

Entrepreneurship versus MicroFranchising:

A Baseline Study of Small Business Owners and Fanmilk

Vendors in Accra, Ghana

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Abstract

The microfinance movement has gained a lot of momentum during the past few decades as a method to alleviate poverty in developing countries where the poor have been overlooked by the formal financial banking sector. Microfinance is of greatest benefit to the “poor entrepreneur” who can effectively put the financing to use in their small businesses. For those who do not have entrepreneurial abilities, microfranchising presents a proven business model that can be implemented at low cost to the individual. In Accra, Ghana, one business that is participating in microfranchising is Fanmilk. Fanmilk uses individual vendors to sell their ice cream and yogurt treats. Results of a 2007 baseline survey of these vendors, as well as a “stand-alone” control group, show a positive correlation between profitability and microfranchise ownership. In the process of attaining these results, it was necessary to develop a model of variables that determine profitability in small businesses in Accra. Future years worth of data is needed to demonstrate causation.

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Entrepreneurship versus MicroFranchising: *A Baseline Study of Small Business Owners and Family Vendors in Accra, Ghana*

I. Introduction

Currently over 1.1 billion people live in extreme poverty as defined by the last World Bank's estimate in 2001. Most of these poor live in developing countries, where some of the typical remedies for poverty touted in developed countries, education for example, do not seem to suffice. What good is an education when there are no jobs that require more than a basic skill set and not every individual is a natural entrepreneur? Without jobs requiring a higher level of skills, "[y]ou have created a supply of skills where there is no demand for skills. And so the skills go to waste--- with, say, highly educated taxi drivers—or the skilled people emigrate to rich countries[.]" (Easterly 2001) So education alone is not enough; there must be a marketplace that provides economic rewards for investment in human capital.

Is there a solution? Poverty is one of humanity's oldest problems and is much too complicated to be resolved by a single solution. Rather we must try to address each root cause one by one the best we can. This paper attempts to evaluate microfranchising as a solution to the poor's lack of access to formal sector jobs in developing countries.

A. The Center for Economic Self-reliance and Microfranchising

Brigham Young University's Economic Self-reliance Center, or the ESR Center, funded this project. One of the ESR Center's main initiatives is the MicroFranchise

Development Initiative. ESR states the following as their MicroFranchise mission statement:

Our mission is to research and develop the concept of microfranchising as an economic development tool and to assist our partner practitioners in the establishment and refinement of MicroFranchises around the world. Furthermore, we intend to be the leader in the emerging field of microfranchising and develop an arena for those who are either currently working or desire to participate in microfranchising to operate. (ESR Center, 2007)

The broader goal of this research project is simply to learn more about microfranchising, the people it reaches and whether it is truly beneficial. Specifically, this research focuses on the Fanmilk microfranchisees in Accra, Ghana. Who are these Fanmilk microfranchisees and do they benefit from this business model? Are microfranchises in Ghana better businesses than comparable stand-alone businesses? We hope to be able to begin to address these questions through this research.

B. Definitions

Before proceeding any further, we must define what exactly ‘microfranchising’ is. According to the ESR Center, “[MicroFranchises are broadly] defined as small businesses that can easily be replicated by following proven marketing and operational concepts... The key principle is replication, replicating success to scale.”

There is another part of my research’s definition of microfranchising that this ESR definition leaves out. Here I consider microfranchises as small, replicable, *formal sector* businesses that are connected to a larger *formal* company. The formal sector connection is important to differentiate microfranchises from the many small *informal* businesses that you will find in developing countries such as Ghana. “Informal” in this context has no single definition, but all varying definitions seem to refer to some sort of exclusion, as in those profits earned in the informal economy are not included in GDP

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estimates, statistical coverage, unions, social security nor do they have access to resources available to the formal sector. (Henriques & Herr 2005) In my research, “informal” sector is synonymous with the self-employed poor.

We must also define what we mean by “stand-alone”. A stand-alone business is a non-microfranchise business owned by an individual. A stand-alone may be formal or informal, may have access to credit or may not. Most of the stand-alones in my sample, given the poverty of the microfranchisee demographic that I interviewed and the desire to find a comparable stand-alone control group, were small informal businesses with no microcredit loans.

To research how microfranchising works among the poor in Ghana, we must decide who exactly are the “poor” in Ghana? In collecting our sample we mainly focused on those who started businesses requiring under \$150 New Ghanaian cedis startup capital, or about \$163 USD. This is a somewhat arbitrary limit, but it was the simplest way to quickly group people. It is important to remember this research took place in an urban environment because startup costs are much lower in rural areas. One may argue that an individual who has access to credit may have a higher initial startup cost without necessarily being wealthier. However this did not complicate our study, as it was very rare to find someone who used microcredit for startup capital. Most microcredit borrowers used it to grow existing businesses, not to start new businesses.

II. Hypotheses

As stated before, there are really two main questions we hope to be able to answer through this research.

- 1) What are the characteristics of microfranchisees and how do they differ from stand-alones and those with microcredit loans?
- 2) Are microfranchises a better business model for the poor than stand-alone businesses, with or without microcredit?

The first question may be answered through simple observation and frequency analysis. However, the second question requires a quasi-experimental design since we are unable to dictate who receives the microfranchise or microcredit treatment. To establish any true causal relationships we have to control for those variables we believe differentiate the treatment and control groups AND follow the individuals over a certain time span. This paper is only the baseline analysis in a study that will collect further information in the future. Therefore we do not attempt to establish causality at this time.

First we must define what a “superior” business is. The following are all measurements that we will use to determine if one business is “superior” for the poorest demographic in Ghana than another business: 1) net profit, 2) net profit per hour, 3) ROI (net profit/startup), 4) inventory turnover, 5) return on assets 6) startup cost, and 7) startup cost recovery time. These are our dependent variables. My hypothesis is that the microfranchise businesses will have a more favorable value than stand-alone businesses with or without microcredit for each of the seven. I evaluated the last two dependent variables using simple frequency analysis, but the first five dependent variables required linear regression. However, not all of these five dependent variables made sense in terms of this regression. For example, there are some businesses that have no assets other than their inventory, which they pay for after they sell it with the option to return unsold

goods. In this way these businesses have a zero asset balance, or near-zero, at any given time. In these cases the Return on Assets variable would not make sense.

Equations 2.1 and 2.2 are representations of the hypothesis regressions including control variables. I will go through the selection of each of the independent variables in a later section.

$$\text{Eq 2.1 } y_{FullSample} = b_0 + b_1 * MFR + b_2 * MCR + b_3 * SC + b_4 * SC^2 + b_5 * BA + b_6 * BA^2 + b_7 * BA * G + b_8 * BA^2 * G + b_9 * BE + b_{10} * E + b_{11} * G$$

$$\text{Eq 2.2 } y_{MatchedSample} = b_0 + b_1 * MFR + b_2 * MCR + b_3 * SC + b_4 * OA + b_5 * BE$$

MFR=Microfranchising dummy, MCR=Microcredit dummy, SC=Unadjusted Startup Cost, BA=Business Age, G= Gender (1=male), OA=Owner's Age at business start, BE=Business Experience (or the #of businesses survived in the last 5 yrs), E=Education dummy(or educated beyond secondary school)

Another related hypothesis, resulting from discussion with Jason Fairbourn of BYU's ESR Center, is how the above regression relationships change over time. We believe that microfranchises work best for those who are just starting out in business who have little capital. The following chart, Chart 2.1, represents our hypothesis of the growth of a business over time given a specific startup cost, all-else equal.

Chart 2.1

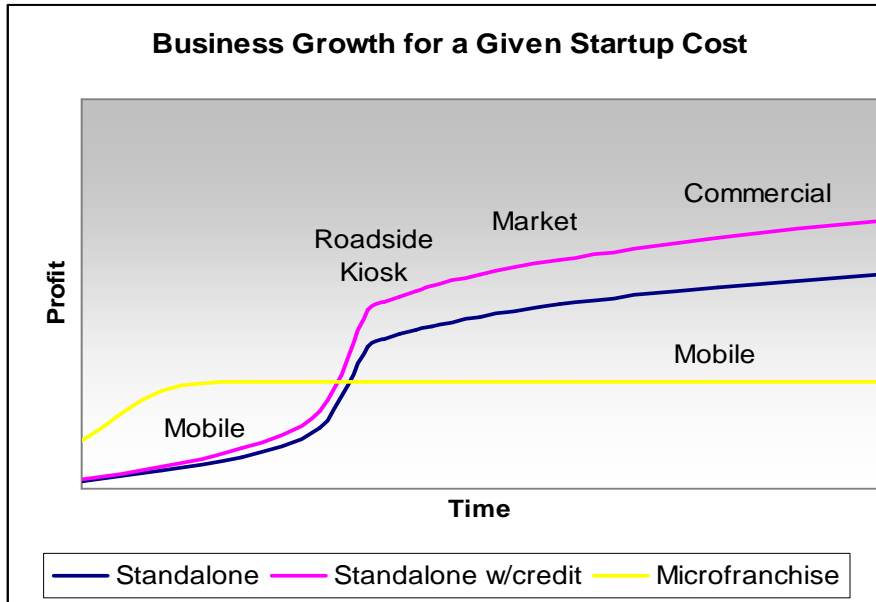


Chart 2.1 shows that the microfranchise is more profitable early on, but does not have the same growth potential that a stand-alone business does. Almost all the microfranchises we interviewed were mobile, without the option to grow into a small kiosk. On the other hand, a stand-alone with a small initial startup cost may start as a mobile enterprise but eventually grow to be a kiosk, a more permanent market container and theoretically even a commercial shop.

This does not take into account potential differences in fail rates. Also, such growth would require a very profitable business and may be unlikely. The study will show this in the strong relationship between current profitability and initial startup cost. It is more likely a business owner accrued savings, or was capitalized, to jump into a higher business stage on this time line, than they actually grew their business to that

point. However, if we also find a connection between business age and profitability, we may also deduce that it is possible for businesses to grow as depicted by this model.

