for directing microfinance towards women in particular, are that their financial constraints are relatively severe and that they tend to use resources more efficiently. Hence, one expects women to have higher returns than men, given that their financial constraints are revealed. In contrast to theory, de Mel et al. (2007) find the average treatment effect to be significant on enterprises owned by men, but no such evidence for female owned enterprises. The large differences between genders seem to caused by exposure towards different industries.[3] However, average returns for women are also lower than those for men when being exposed to the same industries (de Mel et al, 2007). According to the authors, another possible explanation for the gender differences is that female entrepreneurs often operate from home where businesses and family tasks are combined. This may limit their potential for expanding the customer base, because the customers have to be within the same area as the household.

The overall results from the Sri Lanka study suggest substantial capital constraints among poor entrepreneurs and this imply growth possibilities through the utilisation of financial

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[2] The randomisation ensures that changes in capital stock are uncorrelated with entrepreneurial ability, demand shocks and other factors associated with differences in profitability or investments across the sample (de Mel et al., 2008). The methodology is reviewed in chapter 4.
[3] When comparing industries without men with industries without women, there are large return differences: The industries without women have returns to capital of 10 percent per month, while industries without men have returns to capital of *negative* 10 percent (de Mel et al., 2007).

instruments, such as microfinance. The following section therefore reviews some of the research concerning the impact of microfinance initiatives.

2.2.2 EMPIRICAL EVIDENCE ON THE IMPACT OF MICROFINANCE

We have knowledge of three completed field studies that investigate the isolated impact of microfinance. Similar to the field study in Tanzania, these studies randomly assign individuals to a microfinance programme, and compare them to a control group of individuals that is randomly chosen not to take part in the programme. The methodology of randomisation is discussed carefully in chapter 4.

Two of the studies have limited relevance in our own setting: Dupas and Robinson (2008) measure the impact of providing savings accounts to poor entrepreneurs in a Kenyan village, while Karlan and Zinman (2007) deal with consumer loans in South Africa. The studies indicate favourable treatment effects on some dimensions, but neither can be generalised to the typical microcredit context, emphasising on loans directed to business purposes.

The third study, conducted by Banjerjee, Duflo, Glennerster and Kinnan (2009), estimates the impact of making microcredit available to a new market. They randomly selected 52 out of 104 areas in Hyderabad, India to open an MFI branch. The remaining areas were not subject to treatment and represent the control sample in their study. As a result of their intervention, the probability of receiving microcredit in treatment areas was 8.3 percentage points higher than in the control areas.

Banjerjee et al. (2009) find significant and positive treatment effects on *MFI borrowing*, *new establishments*, *profitability of pre-existing businesses*, and *durable expenditures*. The results are however not robust to any consumption measures, and the study holds some weaknesses, most notable a mismatch between the baseline sample of 2,800 households and the follow-up sample of 6,650 households.

Summing up, the earlier discussed study by de Mel et al. (2008) demonstrates that poor micro entrepreneurs are likely to face severe financial constraints in their enterprises, and that returns to capital can be substantial as the financial constraints are relieved. On the other hand, the empirical literature on microfinance has only been able to report limited evidence so far. Moreover, it is too early to conclude on its long-term impact on business profitability. Partly as a result of this mixed evidence on the importance of financial constraints, several

researchers have directed their focus towards other constraints on microenterprise development, in particular those that involving skills and knowledge.

2.3 HUMAN CAPITAL CONSTRAINTS

The literature highlights the importance of human capital in a growth perspective, and suggests that it makes the labour force more productive and adoptive towards new technology. The study by de Mel et al., (2008) indicates that knowledge and abilities are important in determining returns to capital. Most developing countries have low levels of human capital, in particular evident in the informal sector where people with poor education might see entrepreneurship as a last way out to earn an income

There are a number of NGOs offering business training to small and medium scale entrepreneurs in poor countries, though there are few academic studies that investigate the causal effect of entrepreneurial training on enterprise outcome. An important research issue is whether relevant training in business management, such as cost control, accounting, market analysis, marketing, and pricing strategies can stimulate investments in feasible projects and lead to growth and expansion in the long-term. As an extension to this question is the underlying mechanism of entrepreneurial success: Is it entrepreneurial *skills*; such as bookkeeping, customer care and market understanding; or the entrepreneurial *mindset*, such as attitude, willingness and self-confidence, that determine success? (Bjorvatn et al., 2010). In the following, we review two studies investigating the impact of business training.

THE IMPACT OF BUSINESS TRAINING
Klinger and Schündeln (2007) use the results from a business-plan competition to measure the impact of a business-training programme offered to mature [4] entrepreneurs in Central America. Out of a total sample of 655 entrepreneurs, 377 were accepted into the programme and received business training. To evaluate how the programme participants would have performed in the absence of the programme, the authors utilise a control group consisting of 278 rejected applicants. In the absence of randomisation and to avoid a bias from unobservable characteristics[5], the authors utilise a discontinuously estimation model where they control for the individual score assigned in the application process.

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[4] The entrepreneurs in the sample are well established and have on average 10 employees.
[5] Bias from unobservable characteristics can result from a selection bias. The problem of selection bias is explained together with the methodology of randomisation in chapter 4.

Klinger and Schündeln (2007) find that participation in the business-training programme significantly increases the probability of establishing new enterprises and expansion of existing businesses. They do not find impacts from business training on business outcomes, such as sales and profits. Further, by restricting the sample to mature enterprises, they partly ignore the role of financial constraints in entrepreneurial activity: Klinger and Schündeln (2007) find a positive relationship between *age* and the *probability of launching a new business*. One possible explanation is that younger entrepreneurs have relatively severe capital constraints compared to their older counterparts; another is that younger entrepreneurs have lower levels of business knowledge and skills, indicating that they in the absence of capital constraints would have benefited the most from business training.

Karlan and Valdivia (2006) conduct a comparable study in Peru, where they implement a business-training programme to micro entrepreneurs in two different cities, Lima and Ayacucho. Their study differs from the one by Klinger and Schündeln in several dimensions: Firs of all, Karlan and Valdivia examine the impact of providing business training to entrepreneurs with lower operation scale than in the case of Klinger and Schündeln. In addition, by restricting their sample to female microcredit clients, they investigate how injections of both human and financial capital affect the enterprise performance of a group with relatively severe financial and human capital constraints. Finally, the methodology differs in that Karlan and Valdivia conduct a randomised control trial to measure the average treatment effect of their programme.

Karlan and Valdivia (2006) find that microfinance clients subject to their training programme are more likely to maintain a clean repayment record compared to untreated clients. They argue that this results from the improved business outcome, which on average is 16 percent higher for treated clients in terms of sales. The results are however not robust to other outcome variables, such as profit margins and change in labour. Nor are there significant changes in loan size and cumulative savings due to training.

The literature concerning business training as instrument to microenterprise development is so far limited, and more research is clearly needed before one can conclude on its impact on long-term business outcome.

3. INSTITUTIONAL FRAMEWORK: ENTREPRENEURSHIP AND MICROFINANCE IN TANZANIA

This chapter highlights relevant characteristics of the Tanzanian society, such as the political-economic regime, economic development and structural aspects. Of particular interest are the features of small business entrepreneurship in the country, and how poor enterprise owners cope with their obstacles. Finally, we review Pride Tanzania, the microfinance institution where a sample of the loan clients was subject to the business-training programme in our study.

3.1 TANZANIA: A BRIEF PRESENTATION

The United Republic of Tanzania is located in Eastern Africa, bordering the Indian Ocean between Kenya and Mozambique. The country was constituted in 1964, formed in a merger between the two former colonies Tanganyika and Zanzibar, both achieving their independence from Britain in the early 1960s. Julius Nyerere was the first president and absolute ruler of Tanzania, controlling the socialist party CCM until he resigned and left responsibility to Ali Hassan Mwinyi in 1990. The one-party rule came to an end in 1995, when Tanzania held its first democratic election with more than one single party (CIA, 2010). Nevertheless, CCM has won all elections held both in Tanzania and Zanzibar since the multi-party system was implemented, and in 2005, its leader Jakaya Mrisho Kikwete was elected the fourth president of Tanzania (U.S Department of State, 2010).

According to CIA's World Factbook (2010), Tanzania's population is approximately 41 million, of which 99 percent are natives from one of more than 130 different tribes, and the remaining one percent are Asian, Arab and European immigrants. With exception from Zanzibar, which is practically Islamic, the population is about equally shared between Christians, Muslims and tribes with indigenous beliefs. Tanzania's official language is Swahili, while English works as primary language of commerce, administration, and higher education. Nevertheless, the 130 tribes also speak their own language, and the probability that two random selected individuals have different mother tongue is as high as 93 percent (Easterly & Levine, 1997). Since 1973, Dodoma - located in the middle of the country with approximately 350 000 citizens, has been the capital of Tanzania.

Until 1985, the Tanzanian government was firmly left-orientated and maintained a system of collectivised agriculture known as *Ujamaa,* the Swahili word for *extended family* (Meredith,

2005). This political-economic regime greatly disrupted agricultural efficiency and output, led to a near collapse of the national economy, and consolidated Tanzania's status as one of the poorest countries in the world (Meredith, 2005). The government has subsequently taken on a more pragmatic approach, and made significant efforts to liberalise and modernise the Tanzanian economy. Through comprehensive free market policies and dismantling of socialist economic controls, the private sector has been promoted and encouraged to participate in the economy (U.S. Department of State, 2010). According to Tanzania's national website (2010), the government continues the liberal policies and facilitation of the private sector in order to accelerate growth and raise the living standards of its citizens.

Despite all recent efforts and liberal reforms, Tanzania is still among the bottom ten percent of the world's economies in terms of per capita income, and the country remains overwhelmingly donor-dependent. Annual GDP per capita growth rates were negative in the period before the free elections took place in 1995, but have been positive in all following years. Furthermore, per capita growth rates started escalating at the beginning of the millennium, varying between 2.5 percent and 4.5 percent per annum between 2000 and 2008. Yet, this has not been enough to substantially improve the living standard of average Tanzanians, as reflected in the key indicators reported Table 3.1. The life expectancy at birth is only 56 years, leading to a mean age as low as 18 years. The fertility rate is 5.6 children per woman, and the presence of infectious deceases conduces to an infant mortality of almost 7 percent. HIV prevalence between the ages of 15 and 49 has decreased from 7 percent at the beginning of the millennium to 6 percent in 2007 (WDI, 2010).

Table 3.1

Indicator	Measure	1995	2008
National accounts:			
GDP per capita, PPP adjusted	Current int. US$	670	1,301
GDP per capita growth	% per year	0.5	4.4
Inflation, consumer prices	% per year	27.4	10.3
Net ODA received	% of GNI	16.9	11.7*
Health indicators:			
Fertility rate	Births per woman	5.9	5.6
Infant mortality rate	Per 1,000 live births	100.2	66.8
Life expectancy at birth	years	50	56
Education:			
Education expenditure	% of GNI	2.4	2.4
Adult literacy rate	% of people aged >15	59.1	72.6
School enrolment, primary	% gross	68.1	110.2**
School enrolment, secondary	% gross	5.3	n/a

Source: *The World Bank: World Development Indicators (2010)*
*Net ODA received was 17.5 % in 2007.
** Enrolment is also subject to candidates above and under the relevant age.

Tanzania has since 2002 made great efforts to provide free primary education to everyone, leading to enrolment rates above 100 percent (Nkosi, 2005; WDI, 2010). Primary education comprises seven compulsory years, while secondary education is optional with normal duration of six years. The enrolment rate in secondary school is assumed to be low relative to primary school, mainly due to relatively high tuition fees (Nkosi, 2005). The literacy rate, defined as people over 15 years that can read Swahili, English or Arabic, has increased from 59 percent in 1995 to 73 percent in 2008, assumingly a consequence of the resources put into primary schooling.

The Tanzanian economy is dominated by agriculture, accounting for more than 45 percent of GDP and employing 75 percent of the work force (WDI, 2010). The industrial sector is on the other hand one of the smallest in Africa, accounting for 17 percent of GDP and only 5 percent of the labour force. Services account for the remaining 37 percent of GDP and occupy 20 percent of Tanzania's workers. Correspondingly, the country has a large rural population, and only 26 percent of all Tanzanians live in the urban areas. Like most developing countries however, Tanzania is experiencing rapid city-growth. Since 1995, the urban population increased by an average rate of 4.4 percent per year, compared to an average population growth rate of 2.7 percent per year (WDI, 2010). One consequence has been a rapid increase of the informal employment and hence an enlargement of sectors like wholesale and retail trade, manufacturing and hotels/restaurants, which according to World Bank estimates supplied 58, 14 and 13 percent of all informal jobs in 2006 (Lindeboom & Muzzini, 2008). In addition, urban agriculture has evolved as a household level initiative, employing 38 percent of urban work force and accounting for 20 percent of urban income (Lindeboom & Muzzini, 2008). Despite a higher degree of both informal employment and unemployment in urban areas, the average income is higher than it is in rural areas.[6]

Tanzania's largest and fastest growing city, Dar es Salaam, currently accommodate 2.7 million people and receives 175 000 new households every year (Lindeboom & Muzzini, 2008). The city has been leading the process of urbanisation in Tanzania, and is expected to double its population by 2020 (CIA, 2010). The capital was moved from Dar es Salaam to Dodoma in 1973, but Dar es Salaam is still the most important administrative and economic

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[6] Unemployment in urban areas was about four times higher [31 percent] than in rural areas [8.3 percent] in 2006. In the same year, the city of Dar es Salaam had almost half a million unemployed people (Lindeboom & Muzzini 2008).

province in Tanzania. It functions as the hub of Tanzania's main transportation systems, holds the chief port, and serves as Tanzania's industrial, commercial and financial centre. The city accounts for high concentrations of trade, services and manufacturing compared to other parts of Tanzania, and about one half of Tanzania's manufacturing employment is located here (Lindeboom & Muzzini, 2008).

3.2 Small Business Entrepreneurship in Tanzania

In line with the urbanisation process, the number of street vendors has been increasing throughout all the major cities of Tanzania, and especially in Dar es Salaam, where the street vendor population in 2007 was estimated to 700,000 (Lyons & Msoka, 2010). A majority of Tanzania's micro and small enterprises [MSEs] are informal, meaning that they have no government registration and do not pay tax.[7] This is in particular true for the microenterprises, defined as the MSEs with ten or fewer employees (Lyons & Msoka, 2010).[8] Most of the microenterprises serve the purpose of so-called self-employment, where the owner functions as both manager and worker. The owner may be an individual, a small group of individuals or a household, and prospective employees are in many cases unpaid family members or people employed in the household of the owner. Many households engage in this sector as a secondary activity to supplement their income from formal employment, while other households completely rely on income from one or more microenterprises.

The microenterprises take part in diverse sectors, like retail and wholesale trade, food and beverage processing, personal and business services, and manufacturing of clothes and other products. Some entrepreneurs operate their enterprises from their respective homes, others own or rent a business stall, whereas a segment runs their microenterprise without any permanent business location. During the interviews, we learned that a majority of the entrepreneurs engage in some sort of commerce activity, selling a huge variety of products. The market for services comprises enterprises like hairdressing and beauty saloons, transport, catering and a various selection of small restaurants, bars and cafés preparing snacks, breakfast, lunch and dinner. There are also numerous of tailors and embroiderers

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[7] The Institute for Liberty and Democracy [ILD] estimated that 59 percent of small businesses in Dar-es-Salaam were informal in terms of legal status in 2005. See Ishengoma and Kappel (2006) and Levenson and Maloney (1988) for extensive discussion on the definition of informal sector. Tokman (2001) defines the informal sector as comprising firms with limited ownership that utilise unpaid family members, domestic servants, less educated employees, and have less than five workers, including the owner. Loayza (1997) views the sector as a set of economic units that do not comply totally or partially with government regulations.

[8] According to EU legislations, MSEs are defined as income-generating activities employing 50 or fewer workers. The definition includes home-based enterprises where at least half the output is marketed.

manufacturing clothes, constructors of bricks, wells and houses and landlords renting out premises for business or rooms for accommodation. Although Dar es Salaam has a relatively small agricultural sector, only representing about 2 percent of the generated income, a number of urban households are also engaged in production of vegetables, milk, meat and eggs, and thereby utilise their location close to the ready market for agricultural products (Lindeboom & Muzzini, 2008).

Common for microenterprises in Dar es Salaam is their utilisation of local resources and equipment. This local interaction is mainly caused by the low quality of infrastructure, combined with costly transportation of commodities as well as poor storage and preservation. As a consequence, entrepreneurs usually purchase raw materials from producers in the neighbourhood, leading to closer social connections and confidence between business partners and customers. The practice of informal transactions are reflected in the lack of receipts to costumers and written contracts between business partners.

3.2.1 BUSINESS OBSTACLES

Poor infrastructure is just one of the many obstacles faced by current and potential entrepreneurs in Tanzania. Of great relevance to this master thesis, and perhaps the most important obstacles of the micro entrepreneurs in Dar es Salaam, are their poor levels of both financial and human capital. Leonard and Mfaume (2004) suggests that most micro entrepreneurs in Dar es Salaam lack the education needed to find alternative formal employment and that a majority see entrepreneurship as a last resort to earn a livelihood. Ishengoma and Kappel (2006) underline the heterogeneity of micro entrepreneurs, but describe a substantial segment as poor people with low education and low level of skills. In our sample of micro entrepreneurs, everyone except from three interviewees answered that they have at least finished primary school. However, this is also the education level of the median interviewee, reflecting that the investment in human capital is scarce among the majority of the micro entrepreneurs. The combination of extensive financial and human capital constraints, prevent entrepreneurs from optimisation of current businesses and future growth, especially because it makes them less capable to overcome the regulative barriers discussed in the following.

The World Bank's project "Doing Business" identifies regulative obstacles in the formal business environment, with implications for small-scale entrepreneurs intending enter the formal economy. Table 3.2 presents relevant Doing Business indicators for Tanzania, and

confirms the presence of regulations that require both extensive financial and human capital to cope with. Of particular interest are those regulations that directly affect the barriers of entry: Thirteen compulsory start-up procedures that include among others business registration and applications for operating licence, tax number and VAT certificate with the Tanzania Revenue Authority. Although the cost of start-up procedures has decreased with more than 80 percent since 2003, the remaining cost still represents 37 percent of average annual individual income. This indicates that the regulative environment is a significant barrier for entrepreneurs that wish to expand or establish businesses. Among the entrepreneurs in our sample, only 20 percent report to be registered with a government authority or to hold an operating licence. Moreover 37 percent claim that taxes and government regulations represent a serious obstacle to their business.

Table 3.2

Indicator	Measure	2003	2006	2008
Business start-ups:				
Cost of business start-up procedures	% of GNI per capita	200	92	37
Start-up procedures to register a business	Number	13	13	12
Time required to start a business	Days	31	30	29
Time required to obtain a business license	Days	14	16	n/a
Property:				
Procedures to register property	Number	n/a	9	9
Time required to register property	Days	n/a	77	73
Management time dealing with officials	% of management time	14.4	4.0	n/a
Tax:				
Tax payments	Number	n/a	47	48
Time to prepare and pay taxes	Hours	n/a	172	172
Business meetings with tax officials	Number	13.1	2.7	n/a
Informal payments to public officials	% of businesses	31.0	49.5	n/a

Source*: The World Bank: World Development Indicators (2010)*

3.2.2 MICROFINANCE

Ishengoma and Kappel (2006) argue that the level of financial capital of most micro enterprises in Tanzania is insufficient to give suppliers credit and to do necessary investments, and that the poorest micro entrepreneurs lack financing even for working capital. These findings seem to be in line with our own observations of microenterprises in Dar-es-Salaam, where the plot sizes are minimal and the equipment used is outdated and inefficient. Two illustrations of this is the tailor using a coal ironer on a white wedding dress and the restaurant owner cooking rice and beans by help of firewood. In this matter, microfinance can represent a possibility for micro entrepreneurs in Tanzania to increase their business capital.

In 2008, Tanzania had ten MFIs reporting to the Microfinance Information Exchange [MIX]. This comprised 270,077 active borrowers with a combined loan portfolio of US$ 77 million (CGAP & MIX, 2010). According to the Sub-Saharan Africa 2009 Microfinance Analysis and Benchmarking Report, almost 80 percent of MFI lending in Tanzania are directed towards enterprises, while approximately 20 percent are consumption loans. In practise however, parts of the loans intended for business purposes are likely to be spent on household consume. This is evident in our dataset, where less than 60 percent of the microfinance loans are injected to the business operations. Considerable amounts are spent on household investments and school fees or put away for savings. The observation can reflect that the business capital constraint is less severe than anticipated, or it can be interpreted to reflect that the micro entrepreneur faces severe capital constraints in his personal finances as well as in his business finances.

3.3 PRIDE TANZANIA

PRIDE Tanzania Limited is a microfinance institution [MFI] involved in the provision of credit and saving access to small entrepreneurs in Tanzania (PRIDE, 2005), and membership in this MFI is the common feature of all the micro entrepreneurs in our sample.[9] The MFI was incorporated in May 1993, and started its operations as a pilot January 1, 1994 with branches in Arusha, Tanga and Dar es Salaam. After a significant expansion, PRIDE Tanzania consists today of 38 branches with main office in Arusha. The number of active borrowers has increased from 21,000 in 1998 to 106,000 in 2008, and positions PRIDE Tanzania as the MFI with the most borrowers in the country. It is the second largest MFI in terms of gross loan portfolio, amounting to US$ 27,900,000 (MIX, 2010).[10] The loan loss rate was zero in 2008 and has traditionally been very low.

PRIDE's customer base is mainly comprised of small and medium entrepreneurs with a capital stock worth less than US$ 700. PRIDE offers different types of loans, ranging from kTS[11] 50 to kTS 15 000, of which interest rates are based on the loan terms and loan size. The MEC Loan is the most common loan product offered by PRIDE, with loan sizes ranging from kTS 100 to kTS 1,000.

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[9] PRIDE is an abridgment for *Promotion of Rural Initiative and Development Enterprises*.
[10] Akiba reported the largest gross loan portfolio, amounting to USD 31,200,000 (MIX, 2010).
[11] All numbers are given in Tanzanian Shillings. In this paper, we have converted the Tanzanian Shillings (TZS) into "kilo Tanzanian Shillings" (kTS) where 1 kTS = 1 000 TZS.

3.3.1 GROUPS, RECRUITMENT AND THE LOAN APPLICATION PROCESS

The MEC loan is organised in a similar way as the Grameen model, meaning that clients must join or create an Enterprise Group [EG] with up to four other members in order to enter the MFI and to qualify for this type of loan. The five members of an EG are accountable for each other's loans, so if one member defaults on a weekly loan repayment, the other four members are responsible for covering for him. Furthermore, each EG is organised in a Market Enterprise Group [MEC], consisting of 10 EGs and thus 50 clients. The PRIDE branches has on average 160 MECs, which all have one weekly meeting lasting for one hour.

PRIDE leaves every MEC to administrate itself through the electing of its own chairman, treasurer and secretary. The chairman is responsible for leading the weekly meeting and is normally elected for one year. While the secretary records the payments, the treasurer collects the money from every client and brings it to the PRIDE cashier at the end of the meeting.

The management of every MEC is responsible for recruiting new EGs if any of the existing EGs exit the MEC. However, if a client exits the MEC, the responsibility of finding a new client lies within the management of the respective EG, consisting of a chairman and a secretary. When a suitable client is suggested by the EG, he needs to be approved by the MEC: Three representatives, appointed by the MEC and independent of the EG, will then inspect the business enterprise. Under normal circumstances, PRIDE will accept a client and his loan application if it has been approved by the MEC.

The demand for loans at PRIDE is high, something we observed ourselves when visiting PRIDE's Magomeni branch in Dar es Salaam June 2009: Hopeful entrepreneurs waited in line outside the PRIDE branch, impatient to hear news of available spots in a MEC looking for new members.[12]

Access to a MEC Loan is also subject to a minimum loan insurance balance equal to 25 percent of the total loan amount, except for the first loan cycle. This loan insurance scheme is established and built up by compulsory weekly savings contributions of at least kTS 2.[13] Hence, clients qualify for higher loan levels as the total saving balance increases. MEC loans

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[12] PRIDE has mainly two different entry channels: (i) An Enterprise Group [EG] is missing one member and must find a replacement. (ii) An EG is empty due to exit, so the MEC must find an EG or hope that entrepreneurs willing to enter PRIDE will form their own group of 5.

[13] Savings earn interest through a semi annual "bonus". Clients are allowed to contribute with more than kTS 2 in weekly savings in order to reach higher loan levels on less time, though this does not result in a higher bonus.

are divided into five different levels, all listed in Table 3.3 together with the corresponding saving balance necessary to reach these loan levels.

Table 3.3

Level	Maximum loan ceiling	Minimum savings balance
1	kTS 200	kTS 50
2	kTS 400	kTS 100
3	kTS 600	kTS 150
4	kTS 1,000	kTS 250
Fahari[14]	kTS 2,000 – 15,000	

Through compulsory saving contribution, PRIDE do not only reduce its risk form defaults, but increases its access to funding with respect to future lending possibilities.

ADMINISTRATION OF REPAYMENT

The weekly MEC loan meetings takes place at a PRIDE branch and is estimated to last for one hour. The weekly client contribution consists of interest payment and loan repayment, in addition to the compulsory savings contribution. Table 3.4 illustrates the weekly cash flow from clients to PRIDE with respect to the different loan levels. For all clients that follow the normal weekly savings scheme, total saving will at the end of the first cycle equal the minimum loan insurance scheme of kTS 50 required to apply for a new loan of kTS 200. After the second cycle they will qualify for the second loan level of kTS 400 and so on. To meet the savings requirements at an earlier point in time, clients may also contribute with more than the mandatory savings.

Table 3.4

Loan menu	Terms of repayment	Interest rate	Weekly interest	Weekly savings	Loan repayment	Total weekly contribution
kTS 200	25	30%	kTS 1,2	kTS 2	kTS 8	kTS 11,2
kTS 400	50	30%	kTS 2,4	kTS 2	kTS 8	kTS 12,4
kTS 600	50	30%	kTS 3,6	kTS 2	kTS 12	kTS 17,6
kTS 1,000	50	28%	kTS 5,6	kTS 2	kTS 20	kTS 27,1

The MEC group represent the second layer of security against defaulters, and is held responsible by PRIDE to cover the weekly contribution if one of the EGs fails to repay. Thus, the 50 MEC members must remain at the PRIDE building until the weekly contribution is collected. It is not uncommon that MEC meeting last far longer than the estimated one hour, and clients must borrow from each other or call for relatives and friends to bring money to the PRIDE branch where the meeting takes place.