III. Literature Review and Background

A. Microfinance

Microfranchising progresses naturally from the microfinance movement with its assertion that poverty can be alleviated by focusing on the poor individually, from the bottom-up. Microfinance provides the capital, and microfranchising provides the business model. A brief overview of microfinance is therefore appropriate.

In the United States it has been shown that there is a clear correlation between poverty and the business cycle. During economic downturns, those who are bordering the poverty line fall often below it. However, it is not merely that recessions increase the number of poor. It is also understood that the poor tend to suffer *more* than others when the economy takes a turn for the worse, especially in developing countries. The poor are not able to accumulate assets and so are not well insured against economic shocks (Agenor 2001).

Most of the impoverished in developing countries do not have public safety nets to rely upon, nor do they have access to well-functioning credit markets to borrow when times get difficult. Therefore, they cannot survive unemployment for long and are forced to seek employment in the informal market. The labor supply then increases in the informal market and wages are suppressed.

Thus, recessions and crises raise poverty in two related ways: directly by lowering wages and increasing the rate of job losses and the number of "new" poor in the formal sector; and indirectly, by lowering the going wage of those that are already "employed" (or quasi-unemployed) in the informal economy (Agenor 2002).

In developing countries, this "informal economy" is where most of the poor and even many of the not-so-poor make their living.

Microfinance has its roots in the idea that poor households lack access to capital, which prevents them from investing in their future by growing a business. But they are also unable to smooth their consumption during recessions as described above. Access to credit is a key part of a well-functioning economy. However, the method of getting this access to the poor has been a topic of hot debate.

In 1976, Mohammad Yunus, head of the Rural Economics Program at the University of Chittagong in Bangladesh, initiated a program that would grow throughout the country and spur NGO's and banks to action throughout the developing world. He began extending credit to the very poor. Most poor people could not access credit through conventional means (formal banks) because of high transaction costs per loan size and lack of collateral.(Armendariz & Morduch 2005) The idea was that with access to credit, the "poorest of the poor" could grow small businesses, begin to save money and hopefully, one day, climb out of poverty. At the very least, access to credit can help smooth the effects of market fluctuations for small businesses and poor individuals (Morduch 1995). Yunus's idea was not new, but his methodology was. He used a non-governmental organization to conduct large scale, bottom-up lending that often implemented group liability in place of collateral.

Access to credit was not non-existent before Yunus started implementing this method through the Grameen bank. Indeed, some may view the latest efforts in

microfinance as simply a continuation of past efforts, largely unsuccessful, to incorporate the poor into formal financial markets. After World War II, many state-owned development banks attempted to encourage rural development through subsidized credit, interest rate caps and allocated credit according to “social targets”. These programs proved disastrous and even repressive, as evidenced in India and the Philippines.

(Armendariz & Morduch 2005) David (1984) concludes that in the Philippines “credit subsidies through low interest rates worsen income distribution because only a few, typically well-off farmers, receive the bulk of cheap credit. When interest rates are not allowed to reflect costs of financial intermediation, wealth and political power replace profitability as the basis of allocating credit.”

So although efforts to incorporate the poor into the formal financial sector in the past have failed, that does not mean the poor have no access to credit whatsoever. These informal options include ROSCAs (rotating savings and credit groups), pawnshops, moneylenders and family and friends. The main disadvantage with these informal finance methods is that the financing resources are constrained to that poor community, whereas the formal sector’s resources are just so much greater.

So why would microfinance be more successful than former formal attempts to extend credit to the poor? This bottom-up approach has been the most direct method to target the poor’s lack of access to credit while still allowing market forces, such as interest rates, to work efficiently. Why would microfinance be better for the poor than existing informal options for obtaining credit? Microfinance has allowed greater access to credit than that available from the ROSCA’s and moneylenders and usually at cheaper rates. The poor have direct access to commercial bank financing and funds donated by

the developed world and it is an opportunity for them to finally be tap into global financial markets at a much larger scale.

Unfortunately, many of the arguments in favor of microfinance cited above are still unproven theories. Armendariz de Aghion and Morduch (2005) list four myths about microfinance, the third of which states that microfinance has been shown to be a successful tool for poverty reduction. Although there is no lack of anecdotal evidence in support of microfinance Armendariz de Aghion and Morduch (2005) state, “relatively few rigorous studies of impacts have been completed, and the evidence on statistical impacts has been mixed so far.” (p.4) The lack of rigorous analysis is due to the numerous difficulties performing such research which requires significant resources and time to obtain data, often through face to face interviews requiring translators and travel to and from developing countries.

And even in these difficulties are surmounted, there are often problems with selection bias, access to and participation in microfinance cannot be randomly assigned. Also communication is an issue because each individual may have their own interpretation of the question put to them.

One of the few rigorous studies performed to date was authored by Pitt and Khandker (1998) for the World Bank. This analysis used household survey data from Bangladesh to compare the change in consumption over a two-year span. Their methodology was a quasi-experimental survey design based on cross-sectional data that was the result of a joint research project between the Bangladesh Institute of Development Studies and the World Bank.

Their study estimated that the marginal impact of microfinance on consumption was an 18 percent increase for women and 11 percent for men (Pitt & Khandker 1998). But this increase in consumption only does not signify a successful exit from poverty. Khandker (1998) estimates that if such impacts on consumption were sustainable over time, 5 percent of borrowers could lift themselves out of poverty each year. Khandker (2005) later used this same data to study the aggregate, village-level impact of microfinance on poverty.

He hypothesized that the aggregate impact of microfinance on poverty would be negligible because it is generally used to finance low return activities that have a low market demand. He concluded, however, that on a village-level access to microfinance does contribute to poverty reduction (Khandker 2005).

Aside from merely observing the benefit to the borrower, there is also much debate about the sustainability of microfinance. In order to be sustainable, the risk-return trade-off of an investment in microfinance must be comparable to other investments. A related discussion exists, as to whether Microfinance Institutions (“MFI’s”—small banks that extend microcredit) are filling a niche that commercial banks have irrationally left vacant (Anderson 2002). One side of the argument considers microcredit as a logical extension of global financial markets to the poor, while others consider microcredit to be subsidized credit to the poor more akin to welfare. Those who believe commercial banks have irrationally avoided the sector contend that the poor are not necessarily riskier borrowers. Those who assert that commercial banks have behaved rationally in avoiding lending to the poor believe that the poor are a greater credit risk than higher income borrowers, and they should therefore expect to see higher default rates among the poor.

In conclusion, the potential benefits of microfinance are many, but remain unproven. Substantial positive anecdotal evidence exists, but statistical research results remain mixed.

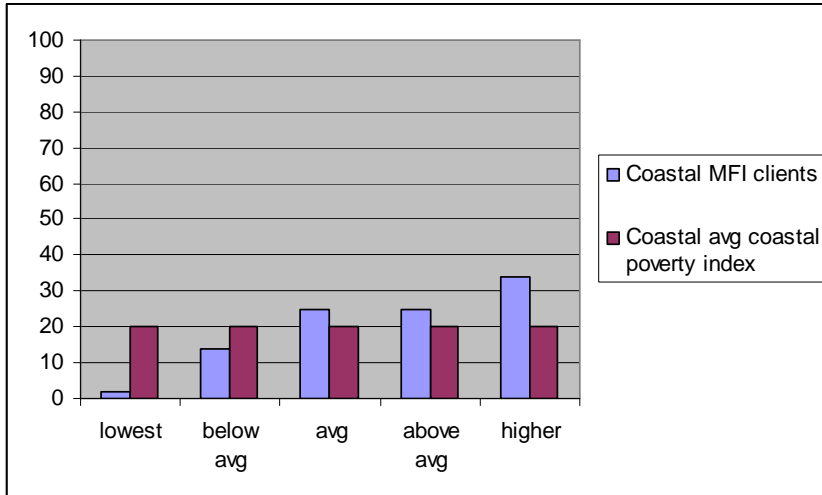
B. Microfinance Outreach in Ghana

The terminology “poorest of the poor” has been used so frequently in microfinance literature that one could mistake it for part of the definition of what makes a loan “micro”. However, this is not the case. A microcredit loan is a small loan by the standards of whoever is measuring it. The MFI’s included in a study by the Ghana Microfinance Institutions Network (GHAMFIN) have average loan sizes ranging from USD \$61 to \$230 nationally. (However, it is unclear whether this is outstanding loan size, the statistic usually reported by MFI’s. If it is outstanding loan size, then the loan size at inception was most likely much larger.) These numbers are averaged across all of Ghana’s regions, noting that Accra, the capital city of Ghana and the location of this study, is in the Coastal region, which showed the least poverty compared against the national poverty index. MFI loans here, therefore, must be much larger than the national average as the higher the income usually the higher the loans. In fact, loan size has become synonymous with the borrower’s poverty level.

In Accra, we cannot categorically state that such loans are going to the “poorest of the poor”. In fact, microfinance clients are often not the “poorest of the poor”; rather they are self-employed entrepreneurs with steady incomes.(Ledgerwood 1999) The point is that microcredit need not conform to the image of a poor rural woman taking out a loan for \$50. In Accra the study focused on identifying microcredit borrowers who fit the profile of the “poorest of the poor” in an urban environment for comparison to the

Fanmilk vendors (the microfranchisees). This turned out to be much more difficult than anticipate. Chart 3.1 gives a clue why.

Chart 3.1 Poverty Outreach by Quintiles



Reproduced from GHAMFIN, 2007

If the population is divided by poverty into quintiles, it is apparent that the wealthiest 20% make up 34% of MFI clients, and the wealthiest 60% make up 84% of MFI clients. The distribution skew is even more pronounced on a national scale, as the coastal region is the wealthiest. Using the national poverty scale would show that almost half of MFI clients in Accra are in the wealthiest quintile of the country. The northern region, where many of the Fanmilk vendors had emigrated from, is the poorest.