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[14] The Fahari Loan Product is provided to EGs with clients that are able to guaranty their loans though holding sufficient assets as security. Special conditions are given upon this loan product.

4. RESEARCH PROFILE

This chapter describes the implementation of the research project in Tanzania, *"Teaching Entrepreneurship to Microfinance Clients: Financial and Human Capital for Development"*, which makes the basis of this master thesis. Further, it seeks to describe the data collected before and after the programme intervention; the data collection procedure; and the main explanatory variables in the dataset. Finally, it brings into attention the methodology behind the research design, and discusses whether the methodical implications have been carried out in practice.

4.1 THE INTERVENTIONS

The interventions comprise into a *business-training programme* and a *cash transfer [business grant]*, implemented as a *randomised field experiment* in Dar es Salaam, Tanzania, during 2008 and 2009. The participants in the experiment were all members of the major MFI in the country, PRIDE Tanzania. A description of the practical implementation of the interventions follows.

THE BUSINESS-TRAINING PROGRAMME

In august 2008, 319 PRIDE clients were given the opportunity to participate in a tuition-free business-training programme customised for micro entrepreneurs. The programme consisted of 21 lectures, each lasting for 45 minutes and taking place at the MFI branch immediately after the weekly loan meeting. Participation in the training programme was fully optional, but only clients taking part in ten or more lectures were awarded a course diploma at the graduation ceremony held in January 2009.[15] The average attendance was 70 percent, and 83 percent of all clients were qualified for the course diploma. Entry control was strict and attendance was monitored carefully by lecturers and PRIDE officers (Berge et al., 2010).

The business-training programme was designed and implemented by lecturers from University of Dar es Salaam Entrepreneurship Centre [UDEC], and aimed to create business growth among the participants. The lectures were given in Swahili, and the approach was practically oriented by making use of real-life examples to illustrate theoretical aspects of business management (Berge et al, 2010). Table 4.1 gives an overview of the topics covered in the programme:

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[15] The requirement for graduation was announced at an early stage in order to motivate for participation. Moreover, absent clients were contacted in order to increase the probability of their attendance in the following lecture. In some cases, all clients were reminded about forthcoming lectures (Berge et al., 2010).

Table 4.1

	Topics
I	Entrepreneurship and Entrepreneurial Character
II	Developing an entrepreneurial behaviour
III	Importance of long-term view and orientation in the business
IV	Identification of creative business ideas
V	Understanding of business environment
VI	Planning for your business
VII	Understanding of the market for your business
VIII	Marketing strategies/techniques for your business
IX	Improving customer service
X	Pillars of good customer service
XI	Managing people in your business
XII	How to get good workers
XIII	Allocating responsibilities and appraising employee performance
XIV	Keeping business records
XV	Costing and pricing
XVI	Managing working capital
XVII	Sources of finance for small businesses

THE BUSINESS GRANT

A subsample of clients, comprised of 126 of those who received training and 126 of those who did not, were given a cash transfer of kTS 100. The amount was intended for business use, and equal to the estimated marginal cost of business training. Clients who received the business grant were made aware of its objective, and provided with a form to keep track of their spending of the grant. Out of the 252 clients offered the business grant, 247 actually went to collect it.

4.2 DATA AND EXPLANATORY VARIABLES

Two comprehensive surveys and a lab experiment were conducted in Dar es Salaam in order to evaluate the effect of the programme interventions. This section explains briefly how the surveys were carried out, and describes the information and main explanatory variables available in the dataset.

4.2.1 THE DATA COLLECTION PROCESS

A baseline survey was conducted in June-July 2008, before the business-training programme was launched in August the same year. In March 2009, approximately six weeks after the

business training was completed, a lab experiment was conducted among the subsample of clients who received business grants.[16] The follow-up survey took place in June-August 2009, covering 530 out of the 644 baseline clients.

The baseline survey focused on background information about the clients as well as main outcome variables, such as business performance and household indicators. The follow-up survey was somewhat more comprehensive than the baseline survey through focusing on a broader range of outcome variables, such as loan usage and investments for business and household. The lab experiment focused on the clients' abilities and preferences towards risk, time, and competition, and whether these outcome variables had changed as a result of business training.

Both the baseline survey and the follow-up survey were carried out in the same manner: The interviews were conducted in Swahili by teams consisting of one research assistant and one translator.[17] Normally, appointments for interviews had been made one day ahead, and in most cases the interview took place at one of the interviewees' business premises. Locating the clients and their enterprises turned out to be a major challenge, especially in the baseline survey.[18] A crucial point in the follow-up survey was the reduced willingness among clients to participate. This was contributing to the fact that 114 baseline clients were not interviewed in the follow-up survey.[19]

An overall struggle in the surveys was to capture accurate measurements of the relevant outcome variables, such as revenues, expenses, profits, investments and changes in working capital. Poor level of knowledge and transparency, often resulting from insufficient record

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[16] While 252 clients were invited to the lab experiment, 211 actually did attend the lab.

[17] The team composition changed from one day to the next, mainly to avoid repeated mistakes among the interviewers, and thus a team bias in the dataset.

[18] The lack of street names in most of Dar es Salaam is an important explanation to the localisation challenges. The problem was reduced when we carried out the follow-up survey, much because it was possible to make use of reference points conducted in the baseline survey.

[19] Participation in the survey was voluntary and unpaid. With the interviewees being self-employed, participation would often mean absence from enterprise operations. Lack of willingness to participate was especially present among clients that had neither been offered training nor the business grant. Also entrepreneurs that had dropped out of PRIDE seemed to have low willingness to participate in the survey. These effects make us suspect an attrition bias, where it is systematic differences between those reached in 2008 and those not reached in 2009. According to Berge et al. (2010), there are no systematic differences on sales and profits for men, while females that were not reached in 2009 appeared to have relatively higher sales and profits. In the analyses in chapter 5, we take into account these potential and undesired effects by making use of a panel of control variables, endeavouring to control for initial differences between the groups.

keeping, made this a substantial challenge.[20] However, these kinds of obstacles are typical in a field research setting, and de Mel, McKenzie and Woodruff (2009) discuss in particular the difficulties of capturing accurate numbers microenterprises in developing countries.

4.2.2 THE DATASET

The baseline survey together with the follow-up survey provides a comprehensive panel dataset with a diverse collection of variables. First of all, the dataset gives basic information about the client, such as personal data and their PRIDE attributes, in addition to characteristics of family and household. This includes variables like marital status, education, size of household, number of children and number of children still living with the client. Every client is assigned a unique identification code that reveals whether he have been offered business training. Together with a variable indicating whether the client has received the business grant, there is sufficient information to put everyone in one of four groups in terms of treatment status.[21]

Further, the dataset comprise a large quantity of the essential variables related to the client's business activities. The section looks into business records and documentation, scale and profits of business operations in addition to general business practice, such as investment behaviour. Many clients run several businesses, and all these are included in the dataset. A business is defined as a physical business location and/or a distinct activity. In that matter, a client is operating multiple enterprises if he has business activities from more than one location, or if he runs a variety of business activities from the same location. For example, a hairdresser selling soda in addition to hair dressing services from her saloon is treated as owner of two separate enterprises. Similarly, she is considered owner of two separate businesses if she operates two hairdressing saloons at different locations. The degree of business formality is captured by indicators of whether or not the businesses are registered or licensed by a government agency.

Every business is classified as *commerce*, *service*, *manufacturing* or *agriculture*.[22] The dataset includes variables counting the number of businesses within each sector. Businesses classified

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[20] We have few reasons to believe that the data quality is unequally distributed between clients subject to intervention and clients that were not subjected to intervention. We assume that the margins of error are normally distributed across the sample, therefore not causing bias in the estimates.

[21] A careful explanation of the four treatment groups are provided in section 4.3.2

[22] The agriculture classification was added in the follow-up survey. In the baseline questionnaire, most of the agriculture businesses were classified as "other sector" or manufacturing. We have constructed an agriculture classification also for the baseline survey, removed the "other sector" classification in both the baseline and the follow-up survey, and reclassified these businesses to commerce, service, manufacturing or agriculture. With

as commerce deals with the buying and selling of products. Common enterprises within this sector are mobile street sellers offering products like shoes, phone credit, newspapers and DVDs; households selling water from their well; and market stalls or small kiosks selling a variety of products, such as grocery, fruits and vegetables, charcoal, medicines, spare parts or second-hand clothes. Service businesses are typically small restaurants and bars, catering and food preparation, hairdressers, repairs services and taxi drivers. Manufacturing enterprises uses machines, tools and labour to make products for sale. The sector includes enterprises such as tailoring, embroidering, construction of houses and wells, production of bricks and making of wigs. Agriculture is production of goods through farming. Common agriculture products are chickens, eggs, vegetables, animal food, milk and goat meat.

Information concerning the scale and profits of the business operations are collected separately for every business where the clients consider themselves the main decision maker.[23] The variables are later summarised for all the businesses belonging to the individual client, so that one observation in the dataset corresponds to one client. The most important data from this section are those related to the business accounts, including daily and monthly sales and costs, and profits calculated on basis of these numbers.[24] An alternative variable to the calculated profit is the stated profit, which is the client's personal estimate of daily and monthly profits from the business. In cases where the client shares the business with someone outside the household, both the individual profits accruing to the client, and the profits from the full business operation are calculated.[25] Moreover, there are variables reporting the

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few exceptions, this means that producers of agricultural products and landlords have been moved from "other sector" to agriculture and service. To improve the consistency of the panel, we have made corrections if the same business has been classified differently in the baseline survey and the follow-up survey. Principally, (and in exception of obvious cases of classification mistakes in the follow-up survey) we have complied with the practice in the follow-up survey, and changed the classifications in baseline. This has resulted in the reclassification of especially tailors, where a majority was classified as service in the baseline.

[23] For instance, we did not record businesses owned by client's spouse, even if the client were working every week in the respective enterprise.

[24] The calculation of profits was made in a careful process of tracking the sales and costs in all businesses where the client was main decision maker. Dependent on the nature of the business operations and the understanding of the client, we asked about either monthly or daily figures and calculated the other measure. We asked the client about his sales on a "normal business day/month this time of year", and his costs associated with this sale. To capture all relevant costs, we asked separate questions about pay for goods and raw material, compensation to employees, transport cost, electricity, phone bills related to business activity, water and waste disposal and other costs such as market fee or security.

[25] Separating individual profits for the entrepreneur and total profits for all business partners was the practice in the follow-up survey. Less attention was paid this element in the baseline survey, and consequently we have only one profit term in this dimension from 2008. Differences between total and individual profits calculated in the follow-up survey are nevertheless infrequent, by reason of the rarity of non-household business partners.

number of business days per month,[26] quality of business accounts, client's working hours per week and number of employees in the business.

Throughout the analyses in chapter 5, *profit* is defined as *the calculated[27] operating profit* accruing to the entrepreneur from all his businesses. By operating profit, we mean profit from the business operations, excluding capital cost and payment of rent for the business premise.[28] This implies that the reported figures do not reveal the extent to which variations in profits come along with variations in these costs. If certain businesses have relatively high capital and land costs, profits will appear higher relative to the profits in businesses where these costs are low. The client's perception of the amount he is left with is probably dependent on his effort put into the production – another cost that is not reflected in this figure. We address this issue by performing analyses also on *profits per working hour*. The results in the analyses in chapter 5 are however robust to a variety of expressions of profit and profit per working hour. These include *stated profit*, and other profit concepts such as profits accruing to all partners of the businesses or profit net of interest payment on the PRIDE loan.

The two surveys include records of the date of establishment for all businesses. On basis of this, we have constructed a variable indicating whether the client has opened any of his businesses in the period between the end of the baseline survey in August 2008, and the date of interview in the 2009 Follow-up survey. The clients also report whether they have closed one or more enterprises in the same period. All businesses are taken into account, regardless of whether they have positive sales or not. This practise contrasts to the practise of reporting

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[26] A full business month is assumed to be 30 days. A business that is closed one day per week is considered to have 26 business days per month.

[27] In contrast to the advice from de Mel, McKenzie and Woodruff (2009), we chose to rely on the calculated profits over the stated profits. One of their important arguments is that micro entrepreneurs know a great deal about their own income, and that their estimate will be a better measure of their true profits than a calculation on basis of sales and costs. However, remembering all uncertainty regarding the interpretation of profits in the interview, and taking into account the relatively poor accounting skills of the entrepreneurs, we find it hard to trust their stated profits over the calculated profits. Moreover, our aim to reveal sector differences requires analyses of the profits from each of the entrepreneurs' separate businesses. A majority of the interviewees may know their total income, but we are hesitant when it comes to their breaking up of income into profits from the separate businesses.

[28] Concerning rent, we know the client's total payment for all his business premises. However, we do not have exhaustive information on the number of business premises, the business activity that is operated from the different premises or whether distinct businesses share the same business premise. Moreover, the business is often operated from the home of the client, something that makes it difficult to distinguish between housing rent and rent for business premise. Concerning capital, the only cost we have information about is the interest on the PRIDE loan. This may or may not be the only source to capital, and many interviewees spend only parts of the loan on business or split the loan between separate businesses. It is therefore difficult to find the capital associated with the distinct business activities.

the client's total number of businesses,[29] where only enterprises with positive sales are included. The information of business establishment also comprises accounts of the life span in years for all enterprises, and average life span in years for the enterprises of every client.

To investigate the mindset and the business skills of the client, the surveys include a set of knowledge questions. Seven yes/no questions have the purpose of measuring accounting skills, and the client is assigned one point per correct answer. The result is an accounting score with values from one to seven, where seven is the highest possible score. Exploring the client's investment behaviour, both the baseline survey and the follow-up survey collects data on the size of business investments and household investments during the last twelve months. There is also detailed information about the spending of the last PRIDE loan, including amount and share of the loan directed to purposes such as business investments,[30] household investments,[31] financial optimisation,[32] school fees and consumption.[33]

In addition to the loan size and savings at PRIDE, the dataset provides a complete overview of the client's financial position, meaning all his loans and savings in other microfinance institutions, in formal bank accounts, within his home or with friends and family. This makes it possible to examine the client's net financial position; the net financial position when excluding PRIDE loans; and savings. Moreover, information about the loan size of the last PRIDE loan combined with insight in PRIDE's terms of loan repayment, like interest rates and payoff time, enables the calculation of profits net of the cost of loan repayment [interest payment]. The follow-up data contains two versions of this variable; profits accruing the individual client net of his cost of loan repayment, and profits for the full business operations net of the client's cost of loan repayment.[34]

4.3 THE SAMPLE SELECTION PROCESS

As mentioned earlier, the training programme and the cash transfer in Tanzania are evaluated through a randomised control trial, conducted on the terms specified in this section.

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[29] Information about the client's total number of businesses is available both for the time of the baseline survey and for the follow-up survey. Included in this number are all businesses *with positive sales* where the client is the main decision maker.

[30] Business investments include investments in new premises, renovation and expansion of premises, smaller business investments and purchase of stocks.

[31] Household investments include investments in plot for housing, construction and repair of house, furniture, TV or other smaller investments for the home.

[32] Financial optimisation refers to every action of saving or lending.

[33] Consumption includes household and business expenditures other than investments and school fees.

[34] For instance, the total cost of loan repayment for a loan of kTS 1 000, is kTS 280. With 50 weeks of repayment, that constitutes a daily repayment cost of kTS 0.8, equivalent to a monthly repayment cost of kTS 24.

Randomised evaluations have increased in popularity the last ten years, and represent what some economists today regard as the *"gold standard"* of impact evaluation (J-PAL, 2010). The recent commitment to randomised evaluations among larger development actors, such as the Bill Gates Foundation and the US Development Challenge Corporation, illustrate increased interest and importance of this specific evaluation approach (Banerjee et al., 2007). In the following, we discuss the rationality behind randomisation, before describing how the methodology has been carried out in this research project. Finally, we present a panel of control variables to be used in later analysis.

4.3.1 METHODOLOGY: RANDOMISATION

When observing changes after introducing a programme to a group of individuals, one is not necessarily able to conclude that the programme in itself has induced these changes. We must take into account that other factors are likely to affect the outcome, and without accurate measurements of these factors, there is no way of knowing what would have happened to the sample in the absence of the programme (Banerjee et al., 2007).

One way of solving this problem is to assign treatment only to a subgroup of the sample [the treatment group], and to compare it with the subgroup of the sample that is not exposed to the programme [the control group]. This approach makes it possible to obtain the average impact on the sample population, given that the treatment and control group were similar before introducing the programme (Duflo et al., 2006). In a natural setting however, those not subject to treatment usually differ from those subject to treatment, therefore representing a poor comparison group. Say for instance, that the business-training programme in Tanzania was offered on a first come – first serve basis: The results would most likely be a treatment group consisting of individuals significantly more motivated, innovative, and business minded than those selected for the control group. Without an approach to estimate the "selection bias" described above, one cannot entirely ascribe the resulting differences between the groups into a treatment effect (Duflo et al., 2006).

In a more technical context, where Y^T represent the outcome of the individuals in the treatment group and Y^C the outcome of the individuals in the control group; we can obtain the following expression:

$$D = E[Y^T - Y^C | T] + E[Y^C | T] - E[Y^C | C]$$

The first term $E[Y^T - Y^C|T]$ represent the expected *average effect on the treated clients*, of which we wish to isolate from *selection bias*, represented by the second term $E[Y^C|T] - E[Y^C|C]$. The selection bias captures the systematic differences between the control group and the treatment group in addition to the difference resulting from the programme intervention. For instance, if treated clients in general are characterised with higher entrepreneurial abilities than the non-treated clients, $E[Y^C|T]$ would be larger than $E[Y^C|C]$. Since $E[Y^C|T]$ is not observed, one cannot access the magnitude of the selection bias, and hence the extent to which it explains the difference in outcome between the treatment and the control group (Duflo, et al., 2006)

The selection bias is solved by randomly assigning individuals to the treatment group and the control group. When two groups are randomly selected from the sample population, they are in theory both statistically equivalent to each other, and to the sample population as a whole (Banerjee et al., 2007). The only difference between the groups is that one has been subject to treatment - while the other has not. This implies that selection bias converges towards zero as the sample size increases (Duflo et al., 2006):

$$D = E[Y^C|T] - E[Y^C|C] - [0]$$

The overall conclusion drawn from the above setup is that when a randomised control trial is correctly designed and implemented, it provides an unbiased and valid estimate of the average treatment effect. When implementing a randomised field trial, and especially in a developing country, one may however fail to comply with the above assumptions (Duflo et al., 2006). The sample size represents a critical factor in this matter, as random differences between the treatment and the control group only diminishes with a larger sample size.

When discussing randomised evaluations in general, one should also mention the criticism directed towards the methodology. Angus Deaton (2010) claim that the 'randomistas' [Banerjee, Duflo, Kremer and others] fail to recognise the methodological problems with randomised field studies: The technique only informs us the *average* treatment effect; it does not tell us whether the effect was distributed widely or limited to a few special cases.

Other critics highlight the theoretical value of randomisation, but argue that it is not always a practical approach to evaluate a programme: For instance, a project that is successful in one location, may fail at another location, depending heavily on the cultural and social context in which questions are asked. Moreover, it is not possible to randomise all programmes, such as

advocacy strategies or macro policies. Consequently, the approach has been criticised for being biased towards projects with outcomes that are easy to measure (Deaton, 2010). In addition, as with medical trials, the exclusion of individuals by randomly assigning them to a control group is not always ethical justifiable (J-PAL, 2010).

4.3.2 RANDOMISATION PROCEDURE IN TANZANIA

A careful selection of the treatment and control groups was needed to ensure a valid randomisation of the business grant and business training. In the case of business training, we were concerned about possible spill-over-effects from the treatment group to the control group, meaning that the clients in the treatment group passed on their learning form the business training to clients in the control group.

First of all, only microfinance clients at intermediary loan levels, ranging between kTS 500 and kTS 1,000, were considered for the experiment. The reason for not choosing clients with lower loan levels was the relatively large turnover in this segment (Berge, et al., 2010). Second, for more practical reasons, only clients in possession of a mobile phone were included in the sample.

Out the of five PRIDE branches existing in Dar es Salaam at the time, Magomeni and Buguruni, were randomly selected to take part in the research project. Given that they met the abovementioned criterions, the loan meeting days determined whether the clients would be assigned to the sample population: Clients with meetings at Magomeni on Tuesdays and Buguruni on Thursdays were offered training, while clients with meetings at Magomeni on Mondays and Buguruni on Wednesdays were assigned to the comparison group. According to PRIDE, MECs are randomly assigned to different loan meeting days, and one can therefore assume no systematic differences between the two groups (Bjorvatn & Tungodden, 2010). Furthermore, the probability of unwanted spill-over-effects between clients offered training and clients not offered training are reduced when selecting them on basis of different meeting days.

In detail, 565 clients were initially assigned to training and 576 clients were assigned to the comparison group. Out of the total 1,141 clients, 644 of them were reached and interviewed for the baseline survey. While 319 of them had been invited to take part in the business training, the remaining 325 had not. Out of the 644 baseline clients, only 530 were interviewed in the follow-up survey. 270 had been offered training and 260 had not.

Among the 644 baseline clients, business grants were offered to clients with loan-group-meeting at 9hrs on Wednesday or Thursday plus all clients meeting at 12hrs unconditional of the weekday. This totalled 252 clients, out of which 247 actually collected the business grant and where 232 were reached and interviewed in the follow-up survey.

The resulting dataset include observations of the 530 PRIDE clients that were interviewed both in the 2008 baseline survey and later in the 2009 follow-up survey. Table 4.2 illustrates how the interviewees are put into four different groups in terms of treatment status:

Table 4.2	No Business Grant	Business Grant	Total
Business training	*Only Training* **158**	*Training & Grant* **112**	*270*
No business training	*No treatment* **150**	*Only Grant* **110**	*260*
Total	*150*	*222*	*530*

It follows that the total population sample is distributed into three treatment groups: The first one consisting of individuals offered only business training, the second consisting of individuals offered both business training and business grants and the third comprised of individuals who received only business grants. In addition, the sample composes a fourth group consisting of individuals receiving neither business training, nor business grants, functioning as a pure control group. In this master thesis, we confine ourselves to look at potential treatment effects from *business training*. That being the case, we regard the first and the second group as our treatment group [blue], thereby including all clients that were invited to participate in the business-training programme. Our control group is the third and the fourth group [red], comprised by all the clients that were not invited to business training, regardless of whether or not they received the business grant.

HAS THE RANDOMISATION BEEN SUCCESSFUL?

Implied by theory, when assigning of individuals to treatment and comparison groups through randomisation, one should expect the groups to be statistically equivalent to each other. Taking the same argument further, the treatment status, which is the only attribute that makes the groups different, should not be a good predictor of baseline individual characteristics.

Therefore, to see whether the randomisation has produced balanced control and treatment groups, we regress the indicator of business training on a panel of baseline control variables. The control variables included describe the entrepreneurial attributes, as well as socioeconomic characteristics of the interviewees.

In the matter of business characteristics, we use the owners' number of businesses in 2008 and the share of their total number of businesses that belongs to the commerce sector, referred to as their *commerce share*. Together with the logarithm to the clients' operating profit in 2008,[35] these variables aspire to represent the initial structure and scale of the entrepreneurs' business operations. The profit variable also helps to control for growth differences between enterprises with variations in initial profit, and is specified in logarithm to improve the interpretation of the coefficient. Also aiming to control for the input to the business operations, the panel of business characteristics comprise the weekly working hours of the owners and the logarithm to their PRIDE loan in Tanzanian Shillings.

Regarding the socioeconomic factors, the panel consist of four rather stable characteristics of the individual interviewee and of their family situation. First, there are two indicators of gender and martial status. The marital status of the entrepreneur also works as a pointer of whether the interviewees have children or not and give indication of their household sizes. The two remaining variables provide the age of the entrepreneurs, and their level of education presented as the number of completed school years. We assume both the age and the level of education to have implications for the profits, through the entrepreneurs' degree of business skills and restructuring capacity.

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[35] Operating profits are defined according to the discussion in section 4.2.2.

Table 4.2

Independent variables	Dependent variable: Business Training
Number of businesses 2008	0.0604 (0.0378)
Commerce share 2008	-0.0392 (0.0505)
Log of profits 2008	-0.0297 (0.0292)
Working hours 2008	0.0014* (0.0008)
Log of loan 2008	-0.0309 (0.0680)
Age in years	-0.0029 (0.0027)
Education in years	-0.0127 (0.0106)
Male	0.0898* (0.0476)
Married	-0.0324 (0.0527)
N	530
R^2	0.0267
Prob > F	0.1170

*p<0.1 **p<0.05 ***p<0.01   b/(se)

Table 4.2 gives the results from the OLS-regressions with the indicator of treatment status as dependent variable, testing the null hypothesis that all coefficients are equal to zero. Out of the nine variables in our panel of controls, two of them enter the regression with statistically significant coefficients. The first one is the number of working hours by the owner and the second one is the indicator of a male interviewee, meaning that clients randomly assigned for training are more likely to be men and work more hours in their enterprises than clients randomly assigned for the comparison group. However, the p-value to the F-test is 0.117, so the evidence is insufficient to reject the null hypothesis that all coefficients are equal to zero.

The above results nevertheless give an incentive for including the variables as controls when estimating the impact of treatment on a given outcome: This way, we control for the effect from gender and the number of working hours on the outcome variable, so that the estimates of treatment effects are less likely to be coloured by initial differences between the subgroups. Moreover, any baseline value that is likely to influence or predict the estimates of the specific outcome variable could be included in the specification without affecting the treatment estimator. In fact, controlling for variables that have a large effect on the outcome can reduce standard errors of the estimates and thus the sample size needed (Duflo et al., 2006).

However, by controlling for variables that explain little or none of the variation in outcome will increase the standard errors by reducing the degrees of freedom.

In the following chapter, we will include the complete panel of control variables in all regression analyses. This substantially improves the explanatory power of the models and reduces the standard errors.

5. DESCRIPTIVE AND EMPIRICAL ANALYSIS

The descriptive and empirical analyses make use of the data collected among PRIDE members in Dar es Salaam, and aims to investigate what impact the business-training programme has on the entrepreneurs' profitability.

The chapter starts out with a descriptive analysis in section 5.1, presenting the sample of micro entrepreneurs through average and median observations of a broad-ranging set of characteristics. Observations of socioeconomic factors give us a general picture of the interviewees, their households, finances and investment behaviour. Moreover, the section takes a more careful look on how the interviewees organise their business operations, meaning closing downs and new establishments; operation of multiple businesses and sector composition. In short, we refer to this as the business structure of the entrepreneur.