C. MicroFranchising

Very few would argue that microfinance is a panacea for poverty. It may be more appropriately viewed as part of a multi-faceted strategy to alleviate poverty. There are many constraints faced by informal market enterprises; access to credit is just one. Other constraints are weak networks, low productivity due to labor-intensive production, poor working conditions, limited resources and marketing, limited access to education and low innovation, poor infrastructure, legal issues and high levels of harassment by authorities. (Henriques & Herr 2005)

One of the main arguments that microcredit alone may be ineffective is that it usually requires a certain level of entrepreneurial ability on the part of the borrower. According to a study by GHAMFIN, microfinance is 'best suited for the "entrepreneurial poor"'. (GHAMFIN 2006) assumes that that individual will be able to grow a business with that money. But common sense dictates that such success doesn't only depend on access to credit, but rather also depends on the individual. For those who aren't entrepreneurs, microfranchising can be a solution because it provides a proven business model to the individual and therefore does not require an entrepreneurial skill-set. (Fairbourne 2007)

Microfranchises can also address the issues already mentioned of weak networks, poor working conditions, limited resources and marketing, legal issues and harassment. A microfranchise is a way to tap into the formal economy, linking the microfranchisee to established networks, resource supply-chains and marketing used by the parent company. Companies that allow microfranchising may be subject to regulation that provides minimum standards on the working environment. Lastly, the formal company, by

definition, will be operating legally which will authenticate the individual's activities in the eyes of the law and help prevent harassment. (Henriques & Herr 2005)

The activities of the Accra Metropolitan Authority (AMA) are illustrative of these last two points; legal authenticity and, conversely, harassment by authorities. The AMA is responsible for clearing the streets of informal (illegitimate) businesses and forcing them to register with the government so they could be taxed and regulated. Roadside kiosks and mobile vendors are in such abundance that they are often blamed for congestion problems and car accidents and they are often located in dangerous areas such as near train tracks. As witnessed first hand, one of the AMA's chief tactics to achieve this goal is to confiscate goods. (More than once, during interviews with business owners, an AMA officer approached the owner and took all of their goods, no questions asked.) Such legal and harassment issues could be resolved by finding ways to incorporate the individual into the formal economy.

Henriques and Herr (2005) suggest franchising can be a mechanism for upgrading informal enterprises. Basically the same type of enterprise that functions in the informal economy can be formalized, simply by connecting it with a larger formal organization. They describe two types of franchising, top-down and bottom-up. Top-down consists of an existing organization contracting out their business model to individuals. This is what Fanmilk did by using vendors and agents as their distribution network. Bottom-up consists of a group of small enterprises choosing to join together in a cooperative to take advantage of shared services.

Microfranchising, as implemented in Ghana by Fanmilk, is not necessarily a career path, but more likely a step to allow individuals with low or no capital to progress

sufficiently to exit the franchise and move on to some other more promising opportunities. An exception to the rule is Prempeh Collins, a Fanmilk vendor who worked his way up to being a Fanmilk agent. He is a career microfranchisee. However Prempeh is also an example of what the more common route is, saving up capital to start another business. Prempeh eventually accumulated enough capital to purchase a taxi. John Hatch, president of FINCA, a microfinance NGO, believes that there is an opportunity for partnership between microfinance and microfranchising in this aspect. (Hatch 2007) A microfranchise can be like a starter job.

Hatch (2007) points out that according to the International Labour Organization (ILO), almost half of the unemployed worldwide are young adults, a figure that has doubled from a decade ago. A 2004 FINCA client survey showed that there was no graduation from poverty across generations. Even though a microfinance client's children may have the opportunity to stay in school because of the parent's economic stability, this often did not translate into better work prospects for the child. Only one in six of clients' children with partial or complete secondary education were successful in finding a job in the formal sector (earning 8\$ a day on average); the rest were unemployed or employed in informal sector (earning 3\$ a day). Again this demonstrates that if there are no formal sector jobs to be had, then increased education cannot alone solve the poverty problem. Hatch sees this as an opportunity for microfranchising to work with microfinance. (Hatch 2007)

D. Fanmilk Structure

One of Fanmilk's main methods of ice cream distribution is their mobile vendors. Fanmilk hires vendors directly through their depots, or indirectly through Fanmilk agents.

Each morning vendors pick up their ice cream inventory from either a depot or agent's store and return unsold ice cream from the prior day. The depots also provide vendors with bicycles and training. It is possible for a vendor to work his way up to being an agent by accumulating enough capital to start his own distribution center/shop, although it is uncommon. Most vendors say they are either saving their money to start their own businesses independent of Fanmilk, or they are saving to continue their education.

Agents serve areas that are more remote than depots. These agents are true franchisees. They are individuals who have enough capital to buy 1-2 freezers, rent/own a shop and have either bought or made carts and boxes for their own vendors to use. The median initial startup cost of the agents we interviewed was 400 New Ghana Cedis, whereas the median startup cost for a vendor was 20 New Ghana Cedis. The agents visit Fanmilk depots to replenish their inventory and are paid monthly commission from Fanmilk.

Vendors working for agents earn similar profit margins, but they are often worse off than depot vendors because they do not have the bicycles with coolers that the depot vendors do. These vendors are selling from boxes balanced on their heads or from carts that they push. The occasional depot vendor uses a pushcart as well but only because he cannot operate a bike. Most of the vendors interviewed were depot vendors.

E. Entrepreneurship

The main focus of this paper is not to study the relationship of entrepreneurial attributes to business type and success. However, entrepreneurship is a potential control variable since those with entrepreneurial skills may be more successful than others in certain businesses. This incorporates the idea that some business success must be attributed to the individual and not just to the particulars of the business.

Literature on the matter suggests that there is a cognitive model of entrepreneurship constituting a “global culture of entrepreneurship” meaning that concepts discovered in one country should be able to be applied across other countries including Ghana. (Mitchell, Smith, Seawright & Morse 2000) This same research puts forth the cross-cultural cognitive model used as a basis for the eight entrepreneurship survey questions. The questions were included to explain the characteristics that make someone a natural entrepreneur, versus a non-entrepreneur. The answers given to these questions are tabulated and form the “entrepreneurship score”.

The questions cover three “scripts”: arrangements, willingness and ability. ‘Arrangements’ incorporates the individual’s resources and environments; ‘willingness’ incorporates the individual’s natural propensity towards entrepreneurship or what could be described as desire and personality; ‘ability’ incorporates the individual’s knowledge base and opportunity recognition. (Mitchell, Smith, Seawright & Morse 2000) Most of the questions selected from this cognitive model for the questionnaire were focused on ‘willingness’ for its applicability to the situation of the individuals in Ghana, a developing country. The original model was only tested in developed countries.

IV. Methodology

Although the ideal in quantitative research is a randomized experiment, for various reasons it is not a plausible research methodology in most social science research. This methodology requires a randomized sample in which subjects receive the treatment at random. Conducting research with people, it is not always possible nor ethical to randomly assign each person to a control or treatment group. Also, such research requires observation of pre and post-treatment characteristics. This means sufficient time must be allowed to pass and each subject must be followed-up on. Long-term longitudinal data collection becomes very costly. For these reasons, no long term randomized experiments on microfinance have been conducted.

Given the purpose of the study is to learn about the benefits of microfranchising, to avoid selection bias a comparison should be made between an individual running a microfranchise and that same individual running their own business of a comparable size simultaneously. Of course, this is an unlikely scenario. The best the study could do on a larger scale is to identify microfranchisees, and then identify stand-alone business owners that look similar in other respects to these microfranchisees and compare their business success. If there is some underlying variable that causes individuals to become a microfranchisee as opposed to start their own business, then there may be selection bias. This is a complication since the study could not force individuals into either the microfranchisee treatment group or control stand-alone group in a randomization process.

The study also seeks to learn how a microfranchisee compares to someone receiving microcredit loans, so there is a third comparison group, 'stand-alone with microcredit'.

To judge the success of one group versus another, the study must observe how their characteristics change over time. Observing only a cross-section cannot lead to a causal inference since it is unclear whether the observed characteristics are a result, or rather a cause for each individual choosing a specific business model. For this purpose, a follow-up questionnaire has been planned for implementation during 2008. The results discussed in this paper are only for the baseline questionnaire in Ghana and therefore cannot conclusively support claims of causation.

A. Questionnaire

The questionnaire (See Appendix D) was designed by a group of BYU students, Dr. Richard McClendon and the author to measure several indications of business success as described in the hypothesis section. These indicators should not necessarily be observed in isolation, but rather as a whole paint a picture of each business. (See Appendix A)

The questionnaire also included several questions geared towards measuring the financial well-being and socio-economic status of the individual. These indicators were savings, total household income, money spent on food and on clothing, education, and literacy.

One final section in the questionnaire dealt with an individual's propensity for entrepreneurship. These eight questions come from a larger survey by Mitchell, Smith, Seawright and Morse, taken from their paper, Cross-cultural Cognitions and the Venture Creation Decision, as described earlier. This entrepreneurial variable needs to be controlled for because business success cannot be attributed solely to the business model while completely excluding the individual's personality or talents. Questions for the

business and socio-economic status sections were modeled after The World Bank's Household Survey Household Enterprise module (Grosh & Glewwe 2000) as well as FINCA's (FINCA 2006) respectively.

B. Sampling

The questionnaire was administered in both Ghana and Bangladesh. These countries were chosen because of their underdeveloped status as well as the known existence of microfranchising. This paper only addresses the results found in Ghana. Data from Bangladesh is forthcoming.