The overall aim of the remaining sections is to uncover possible impacts from business training on profits. As a starting-point, we investigate potential treatment effects through a direct analysis on profit in section 5.2. This is also referred to as an analysis on short-term profits, since evidence in favour of a treatment effect requires that impacts from business training were manifested in the profit already at the time of the follow-up interview.

We find little evidence in favour of a treatment effect through the direct analysis, and suspect that just this short-term perspective is a contributor to this. Section 5.3 therefore proceeds with an analyses aiming to uncover potential long-term effects from business training on the entrepreneurs' profits. The approach is founded on the hypothesis that entrepreneurs subject to business training have made changes to their business structures that are likely to benefit them in the future, but are not yet reflected in their profitability. A two-step analysis allows us to explore the expected implications to future profits from potential treatment effects manifested in the current business structure of the entrepreneurs:

Step 1 of the analyses [Section 5.3.1] studies the typical structure of the business operations to a successful entrepreneur, where success is measured in terms of total profit and in terms of profit per working hour. It investigates the relationship between the entrepreneur's profit and his new establishments; operation of multiple businesses and his sector composition. The analyses cannot provide any fundament for causal interpretation of the relationship between profit and business structure, but enables us to make assumptions about the expected impacts on long-term profit from changes in business structure.

Step 2 of the analyses [Section 5.3.2] tests for treatment effects on the practices of changing the business structure in the period after the training programme started. It searches for systematic differences between the treatment group and the control group regarding the entrepreneurs' new establishments and closing downs; operation of multiple businesses and sector composition. Section 5.5.3 comprises the conclusion to the indirect analysis for long-term treatment effects. Combining the results from the two steps, we illustrate the expected impact from business training on the future profits of the entrepreneurs.

5.1 DESCRIPTIVE PROFILE

The statistics presented in Table 5.1 describe the representative interviewee and bring up some of the changes that have occurred to him and his business operations between the baseline survey and the follow-up survey.

Table 5.1

Characteristics of the interviewees	Measure	Means (Standard deviations)		Median observations	
		2008	2009	2008	2009
Male	Share of sample	0.35 (0.48)	0.35 (0.48)		
Age	Years	38 (8.3)		37	
Married	Share of sample	0.76 (0.42)			
Children	Total number		2.84 (1.71)		3
Children living at home	Total number		2.28 (1.49)		2
House servants	Total number	0.26 (0.46)	0.25 (0.44)	0	0
Years of education	Years	8 (2)		7	
Monthly profit[1] incl. capital cost	kTS[2]	526 (421)	617 (830)	417	397
Investment for the home last year	kTS	774 (1 541)	498 (1 972)	340	182
Cell phone expenditure per week	kTS	8.2 (7.2)	5.8 (6.8)	7	4
Frequency of reading news papers	Days per week	2.6 (1.9)	2.3 (2.7)	3	1
Rent for all business premises per month	kTS	27 (51)	23 (42)	15	9.5
Household's food expenditure per week	kTS		43 (43)		35
Remittances to family/friends per month	kTS		27 (43)		20

[1]Calculated profit accruing the individual micro entrepreneur from all his business operations. Included in the calculations is rent of business premises.
[2]1 kTS = 1 000 TZS. 3 kTS is equivalent to US$ 2

Characteristics of the interviewees	Measure	Means (Standard deviations)		Median observations	
		2008	2009	2008	2009
Current savings	kTS	573 (816)	879 (1 192)	444	667
Current loan balance	kTS	470 (331)	486 (509)	430	390
Net financial position (Savings-loans)	kTS	103 (865)	393 (1 234)	10	250
Possession of bank card in formal bank	Share of sample	0.26 (0.44)	0.32 (0.47)	0	0
Initial size of most recent PRIDE loan	kTS	773 (238)	955 (369)	1 000	1 000
Working hours per week	kTS	63 (28)	60 (27)	60	70
Paid employees	Total number	1.1 (1.70)	0.96 (1.23)	1	1
Salary expenditures per month	kTS		62 (120)		20
Sick days last month	Number of days		1.7 (4.6)		0
Writing of business records	Share of sample	0.65 (0.44)	0.66 (0.44)	1	1
One or more businesses are registered	Share of sample	0.22 (0.42)	0.20 (0.40)	0	0
One or more businesses are licensed	Share of sample	0.19 (0.39)	0.19 (0.39)	0	0
Total business investment last year	kTS	211 (564)	342 (943)	0	68
Willingness to pay per hour business training	kTS		2.5 (2.8)		2
Number of businesses	Total number	1.54 (0.62)	1.75 (0.82)	1	2
Operator of *new establishment*[1]	Share of sample		0.29 (0.45)		
New establishment	Total number		0.35 (0.59)		0
Closure activity[2]	Share of sample		0.33 (0.47)		
Commerce share[3]	Share of businesses	0.55 (0.44)	0.53 (0.41)	0.5	0.5
Service share	Share of businesses	0.29 (0.40)	0.30 (0.37)	0	0
Manufacturing share	Share of businesses	0.12 (0.29)	0.11 (0.27)	0	0
Agriculture share	Share of businesses	0.04 (0.17)	0.06 (0.19)	0	0

[1] *New establishment*: A business established later than August 1st, 2008, and that is still operating at the time of Follow-up interview June-August 2009.
[2] *Closing activity*: The interviewee reports that he has closed down at least one business since end of the baseline survey in August 2008.
[3] *Commerce share:* Share of all enterprises operated by the interviewee that belongs to the commerce sector. The other sector shares are defined in the same manner.

The dataset include observations of 530 PRIDE clients that were interviewed both in the 2008 baseline survey and later in the 2009 follow-up survey. The sample is composed of 345 [65 percent] women and 185 men [35 percent], ranging in age from 21 to 75. 95 percent are married and 76 percent have children. The median interviewee is 37 years old, lives in a household with five members and is parent to three children –two of them still part of the household. Approximately 25 percent of the entrepreneurs have employed at least one house servant. The level of education varies between no schooling at all to 18 years of education. The median interviewee has only finished primary school; that is 7 years of education.

The median interviewee earns a profit from all his business operations of kTS[36] 397 per month, approximately USD 300. The average profit is substantially higher, amounting to kTS 616 per month.[37] Corresponding numbers from 2008 are 417 and 526, reflecting that the income differences have increased in the time period between the two surveys. The median micro entrepreneur has become poorer, while the entrepreneurs in the high-income end of the sample have increased their income. The income loss for the median entrepreneur is evident also in reduced outflows to purposes such as household investments, phone calls and rent payment for business premises.

An important outflow for the median household is food expenditure, amounting to kTS 150 per month. The median interviewee also contributes with kTS 20 in remittances to family and friends outside of the household per month. As to financial position, the median micro entrepreneur has kTS 667 in savings and kTS 390 in loan, resulting in a median net financial position of kTS 250. This is substantially higher than in 2008, when the median interviewee had a net financial position of kTS 10. Only a fraction of the loans and savings originate from positions in formal banks. Yet, 32 percent of the interviewees are in possession of a formal bank card in 2009, increasing from 26 percent in 2008.

Naturally, the net financial positions of the micro entrepreneurs are highly influenced by their loan size at PRIDE. The research sample was restricted to clients with their latest PRIDE loan in 2008 ranging between kTS 500 and kTS 1 000. In 2009, the most recent PRIDE loans range from kTS 100 to kTS 3 000, with average loan size of kTS 955. The median client has a

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[36] 1 kTS = 1 000 TZS. 3 kTS is equivalent to US$ 2.
[37] Statistics of profits given in average numbers may well be influenced by a relatively small number of entrepreneurs with relatively high profits. An alternative is to study the profit of the median micro entrepreneur in the sample. This approach puts equal emphasize on low-income and high-income observations, providing a better picture of the normal micro entrepreneur and of the profits one can expect to earn within the different groups of business owners.

loan of kTS 1 000, corresponding to interest and principal repayment of approximately kTS 108 per month. This amounts to more than 27 percent of the monthly profit to the median interviewee.

In addition to one house servant, the median micro entrepreneur has one employee to help the running of his businesses, and he works 60 hours per week himself.[38] This is a reduction from 2008, when the employment was slightly higher and the median entrepreneur's work load per week was 70 hours. Monthly salary expenditures are kTS 62 on average, but the median micro entrepreneur pays salary of only kTS 20 per month. 66 percent of the business owners state that they keep records of their transactions and 20 percent answers affirmative when they are faced with questions of whether their businesses are registered or licensed with a government agency.

Total business investments are higher in 2009 than they were in 2008, with average figures of kTS 342 and kTS 211. In 2008, the median client reported that except from investment in stocks, he had not undertaken any business investments during the last year. In comparison, the median micro entrepreneur spent kTS 68 on business investments in 2009, an increase partly due to the spending of the allocated business grants. Looking at business investment *net of* the invested PRIDE loans, the numbers from 2008 are actually higher than those from 2009. Hence, the growth in the total amount spent on business investment emerges from larger PRIDE loans and/or a greater share of the loan spent on business investment.

Between 2008 and 2009, there are noteworthy changes to the variables reflecting the business structure of the entrepreneur. For the remaining of the descriptive analysis we direct the attention towards these variables, which also will be subject to careful analysis in the indirect analysis for treatment effects. In general, the data reveals extensive practises of establishing new businesses and closing down existing businesses. Not surprisingly, this results in changes to the total number of businesses and to the distribution of businesses across sectors.

NEW ESTABLISHMENTS
In the period between the start of the business-training programme in August 2008 and the follow-up interviews summer 2009, there have been widespread practises with the micro entrepreneurs of launching new enterprises. In fact, 184 of the businesses running in 2009 are

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[38] Entrepreneurs with paid employees actually work more themselves than entrepreneurs without employees. While the median operator of a one-man enterprise works 59 hours per week in his business, the median employer works 63 hours per week in one or more of his businesses. The cause to the increasing working hours of employers may lie in the fact that they also operate a greater number of businesses compared to interviewees with no employees.

established during that period; that is 20 percent of all businesses, and equivalent to an average of 0.35 new enterprises per interviewee. The number of new businesses per entrepreneur ranges between zero and three, and altogether 29 percent of the interviewees have opened at least one new enterprise. These records only include enterprises still running at the date of the follow-up interview and exclude businesses that have been established, but later closed in the period between the surveys. Consequently, the real number of enterprises opened during the period is in all likelihood higher than expressed in the available statistics.

CLOSING DOWN OF EXISTING BUSINESSES

The life span of the enterprises ranges from zero to 34 years, with average number of operating years of 6.5 in 2009. The median micro entrepreneur has operated his average business for five years when interviewed in the follow-up survey. The modest life span of the enterprises is manifested in extensive closure activity. 33 percent of the interviewees report that they have closed down at least one business since end of the baseline survey in August 2008. The data does not reveal whether or not these businesses were among those operating at the time of the baseline survey. Therefore we have exhaustive information on the number of clients engaged in the activity of shutting down businesses, but insufficient data to quantify the percentage of the businesses operating during the baseline survey that were closed down before the follow-up survey.

THE TOTAL NUMBER OF BUSINESSES

The entrepreneurs' practices of opening new businesses and closing down existing businesses have substantial consequences for the total number of businesses in 2009. Each interviewee operated between one and four businesses in 2008. The total number of enterprises was 814 - equivalent to an average of 1.54 enterprises per entrepreneur, and 52 percent of the interviewees operated only one business. In the follow-up survey, four interviewees have closed all their businesses, while the most capable operate altogether five enterprises. The total number of enterprises has increased to 927, a growth of almost fourteen percent since 2008.[39] The average number of businesses per entrepreneur has increased to 1.75, and only 43

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[39] One can suspect that the growth of enterprises partially results from different procedures in the two surveys of dividing each entrepreneur's income generating activities into separate businesses. As a consequence, we have checked every observation, and endeavoured similar treatment and/or classification of the same business activities in the baseline and the follow-up survey. On the other hand, we cannot guarantee against the possibility of having neglected parts of the entrepreneur's secondary business activity. In both surveys, it was emphasised to catch all the businesses of the interviewee, also those operated from his home or from other business premises than the one we visited. The attention given to this may have been even greater in the follow-up survey, due to experiences from 2008 of interviewees not reporting all their business operations unless explicitly asked about all their sources of income. The effect may be a handful of extra businesses in 2009, something which by no means can explain any substantial part of the growth in the total number of businesses from 2008 to 2009.

percent of the micro entrepreneurs operate one single enterprise. Accordingly, the median entrepreneur has become the main decision maker of two businesses in 2009.

DISTRIBUTION OF BUSINESSES ACROSS SECTORS
Despite significant growth in all sectors in terms of absolute number of businesses, the relative distributions of businesses across sectors encounter only modest adjustments between 2008 and 2009. The largest sector is commerce, comprising 55 percent of all businesses in 2008 and 53 percent in 2009. The service sector is second largest, making up for 29 and 30 percent of all business activity in 2008 and 2009. Manufacturing has corresponding shares of 12 and 11 percent, while the smallest sector is agriculture, covering four percent of the enterprises in 2008 and six percent of the enterprises in 2009. While agriculture and manufacturing are subject to relative growth, commerce and service make up for a decreasing share of the total number of businesses.

5.2 DIRECT ANALYSIS FOR TREATMENT EFFECTS ON SHORT-TERM PROFITS

Through regression analyses, this section tests for treatment effects from business training on the entrepreneurs' profitability, expressed in *total profit* and *profit per working hour*. We test for treatment effects by estimating

$$\log (Y_i) = \beta_0 + \beta_1 DTraining_i + \delta C_i + \varepsilon_i$$

where the response variables Y_i are the entrepreneur's (i) profit per month and (ii) profit per working hour. The analyses make use of the logarithm to both response variables, aspiring to reduce its sensitivity to positive outliers in terms of profits.[40] Included as explanatory variable is $DTraining_i$, an indicator of whether or not the entrepreneur have been offered business training. To minimize the standard errors and improving the inference, we include the panel of control variables C_i defined in the discussion about randomisation in section 4.3.[41]

Table 5.2 presents the results from the two regressions, reporting the coefficients and the standard errors to the treatment indicator and the panel of control variables.

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[40] Subsequent to a study of relevant scatter plots, we consider the logarithmic relationship to fit better into a linear regression model than the level relationship.

[41] The panel of controls have been subject to numerous modifications, ensuring that the results from this analysis and all following analyses are robust to a variety of model specifications. Socioeconomic factors such as the number of children, the number of children living at home and household size have been included with no consequences of substantial changes in the results. This is also true for several variables reflecting business characteristics, such as business registration and licence, attributes of the business premise, investment level and the total number of paid employees.

Table 5.2

Independent variables	Dependent variables:	
	Log of profit per month 2009	Log of profit per working hour 2009
Business training	0.0074	0.0229
	(0.0748)	(0.0820)
Number of businesses 2008	-0.1717***	-0.1867***
	(0.0645)	(0.0707)
Commerce share 2008	0.0502	0.1585*
	(0.0861)	(0.0094)
Log of monthly profit 2008	0.4243***	0.3382***
	(0.0497)	(0.0553)
Log of PRIDE loan 2008	0.3506**	0.2610**
	(0.1160)	(0.1275)
Age in years	0.0016	-0.0011
	(0.0045)	(0.0050)
Education in years	-0.0031	0.0441**
	(0.0181)	(0.0199)
Male	0.1435*	0.0063
	(0.0901)	(0.0895)
Married	-0.0977	-0.0916
	(0.0748)	(0.0986)
N	526	524
R^2	0.1724	0.1218
	*p<0.1 **p<0.05 ***p<0.01	b/(se)

The treatment indicator enters with positive coefficient in both regressions, although the coefficient in the regression on total profit is negligible in size. The business training appear to have a stronger effect when working hours are taken into account, estimated to increase the profit per working hour with 2,25 percent. Both coefficients are however statistically insignificant, with p-values of 0.92 and 0.78. Consequently, we do not have sufficient evidence to state a positive treatment effect from business training on the profitability of the entrepreneurs.

We find that the entrepreneur's number of businesses in 2008 is statistically significant and negatively related to his profit in 2009.[42] Profit and loan size in 2008 are positively related to profit in 2009. Engagement in commerce is positively related to profit, and significantly so in the case of profit per working hour. Age and marriage appear to have a negative connection to profit, and men have 14 percent higher profit than women. In terms of profit per working hour however, the difference between the genders is statistically insignificant, reflecting that men work more than women. Education reduces the working hours, having positive and significant

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[42] A plausible explanation to this observation is that the positive effect from having more businesses is reflected in the initial profit, so that only the negative effect is left in the variable counting the initial number of businesses.

connection to profit per working hour. One extra year of education is estimated to increase the profit per working hour with four percent.

Returning to the main finding in the above analysis, we do not find statistically significant differences in the profits of entrepreneurs with business training and of those without business training. As pointed out in the introduction, the short time period between the business training and the follow-up survey may be a contributor to the weak results. The indirect analysis following in the next section aims to come across treatment effects with potential implications for the *future profits* of the entrepreneurs.

5.3. INDIRECT ANALYSIS OF TREATMENT EFFECTS ON LONG-TERM PROFITS

The following two-step analyses searches for differences in business structures between the entrepreneurs in the treatment group and the control group, and endeavour to explore the future implications from these treatment effects on the profitability of the entrepreneurs.

5.3.1. THE RELATIONSHIP BETWEEN PROFITS AND BUSINESS STRUCTURE (STEP 1)

This section investigates the relationship between the entrepreneurs' profits and their business structure; meaning their practices of operating multiple businesses; their establishment of new businesses and their sector composition.

As a starting point, the analysis provide statistics of profits, working hours and profits per working hour for subgroups of entrepreneurs, classified dependent on several aspects of their business structure. Through comparisons of the different subgroups, we illustrate the link between profitability and operation of multiple businesses, discuss briefly the profitability of establishing new enterprises and perform a cursory exploration of the relationship between sector and profitability.

To address potential problems of omitted variables[43] in the one-factor analyses, we proceed with an integrated analysis, comprising several multiple regressions with total profits and profits per working hour as dependent variables. The different aspects of business structure are included as explanatory variables, allowing examination of the relationship between profitability and the separate components of business structure, all other things being equal.

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[43] The omitted variable problem: Relationships that appear between profits and the different elements of business structure may well have other explanations than the particular element subject to analysis. In other words; when only one element of business structure is included as explanatory variable in the analysis, there is likely to be a bias in the results due to several omitted variables.

Table 5.3

2009	Number of observations	Means (Standard deviation)			Median observations			Percentage shares		
		Monthly profit[1]	Working hours	Profit per working hour[2]	Monthly profit	Working hours	Profit per working hour	Number of entrepreneurs/ businesses	Monthly profit	Working hours
Total	*530*	*637 (832)*	*60 (27)*	*3.254 (5.169)*	*414*	*60*	*1.726*	*100 %*	*100 %*	*100 %*
Number of businesses:[3]										
1	229	483 (911)	55 (25)	2.797 (4.735)	297	57	1.470	44 %	33 %	40 %
>1	297	765 (758)	64 (26)	3.606 (5.462)	527	63	2.101	56 %	67 %	60 %
New establishments:[4]										
0	376	637 (616)	60 (26)	3.071 (4.417)	406	60	1.700	71 %	71 %	71 %
>0	154	638 (907)	60 (28)	1.887 (6.634)	434	63	1.886	29 %	29 %	29 %
Engagement in:[5]										
Commerce	370	403 (752)	36 (27)	4.162 (6.923)	297	31.5	2.108	53 %	56%	51 %
Service	235	320 (282)	38 (28)	5.297 (12.451)	244	36	1.580	26 %	30 %	33 %
Manufacturing	90	391 (721)	41 (26)	3.588 (6.477)	192	41	1.580	11 %	11 %	12 %
Agriculture	53	359 (379)	23 (16)	9.178 (31.748)	237	21	1.734	6 %	6 %	4 %

[1] Profits and profits per working hour are measured in kilo Tanzanian Shillings (kTS).

[2] With exception from six interviewees, out of which four have closed all their businesses, the complete sample of entrepreneurs works at least one hour per week in one or more of their businesses in 2009. The measure of profit per working hour includes the 524 entrepreneurs that works at least one hour per week.

[3] The entrepreneurs are classified dependent on their number of businesses, meaning whether they run one or multiple businesses. The reported means and medians are total figures for all the businesses of the entrepreneur. The percentage shares are calculated from the aggregate numbers for the complete sample of entrepreneurs. For example, the share of aggregate total profits belonging to entrepreneurs with one business.

[4] *New establishment*: A business established later than August 1st, 2008, and that is still operating at the time of follow-up interview June-August 2009. The entrepreneurs are classified dependent on their practices of start-ups, meaning whether or not they run at least one enterprise established in the period after the business-training programme started. For details concerning the reported figures, see the above note.

[5] The entrepreneurs are classified depending on the sectors in which they engage. Reported figures are averages per business in the particular sector, and include all entrepreneurs with at least one business within this sector. The percentage shares are calculated from the aggregate numbers for the complete sample of businesses. For example, the share of the aggregate total profits coming from businesses in the commerce sector.

PROFITABILITY AND OPERATION OF MULTIPLE BUSINESSES

The information available in Table 5.3 illustrates that both profits and working hours are higher among micro entrepreneurs that operate multiple businesses compared to those operating only one business:

Looking to the aggregate statistics, 44 percent of the micro entrepreneurs in the sample operate one business. However, the group only accounts for 33 percent of aggregated *total profits* and 40 percent of the aggregated *working hours*. The residual 56 percent of the entrepreneurs that are multiple-business owners earn as much as 67 percent of the aggregated total profits and occupy the remaining 60 percent of the working hours. This proves relatively large profitability among multiple-business owners and confirms that the increased profit associated with operation of multiple businesses comes at the cost of higher workloads. For example, the median multiple-businesses owner has 77 percent higher profits, but at the same time 6 hours higher workload than the median single-enterprise owner.

Despite the increasing number of working hours, the statistics illustrate a positive relationship between the number of businesses and *profit per working hour*. The average hourly profits with the multiple-business owners are 29 percent higher than the average hourly profits to the single-enterprise owners, and the analogous profit difference is even higher in terms of the median entrepreneurs. In other words; the extra working hours related to the operation of multiple businesses appear to be more than compensated for in the matter of profit.
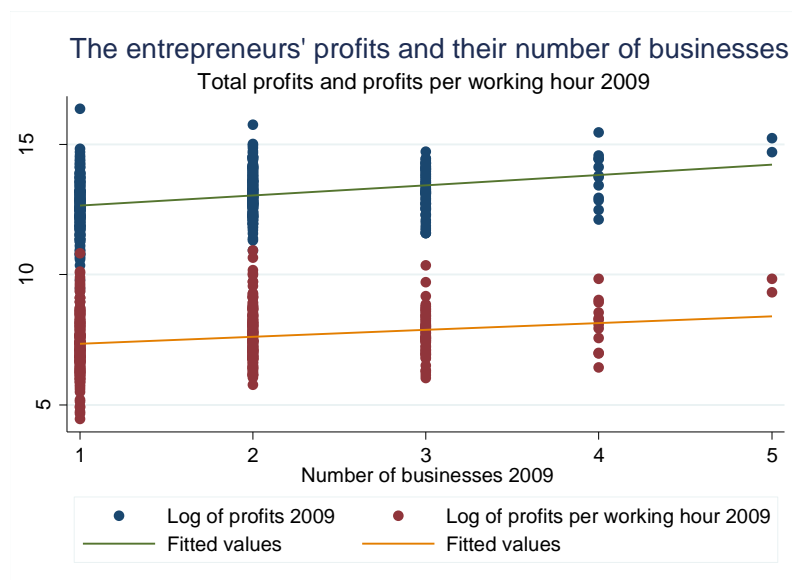

Figure 5.1[44] sums up the statistics above, illustrating the positive relationship between the entrepreneurs' number of businesses and their (i) profits per month and (ii) profits per working hour. The general impression is that operation of a great number of enterprises is a

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[44] Figure 5.1 comprises two scatters together with their assigned linear approximations, showing positive correlations between the entrepreneur's (i) total profits and (ii) profits per working hour and his number of businesses. The correlation is robust to the exclusion of the two outliers; namely the two interviewees with five businesses and an extremely high hourly income.

central criterion for the success of a micro entrepreneur, suggesting that the micro entrepreneurs are likely to benefit from establishing new businesses. We are cautious in our interpretation of the above statistics however, particularly because we expect new establishments to generate relatively low short-term profits compared to mature enterprises already settled in the market. [45]

Looking again to the statistics in Table 5.3, the profits accruing to the operators of at least one new establishment appear just about equal to the profits of those who do not operate any new businesses. A plausible explanation is that interviewees with at least one business start-up between 2008 and 2009 are more likely to run multiple enterprises than the entrepreneurs that did not open any new businesses in the same period.[46] To clarify the true relationship between operation of start-ups and profitability, we depend on the multiple regressions analysis following after the discussion on sector and profitability.

PROFITABILITY AND THE DISTRIBUTION OF BUSINESSES ACROSS SECTORS

Illustrated in the descriptive analysis, commerce is by far the largest sector, comprising 53 percent of all businesses in 2009. Naturally, this sector is the largest also in terms of aggregated *total profits*: 56 percent of all profit originates from commerce businesses, revealing a relatively high profitability of commerce businesses compared to the average across the other sectors. The service sector is on the other hand only accounting for 26 percent of the aggregated profits, although it encompasses 30 percent of all businesses. Manufacturing and agriculture have profits proportional to their size in terms of number of enterprises, covering eleven and six percent of the aggregate profit. The figures of average profits per business back up the finding of commerce as the most profitable sector, with profits 23 percent above the corresponding average for businesses in the service sector.[47]

From Table 5.3 it is obvious that the entrepreneurs' sector compositions also have implications for their average number of *working hours per business*. First, the statistics of aggregated working hours show a relatively low workload for owners of commerce and

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[45] *New businesses, new establishments* and *start-ups* refer to businesses established later than 1st of August 2008, and that is still operating at the point of Follow-up interview June-August 2009. *Mature businesses* refers to businesses operated at the point of the follow-up interview that have been operating at least since 31th of July 2008.

[46] This is a typical omitted variable problem, where the entrepreneur's number of businesses represents the omitted variable.

[47] In terms of the median observation, the differences in profits between the sectors are noticeably smaller, and the service sector performs relatively better. Even with the lowest average profits per business, the median enterpriser in the service sector is better off than the median enterpriser in manufacturing or agriculture. Thus, compared to the service sector, variations in profits appear higher within manufacturing and agriculture.

agriculture businesses, and a corresponding high workload among interviewees engaged in service or manufacturing. Accordingly, the weekly working hours per commerce business is 36 on average, compared to 38 and 41 hours per business in service and manufacturing. Agriculture businesses require the least effort from the entrepreneurs, with an average work load of only 23 hours in each business. In terms of working hours for the median entrepreneur, the ranking is similar; only showing greater differences between the sectors.