The questionnaire was administered to 301 individuals in Ghana between May 25 and July 10, 2007. Of these, 102 were microfranchisees, 163 were stand-alone businesses and 36 were stand-alones with microcredit. Of the 102 microfranchisees, 87 were Fanmilk vendors, 7 were Fanmilk agents and 8 were non-Fanmilk based microfranchisees. The reason so few stand-alone businesses with microcredit were interviewed is microcredit borrowers in Accra tended to be of a much higher socio-economic class. After about six weeks the interviewers had only found 15 microcredit borrowers working among the stand-alones of the target demographic. The study ultimately determined that a population large enough to sample did not exist. The study then interviewed microcredit borrowers sourced through the MFI's in Accra. These individuals generally came from a different demographic than originally intended. These microcredit borrowers had more in common with the Fanmilk agents than with the Fanmilk vendors, who are poorer.

Fanmilk vendors and agents were interviewed first by going to three of the five depots in the Accra area: Circle, Abossey Akai, and Abeka. Every morning the vendors

and agents arrived between the hours of 7:00 and 10:00 am to pick up their ice cream. Interviewing lasted two to three days at each depot, spread out over the course of two weeks.

Once the interviews had generated a general idea of the characteristics of the vendors, it was possible to efficiently target stand-alones with similar traits. Fanmilk vendors were typically male, in their twenties and had a startup cost of about 20 new Ghanaian cedis, or about \$22 USD. Their businesses were mobile and required very few assets. The most comparable stand-alones were therefore male street hawkers and very small kiosk owners. These subjects were found in and around the areas where Fanmilk vendors also worked. Most notable were the markets at Kaneshie and Makola. Certain larger kiosks and shops were also interviewed, but only later in order to have a comparison group for the microcredit borrowers. For example, the median stand-alone business started with 50 new cedis, or about \$54 USD. This is much lower than the average stand-alone startup cost, which is 162 cedis. This number is skewed upwards by the small group of larger stand-alones.

Startup cost is used as the measure of size for comparison in order to be able to compare growth under different business models. Using current capital would ignore the fact that one business may have grown quickly from a small initial capital, whereas another business may actually have lost money and have less capital now than what they started with. It is more appropriate to compare two businesses that started with the same amount and then judge how they have fared since then.

Finally, the entire sample of microcredit borrowers could not be found randomly on the street (although 15 were). The remainders were found through visits with

Darkuman Pentecostal Church Credit Union, Johnson's Savings & Loan, and KAMCCU, the credit union located at CUA, the Credit Union Association.

C. Analysis Procedure

One of the purposes of the questionnaire was to be able to build an ad hoc income statement and balance sheet for each business. Of course these "financial statements" would be very simplified as these businesses are neither large nor complex. The questionnaire would not be adequate to build financial statements for a larger organization. For example, the questionnaire is adequate to describe a Fanmilk vendor's business, but not adequate to describe the entire business of Fanmilk, the corporation. The following is an example of an income statement and balance sheet compiled for interviewee #2147, a small grocer who uses microcredit to fund her business.

Charts 4.1 and 4.2

#2147 Income Statement for 2 weeks prior to July 10, 2007			
Sales Revenue			650
Cost of Goods Sold (gross profit margin%)			<u>*.1822</u>
Gross Profit			118.40
Operating Costs:	Rent		2.50
	Labor		10.00
	Transportation		1.10
	Utilities		<u>10.00</u>
	Net Income		94.84

#2147 Balance Sheet for 2 weeks prior to July 10, 2007			
Assets		Liabilities	
inventory	1,500	microcredit loan	900
other assets	<u>500</u>	Equity	<u>1,100</u>
	2,000		2,000

This example is not typical of the businesses interviewed, as the target businesses were relatively smaller than business #2147. Most individuals had few assets and no debt. Also, most Fanmilk vendors had no operating costs.

With this information as well as the startup cost information from the questionnaire, one can calculate net income (profit), return on investment, return on assets as well as inventory turnover and startup cost recovery time.

D. Adjusted vs. Unadjusted

The income statement was the more difficult of the two statements to obtain. The Ghanaians sampled had a much easier time estimating the current value of their assets and liabilities than estimating what their sales and profits were on an “average” day. The difficulty comes because sales can vary drastically from season to season, and many people knew either sales or profit but not both, and did not differentiate between the two in their minds. Also, perhaps the biggest issue, income statement items must be measured over a time period. The original question, number C30, asked only “During any average month, what were your sales to customers in that month?” This question had to be altered to include a weekly option, for those who could estimate sales in a week, but not a month. It also was altered to add a profit option, for those who knew profit but not sales. Even with these additional options, there were still two common errors made in individual’s responses to the question.

Example 1: When asked about their monthly sales, the subject responded, “I get 1 million [old cedis] every month.” Even though the question was about sales, it is not obvious if they are answering sales or profits. The surveyor writes down the answer as

sales, only to later find in analysis that 1 million makes much more sense as a monthly profit number, given what they've answered for daily profit (C33) and their profit margin(C20-C26).

Example 2: When asked about their monthly sales, the subject responded, "I usually sell 600,000, in a normal month." This subject, in his/her head, measures sales in daily terms. In a normal month (s)he sales 600,000 per day. But the surveyor doesn't know this and so writes down 600,000 for monthly sales.

These same issues apply to C31, which is the same question only dealing with the past two weeks specifically and not an 'average' month. Often times these two errors were caught in process of the interview, but other times they were not. For future phases of this study interviewers should be required to do a few spot checks with a calculator as they go. However, for the purposes of baseline, there are two options in doing analysis on variable C30 and C31. One, throw out all observations that do not make sense, or two, try to adjust the very obvious errors and only throw out the ones that are not obvious. Luckily both interviewers were available in the weeks following the interviews to fix any obvious errors in the interviews they themselves had administered. This methodology was implemented as objectively as possible, although it is impossible to exclude all subjectivity from the decision of whether to adjust or not. The result is two datasets, an "adjusted" dataset and an "unadjusted" dataset.

Overall 29% of the cases had to have some sort of adjustment to the income data. Tables 4.1-4.3 show the difference between the adjusted and unadjusted data.

Table 4.1
Case Summaries, Unadjusted vs. Adjusted Groupings

Adjustment		Monthly Net Profit	2weeks Net Profit
Unadjusted	N	191	192
	Mean	219.56	56.54
	Median	119.71	39.73
Adjusted pre-adjustment	N	84	80
	Mean	73.50	25.70
	Median	14.17	9.26
Adjusted post-adjustment	N	79	77
	Mean	167.22	81.01
	Median	100.00	44.42

Table 4.2
Case Summaries, Unadjusted Dataset

	Monthly Net Profit	2weeks Net Profit
N	275	272
Mean	174.95	47.47
Median	90.31	26.85
Std. Deviation	368.2107	145.79

Table 4.3
Case Summaries, Adjusted Dataset

	Monthly Net Profit	2weeks Net Profit
N	270	268
Mean	204.25	68.88
Median	118.57	43.52
Std. Deviation	366.12	141.75

Table 4.4 shows that the adjustments did not overly affect one business model grouping more than the others. The adjusted data has the same distribution among business model groups as the unadjusted dataset.

Table 4.4 Business Model Type

Adjusted			Frequency	Percent	Valid Percent	Cumulative Percent
unadjusted	Valid	Microfranchise	77	36.0	36.0	36.0
		Stand-alone	110	51.4	51.4	87.4
		Stand-alone with microcredit	27	12.6	12.6	100.0
		Total	214	100.0	100.0	
adjusted	Valid	Microfranchise	25	29.1	29.1	29.1
		Stand-alone	52	60.5	60.5	89.5
		Stand-alone with microcredit	9	10.5	10.5	100.0
		Total	86	100.0	100.0	

There was also another potential adjustment concerning reported startup cost. In a country with high inflation, as Ghana has at times exhibited, an amount of Ghanaian currency paid many years ago is worth a much larger notional amount of cedis in today's terms (ignoring revaluation). So there is a mismatch in the measurement of profits in today's terms versus the measurement of startup cost in past cedi terms. Therefore an adjustment to startup cost by CPI changes is in order. Before this adjustment the median startup cost was 30 New Ghana Cedi, and after the adjustment the median was 54 New Ghana Cedi.

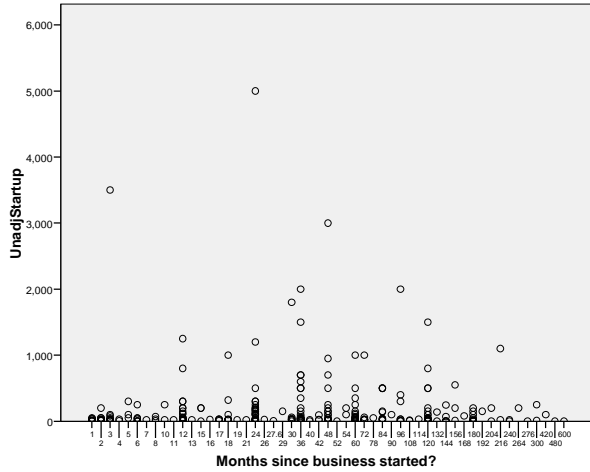
However, adjusting for inflation caused startup cost and business age to have a strong positive relationship. The more time that passed since startup, the greater the initial investment looked.

Table 4.5

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	-343.565	281.411		-1.221	.223
	Months since business started?	19.892	3.576	.310	5.562	.000

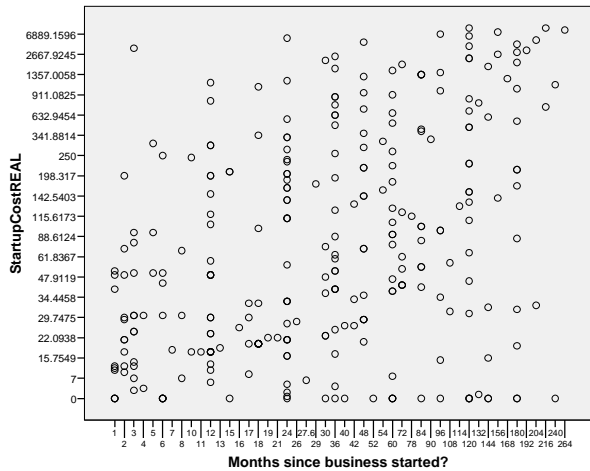
On the other hand, using the startup cost unadjusted for inflation gave a distribution with startup costs more or less constant over time. “StartupcostReal” is the inflation adjusted startup cost.

Chart 4.3 Before Inflation Adjustment



Coefficients(a) a Dependent Variable: UnadjustedStartup

Chart 4.4 After inflation adjustment



Coefficients(a) a Dependent Variable: StartupCostREAL

Perhaps the longest running businesses really are also the ones that started with the most capital as implied by the adjusted startup cost method. This is not so far-fetched. Or the other option is that perhaps in a society accustomed to inflation, individuals answer questions about past expenses in today's cedi terms, given that they rarely could remember the exact cedi amount anyway, but usually answered "about" how much they thought it cost them to start up. In this case we would not need to adjust for inflation. As you can see from the scatter charts 4.3 and 4.4, the amount people said they spent to startup long ago did not differ much from how much they said they spent to start in the recent past. In fact there is no relationship in the following regression that used the startup cost unadjusted for inflation. Given conditions of high inflation, it is expected that the notional amount of startup cost would increase over time, and therefore older businesses would have *lower* startup costs.

Table 4.6 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	171.593	72.311		2.373	.019
	Months since business started?	.712	.910	.054	.782	.435

a. Dependent Variable: UnadjStartup

So which data is most correct? Up to this point either could be considered viable, but then when we look simply at the values contained in each set it becomes more obvious that the unadjusted set is more appropriate. Given the vendors interviewed were the 'poorest' segment of people in Ghana, it is more realistic to believe the unadjusted numbers because the numbers adjusted for inflation give unrealistically high startup costs (See Table 4.7). One would not believe that 30% of the sample started with over \$200 new cedis, or \$184 USD, which is implied by the numbers adjusted for inflation.

Table 4.7

		UnadjStartup	StartupCostREAL
N	Valid	299	295
	Missing	1	5
Mean		217.21	755.29
Median		30.00	54.28
Mode		20	0
Percentiles	10	1.20	3.11
	20	10.00	19.83
	30	20.00	26.43
	40	25.00	34.92
	50	30.00	54.28
	60	50.00	109.81
	70	100.00	198.32
	80	200.00	375.24
	90	500.00	1335.48

Also, the relationship between the unadjusted startup cost and profit is stronger with an r-squared of .082 versus .026 for the inflation-adjusted startup cost r-squared. I would expect startup cost to be a relatively strong indicator of profit, which is why unadjusted startup cost is a better representation of what the sampled individuals actually paid to start their businesses. For all following analysis, the adjusted data set with unadjusted startup costs was used.

V. Regressions and Results Using Full Sample

A. Regressions

Now that our dataset is explained, it is time to describe the analysis. First the study must identify what variables other than the business model (microfranchise, stand alone or microcredit), which is the treatment, may affect profit. We may need to control for these other variables. Since there have not been any other studies testing informal business profits in Africa, this is un-chartered territory. I have identified a list of possible determinants of profit and tested each of these individually for significance in a linear

regression with and without startup cost. The reasoning is that startup cost is such an influential variable that it will definitely be included in the final regression, therefore any variables with a strong correlation to startup cost could be rendered either insignificant or perhaps show joint-significance by its addition.

These possible independent variables are startup cost, business age, how the product is sold, the location in Accra where sold, product category, initial finance method, as well as certain characteristics related to the owner such as gender, age at business start, entrepreneurship, past business experience, marital status, education (also a proxy for social status) and literacy. This yields thirteen potential control variables. Discussion of the most important variables to the model is included in this section using the entire sample. Please see Appendix B for discussion of the variables not included here.

Startup cost: The startup cost is the initial capital invested. Formal businesses often use ROI, or return on investment, as an indicator of investment performance. This ratio is roughly income/invested\$. It is expected that the more money you invest, the more profit you should make. It should then be no surprise that one of the greatest indicators of business income/profit is the startup cost. A larger startup cost likely means a larger business with more income. In Table 5.1 see that startup cost is indeed significant and by itself yields an adjusted r-squared of .154.

Table 5.1 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	167.373	21.563		7.762	.000
	UnadjStartup	.184	.026	.392	6.969	.000

a. Dependent Variable: Net profit

The economic law of diminishing marginal returns to capital states that each additional unit of capital is less productive than the one before. This implies that the businesses that start with less capital should be able to make higher returns, not in total, but per unit invested.(Armendariz & Morduch 2005) Therefore larger businesses will exhibit a higher profit but a lower ROI than the smaller businesses sampled. This non-linear relationship should be modeled as follows.

Table 5.2 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta	B	Std. Error	
1	(Constant)	142.826	22.507		6.346		.000
	UnadjStartup	.356	.059	.758	6.023		.000
	UnadjStartupCost2	-2.36E-005	.000	-.407	-3.236		.001

a Dependent Variable: Net profit

This regression has an adjusted r-squared of .180. This is the best model for startup cost and net profit, but complications arise when adding in other variables because it is necessary to normalize profits. Profits are usually skewed to the right, as evidenced in this sample, so we must normalize profits in order to add non-skewed independent variables to the regression. Therefore ln(profit) is the dependent variable.

Since the relationship of profit with startup cost is not logarithmic, we may also want to transpose startup cost so that it can be used in a regression with ln(profit). There is no way to exactly transpose startup+startup^2 and keep it in a linear form allowing the coefficients of both to vary. However it can be approximated using ln(startup)+[ln(startup)]^2. The adjusted r-squared falls to .127 and lnstartup is not significant while lnstartupsq is.

Table 5.3 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.565	.301		15.168	.000
	Instartup	-.109	.142	-.161	-.765	.445
	Instartupsq	.040	.016	.518	2.457	.015

a Dependent Variable: LnNetProfitMonthly

Adding further independent variables to this equation, the significance of Instartupsq disappears as well. Not only is this regression difficult to interpret, but it also does not truly reflect the importance of startup cost, which is one of the strongest indicators of profit. The following regression, which leaves startup cost untransposed while still transposing profit, is simpler and shows a very significant startup cost, although the adjusted r-squared falls slightly to .105.

Table 5.4 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.668	.071		66.132	.000
	UnadjStartup	.001	.000	.666	4.683	.000
	UnadjStartupCost2	-6.97E-008	.000	-.418	-2.935	.004

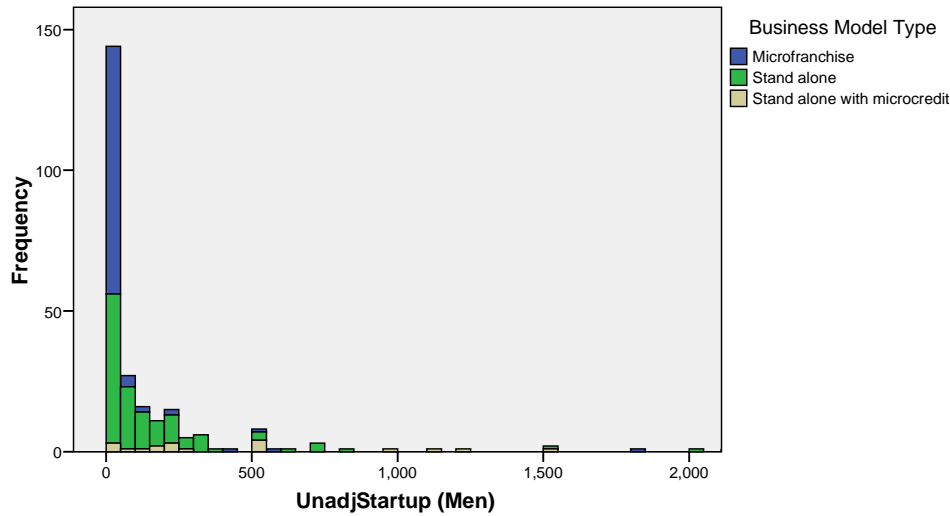
a Dependent Variable: LnNetProfitMonthly

This drop in r-squared is a small price to pay for a cleaner, more interpretable regression with decreased p-values.

Although startup cost will be a controlled variable in the final model, it will also be used in some later analysis as a method of differentiating large and small businesses.

On another note, gender is an important factor as well, and since all but one of the microfranchisees were male (there was one woman lotto vendor), the control sample should only include males when comparing stand-alones to microfranchisees. This is why the following histogram only shows men.

Chart 5.1



There is a much wider distribution of startup costs for the stand-alone vendors than for the microfranchisees. Given startup cost is such an important determinant of profit, and that this is also an indicator of the individual's economic means to start a business, we must be very careful in how we make comparisons. We obviously cannot just take each group as it is, but must make some effort to compare businesses of similar size, especially when simply looking at descriptive statistics of the groups.

This also provides a good argument for using some sort of propensity score matching to compare these groups, which will be described later. The few microfranchisees that were outside the 0 to 50 bin in the above histogram were the seven Fanmilk agents. Their higher startup costs indicate that maybe these agents do not truly fit the standard of being "micro". This is why in some of my later analysis I exclude these agents.

Microfranchise dummy: This dummy represents whether a business is a microfranchise or not. This and the microcredit dummy define which treatment group the observation falls in. On its own, microfranchise is not significant. Some may think that our study has reached its conclusion right here but that is not so because microfranchise shows significance once startup cost, arguably the most important control variable is controlled for.

Table 5.6 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.649	.089		52.397	.000
	MicroFranchiseDummy	.197	.140	.088	1.410	.160
	MicroCreditDummy	1.003	.215	.290	4.655	.000

a Dependent Variable: LnNetProfitMonthly

Table 5.7 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.529	.092		49.480	.000
	MicroFranchiseDummy	.268	.137	.119	1.957	.051
	MicroCreditDummy	.601	.228	.174	2.630	.009
	UnadjStartup	.001	.000	.579	3.791	.000
	UnadjStartupCost2	-6.22E-008	.000	-.373	-2.558	.011

a Dependent Variable: LnNetProfitMonthly

This joint significance means that there is some correlation between the microfranchise dummy and start up cost. Of course, we know that this is true because almost every microfranchise is a Fanmilk vendor and they all have a standard startup cost. Once we control for this standard startup cost, we see that there is some additional benefit from being a microfranchise that is not totally attributable to startup cost.