Considering the differences in profits and work load across sectors, we are not surprised that *profits per working hour* vary substantially with sector. Agriculture businesses have an average hourly profit which is almost twice the profit in service and commerce businesses, and the difference is even greater compared to the manufacturing sector, which is the worst performer in terms of average profit per working hour of the owner.[48] The median measure of profits per working hour is less sensitive to extraordinary salaries per hour, and substantially lower than the average numbers. For the median micro entrepreneur engaged in commerce, the hourly profit is 22 percent higher than the corresponding number for the agriculture owners, and 33 percent above the median profits per working hour put into service businesses or manufacturing businesses.

REGRESSION ANALYSIS ON PROFITABILITY AND BUSINESS STRUCTURE
The above comparisons have displayed the actual differences in average profits between the subgroups of entrepreneurs, and allowed us to form general ideas of profitable and non-profitable business structures. Aiming to uncover the isolated relationships between profits and the separate elements of business structure, we proceed by estimating the model

$$\log{(Y_i)} = \beta_0 + \beta_1 NrBus_i + \beta_2 DNewBus_i + \beta_3^s SectorShare_i^s + \delta C_i^s + \varepsilon_i$$

where Y_i are the dependent variables representing (i) total profits and (ii) profits per working hour. The included explanatory variables are three components of the entrepreneurs' business structure: Their number of businesses, $NrBus_i$ [49]; their practices of establishing new

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[48]There are some important aspects to keep in mind when interpreting the figures representing profits per working hour; for example, many owners of multiple business put most of their working hours into one business, and let family members, house servants or employees take care of the other enterprises. The typical case is entrepreneurs that work in businesses outside their home, and leave their home-based agriculture enterprise in the hands of their family members. This is one important reason for the huge average hourly profits of entrepreneurs in the agriculture sector. Moreover, the profit measure subject to analysis does not reflect cost of capital and land. These costs are often high among entrepreneurs engaged in agriculture. For example, while the cost of a milk cow were approximately kTS 800, the salary of a shepherd, house servant or another unskilled worker were normally kTS 30 per month.

[49] The results are robust to substitution of the explanatory variable representing the entrepreneurs' number of businesses in 2009, by the indicator of whether or not the entrepreneurs are owner of multiple businesses in

businesses, $DNewBus_i$; and their relative sector distribution, $SectorShare_i^s$. The four sectors s are included one by one in different regressions.[50]

Table 5.4[1]

	Dependent variable: **Log of monthly profits 2009**			
Independent variables	*Commerce share*	*Service share*	*Manufacturing share*	*Agriculture share*
Number of businesses 2009	0.3945***	0.3912***	0.3886***	0.3883***
	(0.0490)	(0.0492)	(0.0489)	(0.0489)
Commerce share 2009	0.1207			
	(0.0864)			
Service share 2009		-0.0380		
		(0.0960)		
Manufacturing share 2009			-0.1328	
			(0.1309)	
Agriculture share 2009				-0.1371
				(0.1930)
Operator of new establishment	-0.1784**	-0.1732**	-0.1711**	-0.1676**
	(0.0852)	(0.0855)	(0.0850)	(0.0851)
Log of monthly profits 2008	0.3410***	0.3438***	0.3428***	0.3427***
	(0.0438)	(0.0439)	(0.0438)	(0.0439)
Log of PRIDE loan 2008	0.2134*	0.2203**	0.2174**	0.2246**
	(0.1106)	(0.1107)	(0.1106)	(0.1106)
Age in years	-0.0041	-0.0048	-0.0045	-0.0040
	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Education in years	-0.0088	-0.0105	-0.0107	-0.0087
	(0.0171)	(0.0171)	(0.0171)	(0.0173)
Male	0.2001***	0.1986**	0.2170***	0.2002***
	(0.0765)	(0.0774)	(0.0779)	(0.0767)
Married	-0.0615	-0.0582	-0.0514	-0.0578
	(0.0855)	(0.0858)	(0.0856)	(0.0856)
N	526	526	526	526
R^2	0.2564	0.2538	0.2550	0.2543

*p<0.1 **p<0.05 ***p<0.01   b/(se)

[1] The practices of establishments are represented by indicators of whether the entrepreneurs operate at least one new establishment. The relative sector distribution consists of four variables with values between zero and one, representing the share of the interviewee's businesses that belongs to the respective sectors *s*. The remaining of the specifications in the analyses are to a great extent parallel to those in the estimation model carried out in section 5.2. The profit variables and the panel of socioeconomic control variables are identical. The panel describing the business characteristics with the entrepreneur still contains the variables representing initial profits and loan size. However, the two controls representing the initial business structure are replaced by the explanatory variables representing the business structure. Because this section does not aim to find treatment effects, the analyses do not include the dummy indicating whether or not the interviewees were invited to participate in the business-training programme.

2009. Operation of multiple businesses is associated with 59 percent higher total profits and 35 percent higher hourly profit compared to that of single-enterprise owners. The results are significant at a one percent level.

[50] The results are robust to substitution of the relative sector shares by other variables representing the sector where the entrepreneurs engage, for example the number of businesses in the different sectors.

Table 5.4 presents the results from the regressions with (i) total profit of the entrepreneurs as dependent variable. The entrepreneur's number of businesses enters the regression with positive coefficient, confirming the earlier observations of higher profits from the operation of multiple businesses.[51] A one unit increase in the entrepreneur's number of businesses is associated with approximately 39 percent increase in his total profit, corresponding to 160 kTS per month for the median entrepreneur in the sample. The finding is statistically significant at one percent level in all specifications.

However, as postulated earlier, the establishment of new enterprises does not necessarily translate into increasing profits - at least not in the short-term. Keeping the number of businesses constant, operation of one or more newly established enterprise are associated with about 17 percent reduction in profits compared to operation of exclusively mature enterprises. The result is statistically significant at five percent level in all regressions. Considering the positive association between the entrepreneur's number of businesses and his profits, the net effect of establishing a new business depends on whether or not this practice led him to operate a higher number of businesses.

The net effect from establishing a business also depends upon the sector in which the business is opened. Although the coefficients are not statistically significant, the relative commerce share has a positive relation to total profits, while the relative shares to service, manufacturing and agriculture have negative relations to profitability.

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[51] In the interpretation of the results, we have to make a reservation concerning a likely increase also in the capital cost of multiple business owners, and possibly an increase in these costs among commerce owners. Noted earlier, the results are however robust to profit measures net of the interest payment on the PRIDE loan. Since the PRIDE loan represents the biggest post on the credit balance of most entrepreneurs, the measure should function as a proxy to profits net of capital costs.

Table 5.5

Independent variables	Dependent variable: Log of profits per working hour 2009			
	Commerce share	Service share	Manufacturing share	Agriculture share
Number of businesses 2009	0.2619***	0.2605***	0.2461***	0.2468***
	(0.0556)	(0.0561)	(0.0560)	(0.0562)
Commerce share 2009	0.3569***			
	(0.0978)			
Service share 2009		-0.2770**		
		(0.1094)		
Manufacturing share 2009			-0.2666*	
			(0.1492)	
Agriculture share 2009				-0.0546
				(0.2210)
Operator of new establishment	-0.1028	-0.0910	-0.0815	-0.0783**
	(0.0967)	(0.0975)	(0.0975)	(0.0978)
Log of monthly profits 2008	0.2593***	0.2671***	0.2683***	0.2707***
	(0.0508)	(0.0511)	(0.0512)	(0.0514)
Working hours 2008	-0.0064***	-0.0064***	-0.0066***	0.0067***
	(0.0015)	(0.0015)	(0.0015)	(0.0015)
Log of PRIDE loan 2008	0.1575	0.1696	0.1708	0.1815
	(0.1256)	(0.1263)	(0.1268)	(0.1271)
Age in years	-0.0021	-0.0043	-0.0035	-0.0036
	(0.0049)	(0.0049)	(0.0049)	(0.0050)
Education in years	0.0422**	0.0375*	0.0367*	0.0376*
	(0.0194)	(0.0195)	(0.0195)	(0.0198)
Male	0.0399	0.0168	0.0791	0.0496
	(0.0876)	(0.0891)	(0.0899)	(0.0887)
Married	-0.0806	-0.0821	-0.0554	-0.0650
	(0.0966)	(0.0974)	(0.0976)	(0.0978)
N	524	524	524	524
R^2	0.1622	0.1510	0.1457	0.1405

*p<0.1 **p<0.05 ***p<0.01   b/(se)

Table 5.5 presents the results from the regressions with (ii) profits per working hour as dependent variable. There is a positive relationship between the entrepreneur's total number of businesses and his profit per working hour. One extra business is associated with a general increase in the hourly profit of around 25 percent, and the finding is statistically significant at one percent level in all specifications. It is clear that the higher workload resulting from operation of multiple businesses is more than compensated for in terms of profit.

Establishment of new businesses is associated with a reduction of hourly profit between eight and ten percent. Therefore, if a start-up results in one unit increase in the entrepreneur's number of businesses, the net effect from operating the new business is calculated to about 15 percent increase in his profits. In contrast to the relationship with total profit, the finding is however statistically insignificant with p-values ranging from 0.29 to 0.43.

Another important difference from the previous regression is that three out of the four variables representing the relative sector distribution enter the regression with statistically significant coefficients. The indicators are analogous to those in the regression on total profit: An increase in the commerce share is associated with increasing profit per working hour, while an increase in the service, manufacturing or agriculture share reduces the hourly profit of the owner. The coefficient to the commerce share is statistically significant at one percentage level and the corresponding significance levels of the service and manufacturing shares are five and ten percent. The coefficient to the agriculture share is statistically insignificant.

To illustrate, a micro entrepreneur with commerce share of 1 [for example owning two commerce businesses], have 18 percent higher profit per working hour than an entrepreneur with commerce share of only 0.5 [for example owning one service business and one commerce business]. Similar comparisons of entrepreneurs with different engagement within service- and manufacturing illustrate 14 and 13 percent lower profits with the entrepreneur having the highest share.

SUMMARY OF THE FINDINGS IN STEP 1

The results from the analyses in Step 1 confirm that business structure has substantial explanatory power on the profitability of the entrepreneur. First of all, the number of businesses is positively related to profits, and multiple-business owners have substantially larger income than single-enterprise owners. Operation of multiple businesses is associated with increasing workloads, but this is more than compensated for in the matter of profits. Second, the establishment of new enterprises have a negative connection to short-term profits. The relation is most apparent when measured in terms of total profits of the entrepreneur.

Third, there are implications on profits from the entrepreneurs' sector composition, where the commerce sector stands out as the most profitable. Service enterprises perform better than manufacturing enterprises, but both sectors have substantially lower profits than the commerce sector. The differences are particularly evident in the matter of profits per working hour, due to low work load in the commerce sector relative to the service- and manufacturing sector. It is more difficult to judge the profitability in the agriculture businesses. The sector has low total profit, but high hourly profit.

Considering all the above findings, a typical successful entrepreneur operates multiple businesses, whereas none of them are new establishments. Moreover, he has a large share of

his businesses settled in the commerce sector, mirrored by small shares of his businesses devoted to services or manufacturing.[52] Based on the previous analyses, it is not possible to verify whether or not any of these elements of business structure actually lead to higher profits. The causal relation may well be inverted so that the changes in business structure come as a result of higher profits. Nevertheless, the above results give a well-founded concept of the most profitable business structures, enabling us to make assumptions of profitability based on the organisation of the micro entrepreneurs' business operations.

5.3.2 TREATMENT EFFECTS ON BUSINESS STRUCTURE (STEP 2)

This section seeks to investigate the impact from business training on the business structure. In that manner, it tests whether or not entrepreneurs with business training make other sector choices than entrepreneurs in the control group when they carry out structural changes to their business operations. The first set of analyses tests whether or not the treated entrepreneurs have established more enterprises in the period after the business-training programme; and whether or not they are more likely to operate multiple businesses in 2009 than the control group. The second set of analyses searches for treatment effects on the sector composition of the interviewees.

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[52] The excluded capital cost is an important aspect when we judge operation of multiple businesses within the commerce sector to be the most profitable. Both these choices are probably associated with higher cost of capital, and may therefore appear more profitable than they are relative to operation of fewer businesses within other sectors than commerce.

Table 5.6

Business structure	Measure	2008	2009		
		Complete sample	Complete sample	Treatment group	Control group
Number of businesses, establishments and closures:					
Operator of multiple businesses	Share of sample	0.47 (0.50)	0.56 (0.50)	0.60 (0.49)	0.52 (0.50)
Number of businesses	Total number	1.54 (0.62)	1.75 (0.82)	1.79 (0.82)	1.71 (0.81)
Operator of new establishment	Share of sample		0.29 (0.45)	0.31 (0.46)	0.27 (0.45)
Closure activity last year	Share of sample		0.33 (0.47)	0.33 (0.47)	0.33 (0.47)
Sector composition:					
Commerce share	Share of businesses	0.55 (0.44)	0.53 (0.41)	0.55 (0.40)	0.52 (0.42)
Service share	Share of businesses	0.29 (0.40)	0.30 (0.37)	0.29 (0.36)	0.30 (0.39)
Manufacturing share	Share of businesses	0.12 (0.29))	0.11 (0.27)	0.10 (0.25)	0.13 (0.30)
Agriculture share	Share of businesses	0.04 (0.17)	0.06 (0.19)	0.06 (0.20)	0.05 (0.19)
Commerce businesses	Total number	0.87 (0.73)	0.92 (0.74)	0.95 (0.73)	0.88 (0.76)
Service businesses	Total number	0.44 (0.61)	0.54 (0.68)	0.55 (0.68)	0.53 (0.69)
Manufacturing businesses	Total number	0.17 (0.39)	0.19 (0.43)	0.17 (0.42)	0.20 (0.45)
Agriculture businesses	Total number	0.06 (0.24)	0.10 (0.31)	0.11 (0.32)	0.10 (0.30)

TREATMENT EFFECTS ON START-UPS AND OPERATION OF MULTIPLE BUSINESSES

Table 5.6 presents data in terms of separate averages for the treatment group and the control group, making us aware of some discrepancy between the two groups: While treated micro entrepreneurs each operate an average of 1.79 enterprises, and 60 percent of them have become multiple-business owners by 2009; untreated micro entrepreneurs confine themselves to operate on average 1.71 businesses and only 52 percent of them are multiple business owners. The treatment group also appear to have the most start-ups in the period after the business training. 31 percent of the treated entrepreneurs operate at least one newly established enterprise at the time of interview in 2009. The analogous number for the entrepreneurs in the control group is only 27 percent.