Business age: Along with startup cost, this variable should be one of the most important in determining profitability. Theoretically, a profitable business should be able to grow over time as long as some of the profits are reinvested. An unprofitable business will fail. Therefore, the older the business, all else equal, the more profitable it will be.

Table 5.8 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.599	.087		52.617	.000
	UnadjStartup	.001	.000	.676	4.752	.000
	UnadjStartupCost2	-7.16E-008	.000	-.429	-3.016	.003
	Months since business started?	.001	.001	.079	1.342	.181

a Dependent Variable: LnNetProfitMonthly

We see that business age is not significant here. But it did increase the adjusted r-square very slightly to .108. Perhaps the relationship would be better replicated by adding a squared term given that over time economies of scale may be reached and further growth may become less profitable.

Table 5.9 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.525	.101		44.998	.000
	UnadjStartup	.001	.000	.667	4.698	.000
	UnadjStartupCost2	-7.12E-008	.000	-.427	-3.005	.003
	Months since business started?	.003	.002	.237	1.942	.053
	businessmonths2	-6.32E-006	.000	-.180	-1.475	.141

a Dependent Variable: LnNetProfitMonthly

Now the “months since business started” is significant and the adjusted r-squared increased to .118. This is not overly impressive, but I believe business age should theoretically be an important component of profitability so I will include it as modeled above.

How sold: This variable has to do with the distribution strategy being used. The product might be sold in commercial stores, traditional markets, kiosks or mobile-ly. Fanmilk, the microfranchise in this study, uses a mobile vendor distribution method. The variable omitted in the following regression is commercial stores.

Table 5.10 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	5.228	.186		28.100	.000
	TraditionalMarket	-.083	.211	-.030	-.393	.694
	Kiosk	-.384	.199	-.162	-1.928	.055
	Mobile	-.529	.204	-.246	-2.595	.010

a Dependent Variable: LnNetProfitMonthly

We see that kiosk and mobile are statistically significant in explaining profit in contrast to commercial stores. What is not shown from this regression is that there is no statistically significant difference between kiosk and mobile in terms of profit. In later regressions I combine these two into a single variable, kiosk_mobile. Both kiosk and mobile lose significance as soon as we add the startup cost variable.

Table 5.11 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.674	.212		22.005	.000
	UnadjStartup	.001	.000	.651	4.104	.000
	UnadjStartupCost2	-6.75E-008	.000	-.405	-2.680	.008
	TraditionalMarket	.172	.209	.061	.824	.411
	Kiosk	-.070	.202	-.029	-.345	.730
	Mobile	-.025	.222	-.012	-.115	.909

a Dependent Variable: LnNetProfitMonthly

Mobile vendors and kiosks are much cheaper to set up, and thus the startup cost has a correlation to the type of business (See CorrChart). It turns out that the startup cost

is a stronger explanatory variable for profit than the type of business itself, and therefore renders this variable redundant.

Location in Accra of selling: All businesses surveyed were located in Accra, Ghana. But Accra is a large city with many markets and neighborhoods. Profits may be affected by location because of varying access to customers. All of the observations fell into the following location categories:

Art Center/Osu- Two touristy market area in Central Accra

Circle- A pedestrian market, shanty-town and Fanmilk depot surrounding Nkruma Circle.

Makola- A commercial district that also includes a mall, several bus stations and a pedestrian market.

Kaneshie/Abossey- A particularly busy area that includes a large indoor market, a major bus station hub, outdoor kiosks and a Fanmilk depot.

Abeka/Darkuman- Two outlying residential neighborhoods in the Greater Accra region. Abeka has a Fanmilk depot and Darkuman has scattered shops and kiosks.

Other- This includes a few interviews from Abelempke, a residential neighborhood, as well as a few interviews of businesses in Accra that were not interviewed on site and did not give their location.

The following regression includes these locations along with startup cost. Circle is the omitted dummy variable.

Table 5.12 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.492	.133		33.815	.000
	UnadjStartup	.001	.000	.662	4.634	.000
	UnadjStartupCost2	-6.80E-008	.000	-.408	-2.874	.004
	Makola	.093	.183	.038	.509	.611
	Kaneshie	.480	.181	.194	2.646	.009
	AbekaDarkuman	.134	.225	.041	.596	.552
	TouristyArtCenterOsu	.108	.214	.035	.505	.614

a Dependent Variable: LnNetProfitMonthly

We see that only Kaneshie is statistically different than Circle in determining income. This is the only location variable that makes it into the final model.

Age at business start: Age at business start is a better measurement than just “age”, because a person’s age will be highly correlated to the number of years their business has been operating. For example, someone whose business has been operating twenty years must be much older than a twenty-year-old.

Table 5.13 **Correlations**

		Months since business started?
Age in years of interviewee.	Pearson Correlation	.611
	Sig. (2-tailed)	.000
	N	300

An individual’s age at business start, however, is not correlated to business age. So I chose to include Age minus BusinessAge, or “age at startup”, as the person’s age indicator. By itself “age at startup” is very significant.

Table 5.14 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.109	.237		17.303	.000
	Age minus years since startup	.031	.009	.230	3.465	.001

a Dependent Variable: LnNetProfitMonthly

Once we add startup cost, “age at startup” loses significance as we see in Table 5.15. This makes sense as it is likely that a very young person does not have access to as much capital as an older person, hence a high correlation to startup cost (see CorrChart).

Table 5.15 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.986	.226		22.015	.000
	UnadjStartup	.001	.000	.726	4.919	.000
	UnadjStartupCost2	-7.65E-008	.000	-.459	-3.171	.002
	Age minus years since startup	-.013	.009	-.092	-1.476	.141

a Dependent Variable: LnNetProfitMonthly

Entrepreneurship: This variable was explained in section III-D. Preliminary analysis shows that a person’s score on the entrepreneurship questions is not significant in explaining profit.

Table 5.16 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.806	.199		24.170	.000
	Sum of Entrepreneurship score	-.031	.042	-.044	-.744	.458
	UnadjStartup	.001	.000	.660	4.611	.000
	UnadjStartupCost2	-6.88E-008	.000	-.413	-2.888	.004

a Dependent Variable: LnNetProfitMonthly

However, perhaps using this scale is not the most appropriate way to run the regression. It may be that a person is simply an entrepreneur or not. Most people scored right in the middle of the range, and so it is difficult to place them as an entrepreneur or a manager.

Below shows the distribution of entrepreneurship scores.

Table 5.17 Sum of Entrepreneurship score

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	.3	.3	.3
	1	6	2.0	2.0	2.3
	2	29	9.7	9.7	12.1
	3	47	15.7	15.8	27.9
	4	79	26.3	26.5	54.4
	5	73	24.3	24.5	78.9
	6	38	12.7	12.8	91.6
	7	20	6.7	6.7	98.3
	8	5	1.7	1.7	100.0
	Total	298	99.3	100.0	
Missing	System	2	.7		
Total		300	100.0		

I therefore decided to call those who score 6-8 entrepreneurs and create an entrepreneurship dummy variable. This led to even less significance.

My intention is not to explain this “entrepreneurship score” so much as to find a relevant variable to control for in my final model. Therefore further research is needed to more fully understand this variable but in this paper I will not delve any deeper. I will still include the entrepreneurship score (not the dummy) in the initial final model just because this is a variable of particular interest.

Past business experience: Past business experience is another variable that attempts to take into account the individual’s personal characteristics. Some individuals may simply be poor business people. This should be evident in their past business

experience. The questionnaire asked how many businesses an individual had owned in the last five years, and of those, how many were still in operation.

Table 5.18 How many businesses have you owned in the last 5 years?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	75	25.0	25.5	25.5
	1	140	46.7	47.6	73.1
	2	62	20.7	21.1	94.2
	3	15	5.0	5.1	99.3
	4	2	.7	.7	100.0
	Total	294	98.0	100.0	
Missing	System	6	2.0		
Total		300	100.0		

Those that answered “0” were Fanmilk vendors, because they do not actually own their ice cream vending business. Both the number of businesses a person had owned that had ended, as well as the number that were successful were significant indicators of that individual’s current profitability. The adjusted r-squared increased to .145 when these two variables were added. This does not take into account *why* a business ended.

Table 5.19 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.670	.078		59.813	.000
	UnadjStartup	.001	.000	.656	4.633	.000
	UnadjStartupCost2	-6.82E-008	.000	-.409	-2.892	.004
	Survivedin5yre	.451	.166	.160	2.716	.007
	Endedin5yrs	-.244	.109	-.132	-2.240	.026

a Dependent Variable: LnNetProfitMonthly

Gender: Gender turns out to be very significant in determining profit. Being male increases monthly profit by on average 68.1 %, but it should be pointed out that gender is very correlated to many other variables (see CorrChart). I do not need to spend much time on this variable however, because all but one of the microfranchisees were male, and

the majority of the stand-alones was male. I will simply eliminate the female stand-alones from the analysis when making comparisons with the microfranchisees.

Table 5.20 **Coefficients(a)**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	B	Std. Error
1 (Constant)	4.079	.165		24.751	.000
UnadjStartup	.001	.000	.728	5.229	.000
UnadjStartupCost2	-7.23E-008	.000	-.433	-3.130	.002
Gender of interviewee.	.681	.173	.231	3.935	.000

a Dependent Variable: LnNetProfitMonthly

Independent Variables Synopsis: A summary of each variable and whether it is included in the initial model.