The following regression analyses investigate the statistical significance of the observed differences between the treatment group and the control group. We estimate the model:

$$Y_i = \beta_0 + \beta_1 Training_i + \delta C_i + \varepsilon i$$

where Y_i represents four different dependent variables reflecting the practices of opening and closing enterprises and operating multiple businesses: The first one is a indicator of whether or not the entrepreneur operates more than one business in 2009. The second one is a dummy indicator of whether or not the entrepreneur operates at least one new establishment. The third is the entrepreneur's number of businesses in 2009. The fourth regression includes as response variable the indicator of whether or not the entrepreneur has closed down any businesses between the two interviews. Since the total number of businesses in 2008 is included as one of the control variables, all specifications are ways to model the changes that have occurred to the entrepreneurs' number of businesses after the business training took place.

Table 5.7[1]

	Dependent variables:			
Independent variables	**Multiple-business owner**	**Operator of new enterprise**	**Number of businesses 2009**	**Closure activity**
Business training	0.0723*	0.0437	0.0713	-0.0066
	(0.0423)	(0.0561)	(0.0560)	(0.0405)
Number of businesses 2008	0.1571***	0.0743**	0.2858***	0.1438***
	(0.0366)	(0.0343)	(0.0595)	(0.0350)
Commerce share 2008	-0.0659	0.0102	-0.1541*	0.1207**
	(0.0488)	(0.0458)	(0.0793)	(0.0467)
Log of monthly profits 2008	0.0321	-0.0386	0.0249	-0.0181
	(0.0282)	(0.0265)	(0.0459)	(0.0270)
Working hours 2008	-0.0002	-0.0014**	0.0000	-0.0008
	(0.0008)	(0.0007)	(0.0013)	(0.0008)
Log of PRIDE loan 2008	0.1688**	0.0385	0.3210***	-0.0773
	(0.0656)	(0.0615)	(0.1066)	(0.0628)
Age in years	0.0014	-0.0021	0.0042	-0.0001
	(0.0026)	(0.0024)	(0.0041)	(0.0025)
Education in years	-0.0063	-0.0072	-0.0023	-0.0073*
	(0.0103)	(0.0096)	(0.0167)	(0.0098)
Male	-0.0844*	-0.0977**	-0.1427*	-0.0907**
	(0.0461)	(0.0433)	(0.0750)	(0.0442)
Married	-0.0266	0.0289	-0.1220	0.0606
	(0.0509)	(0.0477)	(0.0827)	(0.0405)
N	530	530	530	530
R^2	0.0825	0.0346	0.0823	0.0629

*p<0.1 **p<0.05 ***p<0.01   b/(se)

[1] With exception to the change of dependent variables, the specifications in the models are identical to the ones in the test for treatment effects on profit in section 5.2. Yet again we make use of the previously defined panel of control variables and we include the indicator of treatment status as explanatory variable.

Table 5.7 presents the results from the four regressions. The first regression uncovers a positive treatment effect form business training on the probability of being a multiple-

business owner in 2009. The coefficient is significant at a ten percent level and reports that micro entrepreneurs offered training has a seven percent higher probability of operating more than one business in 2009 compared to entrepreneurs in the control group.

In the three remaining regressions, the coefficients to the treatment indicator also point in the direction of a greater number of businesses among the entrepreneurs offered business training. Compared to the entrepreneurs in the control group, they appear to close down fewer businesses, establish more businesses, and consequently operate more enterprises in 2009. That being said, the findings are not statistically significant at any conventional level.

TREATMENT EFFECTS ON THE SECTOR COMPOSITION
Returning to the statistics presented in Table 5.6, they reveal differences between the treatment group and the control group in their distribution of businesses across sectors in 2009. Relative to the control group, the treatment group operates a high number of commerce, service and agriculture businesses, and a low number of manufacturing businesses. The statistics of relative sector shares slightly modifies the picture: The treatment group has higher commerce and agriculture shares than the control group, with sector shares of 0.55 and 0.06 respectively. On the other hand, the control group have higher manufacturing and service share.

The following regression analyses investigate the statistical significance of the observed differences between the treatment group and the control group by estimating

$$Y_i = \beta_0 + \beta_1 Training_i + \delta C_i + \varepsilon_i$$

where Y_i represents four response variables, each one representing the share of the interviewee's businesses that belongs to the specific sector s.

Table 5.7[1]

Independent variables	Commerce share	Service share	Manufacturing share	Agriculture share
		Dependent variables:		
Business training	0.0521**	-0.0150	-0.0442***	0.0085
	(0.0253)	(0.0223)	(0.0146)	(0.0118)
Number of businesses 2008	-0.0358***	0.0114	0.0154	0.0948
	(0.0218)	(0.0192)	(0.0126)	(0.0102)
Commerce share 2008	0.6759***			
	(0.0291)			
Service share 2008		0.6832***		
		(0.0281)		
Manufacturing share 2008			0.7350***	
			(0.0252)	
Agriculture share 2009				0.7301***
				(0.0349)
Log of monthly profits 2008	0.0006	0.0055	0.0015	-0.0056
	(0.0168)	(0.0148)	(0.0097)	(0.0079)
Working hours 2008	-0.0001	0.0002	0.0000	-0.0056
	(0.0005)	(0.0005)	(0.0002)	(0.0002)
Log of PRIDE loan 2008	0.0509	-0.0573*	-0.0004	0.0120
	(0.0392)	(0.0345)	(0.0227)	(0.0184)
Age in years	-0.0016	-0.0017	0.0011	0.0018**
	(0.0015)	(0.0013)	(0.0009)	(0.0007)
Education in years	-0.0036	-0.0043	-0.0004	0.0080***
	(0.0061)	(0.0054)	(0.0035)	(0.0029)
Male	0.0185	-0.0304	0.0273*	-0.0190
	(0.0276)	(0.0246)	(0.0162)	(0.0129)
Married	0.0256	-0.0307	-0.0054	-0.0750
	(0.0304)	(0.0269)	(0.0176)	(0.0143)
N	524	524	524	524
R^2	0.5256	0.5544	0.6428	0.5027

*p<0.1 **p<0.05 ***p<0.01   b/(se)

[1]Included to control for initial differences between the groups are the corresponding sector shares from 2008. In that manner, the initial share of commerce businesses is replaced as a control variable in the regressions dealing with the other sectors.

Table 5.7 report the findings from the four regressions. We find a positive and significant effect from business training on the share of commerce businesses and a negative and significant effect on the share of manufacturing businesses.[53] Compared to the members of the control group, the entrepreneurs in the treatment group have 5.2 percentage points higher commerce share, and 4.4 percentage points lower manufacturing share. The findings are statistically significant at five and one percent level. Business training appears to have negative effect on the share of service businesses and positive effect on the share of

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[53] We have also carried out regressions where the relative sector shares are substituted - both as response variable and control variable, by variables counting the number of businesses within each sector. The outcomes are in agreement with the results from the analyses of the relative sector shares: Business training has statistically significant positive effect on the number of commerce businesses and a corresponding negative effect on the number of manufacturing businesses. The indicators are negative for the number of service businesses and positive for the number of agriculture businesses, but statistically insignificant also in this model specification.

agriculture businesses, but the coefficients are statistically insignificant with p-values of 0.50 and 0.47.

The analyses in Step 2 have revealed discrepancies in the patterns of changing the business structure between the treatment group and the control group. Pointing to the fact that the regressions are based on experiment data, and assuming that the randomisation has been successful, we can in its entirety ascribe these differences to the business-training programme.[54]

We find positive effects from business training on all response variables reflecting the operation of new establishments; operation of multiple businesses, and the total number of businesses in 2009. The evidence are not sufficient to state that the entrepreneurs in the treatment group have established more businesses than those in the control group, nor can it confirm that they have a greater number of businesses in 2009. In any case however, we have sufficient evidence to confirm a positive treatment effect on the probability of operating multiple businesses in 2009.

Moreover, we find sufficient evidence to confirm treatment effects from business training on the sector composition. Compared to micro entrepreneurs in the control group, the entrepreneurs offered business training have increased their engagement in the commerce sector, and reduced their exposure towards the manufacturing sector. Although not significantly different from the entrepreneurs in the control group, the entrepreneurs offered business training also appear to reduce their engagement in the service sector and increase it in the agriculture sector.

5.4.3 FINDINGS IN THE INDIRECT ANALYSIS OF TREATMENT EFFECTS

The indirect analysis for treatment effects aimed to uncover treatment effects from business training that were not reflected in the profits at the time of follow-up interview, but that may have implications on the entrepreneurs' future profits.

Step 1 endeavoured to uncover the relationship between the entrepreneurs' business structures and profitability. It could not provide any fundament for interpretation of the causal relationship between the business structure and profits, but the results could illustrate the

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[54] The panel of control variables comprises also the relative sector shares in 2008. This is a control variable that obviously takes up a lot of variation, and ensures that initial differences between the two groups are taken into consideration [although a valid randomisation serves this purpose].

profitability of different business structures. Together with the results of treatment effects on business structure in Step 2, they allowed us to make assumptions of the impacts from the business training on the long-term profitability to the micro entrepreneurs. Our general judgment is that business training leads to shifts towards business structures that are associated with higher profitability:

First, entrepreneurs with business training have more often become multiple-business owner. This behaviour is associated with generally higher total profits and profits per working hours. However, it cannot automatically be translated into higher short-term profits. The explanation is the positive relationship between profits and operation of multiple businesses, but also the observed disadvantage of operating new establishments.

Second, the entrepreneurs offered business training have increased their engagement in commerce at the expense of engagement in manufacturing. Parallel to this, the bulk of indicators rank commerce as the most profitable sector and manufacturing as the least profitable sector, especially in terms of profit per working hour. Taking into account working hours, we can therefore confirm that business training enhances movements away from the least profitable sectors and towards the sectors associated with higher profits.

The analyses in Step 1 are based on the existing connections between business structure and profitability, and there is no guarantee that this represents the future market situation. Any better predictor of the future business environment are however difficult to find, and the micro entrepreneurs are also restricted to the available market information when they evaluate the profitability of different business practises. In view of this, the entrepreneurs with business training have more often exploited the profit opportunity of operating multiple businesses; to a greater extent increased their engagement in the most profitable sector, and more often turned away from the least profitable sector. A reason to why we cannot observe this in the profits of the entrepreneurs at the time of the follow-up survey is the low profitability of new establishments.

6. Summary and Concluding Remarks

Our study drew on empirical data collected in the context of an ongoing research project investigating the impact of providing financial and human capital to small-scale entrepreneurs in Dar es Salaam, Tanzania.

The literature demonstrates financial constraints among small-scale entrepreneurs in developing countries, suggesting that microfinance can address this problem and promote income growth. Recent publications have turned the focus to other obstacles faced by entrepreneurs, and in particular pointed to the lack of skills and knowledge as a severe constraint to income growth. This master thesis has studied *the impact of incorporating business training in a microfinance programme*, and thus evaluated a respond to the combination of these constraints.

The level of education is modest among the participants to the informal sector in Tanzania, and the data reveal that this applies also to our sample of micro entrepreneurs in Dar es Salaam. In view of this, we assume relatively high returns from investment in human capital, expecting that business training will enhance the business outcome of the micro entrepreneurs. In our analysis of the impacts from business training, the outcome variable of primary interest has been the profitability of the entrepreneur, represented in his total profit and profit per working hour.

We do not find sufficient evidence to confirm a positive treatment effect from business training; neither on the entrepreneurs' total profit, nor on their profits per working hour. On the other hand, we find significant treatment effects on their business structure, and believe this to have implications to their future profitability. Treated entrepreneurs advance to business structures generally associated with higher profitability in 2009, particularly when working hours are taken into account. Activity of changing business structure is however pinned on the operation of new establishments, which is associated with low profits. This can explain the weak evidence in favour of treatment effects on profits, and advocates that positive impact from business training will be manifested in profits when the current new establishments have become well settled in the market.

The last observation calls attention to the value of a long-term perspective in the evaluation of similar programmes, especially when the programme is designed to have a lasting impact on the outcome of interest. One of the topics in the business-training programme was indeed *The*

Importance of long-term view and orientation in the business. The extent to which the programme participants actually acquired this knowledge, and enhanced their ability to make long-term business decisions, is most appropriately assessed when forward-looking management have had the time to materialise in the business outcome.

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