Synopsis 5.1

Variable	Initial Testing	Include In Regression	Comments
StartupCost	Yes	Yes	Relationship is nonlinear
BusinessAge	Yes	Yes	Relationship is nonlinear?
Mobile/Kiosk	No	No	Correlated to startup cost
Kaneshie	Yes	Yes	
FoodVendor	No	No	
Initial finance method	No	No	
Age at business start	No	Yes	Close to significant. Correlated to startup cost
Entrepreneurship	No	Yes	A theory we want to test
Survivedin5years	Yes	Yes	
Failedin5years	Yes	Yes	
Marital Status	No	No	
BeyondSecondaryScho	Yes	Yes	
LessThanPrimary	Yes	Yes	
Literacy	No	No	
Gender	Yes	No	Exclude all females from sample

This preliminary analysis leaves us with nine independent variables to use in the initial model, in addition to the microfinance and microcredit dummy variables.

Multicollinearity and Loss of Significance due to Startup Cost: One of the assumptions of linear regression is that the independent variables are uncorrelated. If they are correlated then it may be that the correlated variables are really just measuring a single effect and the regression process is unable to attribute that single effect to two different variables. Even if both variables are significantly related to the dependent on their own when both are included the regression can suffer from multicollinearity. I have included below the correlations of all the independent variables in Synopsis 5.1. The correlation chart, or CorrChart, helps explain why certain variables lost significance once startup cost was added. An opposite result that can occur due to variable correlation is 'joint significance'. This is exhibited by startup cost and the microfranchise dummy.

Correlations [Pearson Correlation](#)

	Unadj Startup	UnadjStartupCos2	business months	business months2	Kiosk_Mobile	Kaneshie	Food Vendor	MicrocreditFunded	Age at start	Entrepreneurship	Survivedin5yre	Endedin5yrs	Married	BeyondSecondary	LessThanPrimary	Literacy	Gender
UnadjStartup																	
UnadjStartupCos2	0.90 0.00																
Businessmonths	0.01 0.88	0.03 0.64															
businessmonths2	(0.02) 0.69	(0.00) 1.00	0.87 0.00														
Kiosk_Mobile	(0.30) 0.00	(0.17) 0.00	(0.28) 0.00	(0.18) 0.00													
Kaneshie	(0.05) 0.41	(0.05) 0.41	0.01 0.91	0.02 0.77	0.07 0.24												
FoodVendor	(0.15) 0.01	(0.08) 0.16	(0.14) 0.02	(0.09) 0.12	0.26 0.00	0.01 0.87											
MicrocreditFunded	0.18 0.00	0.04 0.48	0.02 0.79	0.02 0.74	(0.22) 0.00	(0.06) 0.35	(0.02) 0.73										
Age at start	0.24 0.00	0.14 0.01	(0.05) 0.40	(0.09) 0.12	(0.29) 0.00	(0.01) 0.85	(0.11) 0.07	0.16 0.01									
Entrepreneurship	(0.03) 0.63	(0.03) 0.62	(0.11) 0.06	(0.03) 0.63	(0.01) 0.85	(0.07) 0.24	0.13 0.02	(0.01) 0.92	(0.05) 0.44								
Survivedin5yre	0.03 0.63	(0.01) 0.85	0.05 0.39	0.02 0.67	(0.14) 0.02	0.01 0.86	(0.04) 0.44	0.05 0.45	0.06 0.34	(0.10) 0.10							
Endedin5yrs	0.01 0.90	(0.03) 0.66	(0.16) 0.01	(0.09) 0.12	0.01 0.85	(0.04) 0.47	(0.05) 0.35	0.07 0.26	0.11 0.07	0.05 0.36	(0.12) 0.05						
Married	0.15 0.01	0.10 0.07	0.34 0.00	0.23 0.00	(0.20) 0.00	0.01 0.88	(0.01) 0.89	0.02 0.68	0.23 0.00	(0.11) 0.06	0.09 0.12	(0.14) 0.02					
BeyondSecondary	0.27 0.00	0.21 0.00	0.17 0.00	0.16 0.00	(0.25) 0.00	(0.04) 0.49	(0.16) 0.01	0.02 0.70	0.22 0.00	(0.09) 0.11	0.18 0.00	(0.08) 0.20	0.06 0.30				
LessThanPrimary	(0.05) 0.41	(0.02) 0.69	0.20 0.00	0.20 0.00	(0.06) 0.33	(0.04) 0.51	0.14 0.02	(0.04) 0.53	(0.07) 0.24	(0.02) 0.68	(0.05) 0.43	(0.06) 0.33	0.01 0.89	(0.07) 0.22			
Literacy	0.09 0.14	0.04 0.48	0.09 0.12	0.08 0.16	(0.13) 0.02	0.00 0.93	(0.23) 0.00	0.08 0.20	0.07 0.25	(0.06) 0.31	0.06 0.28	(0.04) 0.49	0.02 0.68	0.22 0.00	(0.26) 0.00		
Gender	(0.18) 0.00	(0.16) 0.01	(0.12) 0.04	(0.10) 0.08	0.20 0.00	0.10 0.08	(0.12) 0.04	(0.09) 0.14	(0.27) 0.00	0.02 0.70	(0.10) 0.08	(0.05) 0.39	(0.08) 0.17	(0.03) 0.61	(0.22) 0.00		

red Correlation is significant at the 0.05 level (2-tailed).

As one can see from CorrChart, kiosk_mobile is correlated to just about everything. This makes sense because kiosk_mobile is a distribution method that will have it's own startup cost and owner profile. Kiosk_mobile is especially important to us because that is the distribution method of the microfranchisees. Below I've depicted some general characteristics of a kiosk_mobile business versus other businesses, which are supported by the correlations above. I do not include gender as we purposely sought out male mobile vendors to compare with Fanmilk. I've included startup cost under both personal and business characteristics as it can also represent an individual's economic status.

Table 5.21

<u>Personal characteristics</u>	<u>Business characteristics</u>
lower startup capital	lower startup cost
younger	more are food vendors
more are single	fewer months in business
less likely to have advanced education	
less likely to be literate	
less business experience	

These personal characteristics are also, unsurprisingly, very correlated with each other. Even though these variables may have an important relationship to profitability, it may be an indirect relationship. These variables may indicate the type of business a person goes into which in turn influences profitability. We will not be able to put all of these variables into a regression because there will be multicollinearity.

I would like to discuss multicollinearity specifically in relation to startup cost. I've already mentioned that when testing several of the independent variables we found that some were significant on their own, or close to significant, but then lost significance once startup cost was added into the regression. These variables were: mobile/kiosk, food vendor, age at startup and literacy (see Appendix B). This is because many of these variables are highly correlated with startup cost, which can be used as a proxy for the initial capital an individual had access to. Another variable shown to have a relationship with initial capital, despite not losing all significance due to multicollinearity, was beyondsecondary (see Appendix B). I ran all these startup-cost-correlated variables in Table 5.22 with startup cost as the dependent variable.

Table 5.22 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	161.523	201.653		.801	.424
	Kiosk_Mobile	-370.507	106.768	-.205	-3.470	.001
	FoodVendor	-85.281	85.358	-.057	-.999	.319
	Age minus years since startup	13.182	5.511	.136	2.392	.017
	Literacy	-5.010	88.004	-.003	-.057	.955
	BeyondSecondary	473.716	154.729	.177	3.062	.002

a. Dependent Variable: UnadjStartup

note: marital status was correlated to startup cost, but not at all to profitability when regressed, so did not include

Foodvendor and literacy are not significant here. The earlier table showed that these two variables are correlated with each other as well as kiosk_mobile causing multicollinearity. I reran the regression without foodvendor and literacy below. Tables 5.23 is my model of variables that indirectly effect profitability through the variable startup cost.

Tables 5.23 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.384(a)	.147	.139	691.301

a Predictors: (Constant), BeyondSecondary, Age minus years since startup, Kiosk_Mobile

ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	24264632.291	3	8088210.764	16.925	.000(a)
	Residual	140501582.025	294	477896.537		
	Total	164766214.316	297			

a Predictors: (Constant), BeyondSecondary, Age minus years since startup, Kiosk_Mobile

b Dependent Variable: UnadjStartup

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	132.192	188.543		.701	.484
	Kiosk_Mobile	-393.312	104.056	-.217	-3.780	.000
	Age minus years since startup	13.311	5.500	.138	2.420	.016
	BeyondSecondary	486.895	151.188	.182	3.220	.001

a Dependent Variable: UnadjStartup

This regression shows that distribution method, the age at startup, and schooling beyond secondary do indeed have an indirect impact on profit. The way the product is sold will determine the cost of entering a certain business, whereas age and education may indicate the amount of capital an individual has.

B. Microfranchising Results Full Sample Model

First I will look at microfranchising. It must be analyzed separately from microcredit because there is almost no overlap between these groups. But each group does overlap with a portion of the stand-alones, so it is possible to analyze using a similar

process for both. Within each category I will first analyze with case summaries and frequency analysis and then with the linear regression model described in Synopsis 5.1.

Frequencies and Case Summaries: The first purpose of this study is simply to get a better understanding of the characteristics of microfranchisees and their businesses versus stand-alones and microcredit clients. The following data summarizes these three groups.

Results 5.1

Frequencies		excluding agents													
	n	male	%	food	%	jewel	%	electron	%	telecom	%	clothing	%	entrepre	%
Microfranchise	95	94	99%	90	95%	0	0%	0	0%	0	0%	0	0%	27	28%
StandAlone	162	129	80%	32	20%	8	5%	14	9%	10	6%	50	31%	26	16%
Microcredit	36	20	56%	11	31%	5	14%	1	3%	3	8%	7	19%	9	25%

Frequencies		excluding agents													
	n	mobile	%	kiosk	%	shop	%	market	%	saving	%	read	%	married	%
Microfranchise	95	90	95%	3	3%	1	1%	1	1%	82	86%	57	60%	34	36%
StandAlone	162	112	69%	82	51%	13	8%	41	25%	107	66%	104	64%	67	41%
Microcredit	36	4	11%	6	17%	16	44%	11	31%	33	92%	29	81%	20	56%

Frequencies		excluding agents											
	n	recovered	%	lessthan	primary	primary	junior	second	ary	beyond	secondary	%	
Microfranchise	95	95	100%	4	4%	19	20%	49	52%	21	22%	2	2%
StandAlone	162	150	93%	11	7%	17	10%	77	48%	40	25%	17	10%
Microcredit	36	33	92%	1	3%	4	11%	13	36%	13	36%	4	11%

We see that the microfranchisees are male, mobile food vendors, have high savings, are less likely to be married, are more likely to have recovered their startup cost and are less likely to have education beyond secondary school. Below are some basic statistics describing the non-categorical characteristics of the group. They show that microfranchisees in Accra are young, started with less money, worked more hours, and had less debt and more savings compared with stand-alones.

Results 5.2

Statistics excluding agents

Business Model Type			Age	Age at start	UnadjStartup	Hours per day	Recovery time	Debt	Savings	Inventory	Entrepren eurship	Net Income
Microfranchise	N	Valid	95	95	94	94	82	73	77	91	95	86
		Missing	0	0	1	1	13	22	18	4	0	9
	Mean		27.14	23.48	18.95	12.56	1.12	15.53	240.08	34.84	4.60	135.07
	Median		26	22	20	13	1	0	120	32.3	5	125.76
	Std. Deviation		7.460	5.198	15.983	2.575	1.526	83.553	312.558	40.235	1.640	71.213
Stand alone	N	Valid	162	162	162	162	147	151	110	156	162	145
		Missing	0	0	0	0	15	11	52	6	0	17
	Mean		32.30	26.84	165.65	10.96	5.12	59.83	276.78	487.84	4.17	156.57
	Median		30	26	50	11	2	0	100	150	4	100
	Std. Deviation		9.611	7.689	357.238	2.697	6.680	209.337	554.062	1134.456	1.460	208.364
Microcredit	N	Valid	36	36	36	36	32	36	32	32	34	32
		Missing	0	0	0	0	4	0	4	4	2	4
	Mean		39.56	32.78	902.60	11.10	9.99	828.81	1155.09	3170.41	4.38	561.97
	Median		39	32	225	11.25	7	57.5	645	900	4	269.54865
	Std. Deviation		9.269	9.128	1855.200	3.198	10.734	1508.359	2577.377	5377.238	1.436	837.178

In order to make sure we are comparing apples to apples, I have divided each group into subgroups based on startup cost, the most important independent variable, to compare some of the dependent variables. The group >50 startup cost is more applicable to microcredit so is included later in that section. Here I only present the <=50 group.

Results 5.3

Use to compare Microfranchise and Stand alone

Statistics for Startupcost <=50; Men only

Business Model Type		Gross		Inventory		Monthly	Hourly	Profit To		Recovery time	
		Unadj Startup	Profit Percent	Net Monthly Profit	Hourly Profit	Monthly Turnover	ROA monthly	Startup Ratio	Startup Ratio		
Microfranchise	N Valid	91	90	82	81	0	0	63	62	79	
	Missing	0	1	9	10	91	91	28	29	12	
	Mean		17.77	0.17	133.32	0.47			7.04	0.02	1.13
	Median		20.00	0.17	122.76	0.43			5.57	0.02	1.00
	Std. Deviation		12.98	0.02	69.63	0.25			6.33	0.02	1.55
Stand alone	N Valid	67	63	58	58	30	30	55	55	62	
	Missing	0	4	9	9	37	37	12	12	5	
	Mean		24.24	0.43	151.55	0.61	13.18	4.97	12.92	0.05	2.70
	Median		20.00	0.40	100.00	0.37	1.82	1.55	5.33	0.02	1.00
	Std. Deviation		17.28	0.25	203.95	1.00	26.10	6.90	24.04	0.10	3.65
Microcredit	N Valid	3	2	2	2	1	1	2	2	3	
	Missing	0	1	1	1	2	2	1	1	0	
	Mean		13.83	0.50	201.25	0.68	0.62	0.48	95.82	0.31	6.33
	Median		20.00	0.50	201.25	0.68	0.62	0.48	95.82	0.31	5.00
	Std. Deviation		10.68	0.03	108.72	0.30			126.71	0.40	5.13

Microfranchisees have a lower median profit margin, but a higher net profit given startup cost (Monthly Profit To Startup Ratio). It must be warned that these are only summaries and do not control for many of the independent variables we talked about previously.

Regression Results: First for my “initial” model run, I ran all the independent variables identified in Synopsis 5.1 separately for Microfranchise and Stand-alone. The dependent variable is LnNetProfitMonthly.

Results 5.4

r-squared

Model Summary		R	R Square	Adjusted R Square	Std. Error of the Estimate
Business Model Type					
Microfranchise		0.6719	0.4515	0.3721	0.5973
Stand alone		0.4963	0.2463	0.1617	0.8784

Men only, for comparing with Microfranchise

Business Model Type		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta	B		
Microfranchise n=76	(Constant)	3.856	0.416			9.278	0.000
	UnadjStartup	0.004	0.001	1.244	3.804	3.804	0.000
	UnadjStartupCost2	0.000	0.000	-0.869	-2.730	-2.730	0.008
	Months since business sta	0.000	0.004	0.025	0.086	0.086	0.932
	businessmonths2	0.000	0.000	0.114	0.388	0.388	0.699
	Kaneshie	0.353	0.162	0.207	2.180	2.180	0.032
	Age minus years since sta	0.017	0.013	0.124	1.252	1.252	0.215
	Sum of Entrepreneurship :	0.055	0.042	0.122	1.322	1.322	0.190
	Survivedin5yre	-0.041	0.316	-0.015	-0.129	-0.129	0.898
	Endedin5yrs	0.010	0.151	0.006	0.068	0.068	0.946
	BeyondSecondary	0.043	0.583	0.010	0.073	0.073	0.942
LessThanPrimary	-0.104	0.365	-0.025	-0.284	-0.284	0.777	
Stand alone n=109	(Constant)	4.192	0.467			8.982	0.000
	UnadjStartup	0.002	0.001	0.652	2.897	2.897	0.005
	UnadjStartupCost2	0.000	0.000	-0.773	-3.440	-3.440	0.001
	Months since business sta	0.004	0.002	0.330	1.716	1.716	0.089
	businessmonths2	0.000	0.000	-0.369	-1.938	-1.938	0.056
	Kaneshie	0.222	0.192	0.106	1.153	1.153	0.252
	Age minus years since sta	-0.001	0.013	-0.007	-0.078	-0.078	0.938
	Sum of Entrepreneurship :	0.041	0.059	0.065	0.687	0.687	0.494
	Survivedin5yre	0.472	0.228	0.194	2.070	2.070	0.041
	Endedin5yrs	-0.169	0.143	-0.111	-1.182	-1.182	0.240
	BeyondSecondary	0.475	0.348	0.143	1.366	1.366	0.175
LessThanPrimary	-0.642	0.458	-0.126	-1.402	-1.402	0.164	

We see that the r-squared is very high for the microfranchise group. This is an indication of how homogenous this group is. The stand-alone group is more diverse, but still has a reasonably high r-squared. From the table below we can see that certain variables are more significant depending on the model type. However, the variables that are not significant in either group are age at startup, entrepreneurship, businesses ended in the last five years, beyond secondary and less than primary. Of these, none except beyond secondary become significant when we combine both groups. I will drop these but include beyond secondary in the final run.

It makes sense that business age wouldn't be significant for the microfranchise because there is not as much growth potential in the Fanmilk vending business. Vendors save or spend their profits instead of reinvesting them in a business. Below in Results 5.5 we see that median savings are slightly higher for microfranchisees than the matched stand-alones, although mean savings is lower. Also, although the amount saved may not be strikingly different, the number of microfranchisees that do save is significantly higher than the number of stand-alones. Those with access to microcredit have much higher savings, but also much higher debt.

Results 5.5

Statistics(men only)

Business Model Type		Total Current Saving	Total indebtedness
Microfranchise	Mean	235.02	15.97
	Median	120.00	.00
Stand-alone	Mean	664.74	20.63
	Median	100.00	.00
Stand-alone with microcredit	Mean	604.15	181.13
	Median	681.67	116.67

Other observations from Results 5.4 is that apparently microfranchise vendors do better in Kaneshie than they do in other markets and also there was a difference by group

in businesses survived in the last five years. This can be explained by the theory that perhaps microfranchises do not require business experience to be successful, whereas a stand-alone might.

Here is the final regression for comparing microfranchises with stand-alones:

Results 5.6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.561(a)	.315	.284	.80239

a Predictors: (Constant), BeyondSecondary, Kaneshie, UnadjStartupCost2, MicroFranchiseDummy, Survivedin5yre, Months since business started?, MicroCreditDummy, businessmonths2, UnadjStartup

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.685	9	6.632	10.300	.000(a)
	Residual	130.053	202	.644		
	Total	189.738	211			

a Predictors: (Constant), BeyondSecondary, Kaneshie, UnadjStartupCost2, MicroFranchiseDummy, Survivedin5yre, Months since business started?, MicroCreditDummy, businessmonths2, UnadjStartup
 b Dependent Variable: LnNetProfitMonthly

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.354	.114		38.350	.000
	MicroFranchiseDummy	.216	.119	.113	1.820	.070
	MicroCreditDummy	1.002	.244	.263	4.110	.000
	UnadjStartup	.001	.000	.266	1.828	.069
	UnadjStartupCost2	-1.30E-007	.000	-.129	-.933	.352
	Months since business started?	.003	.002	.216	1.979	.049
	businessmonths2	-8.84E-006	.000	-.253	-2.291	.023
	Kaneshie	.331	.124	.158	2.682	.008
	Survivedin5yre	.430	.165	.159	2.597	.010
	BeyondSecondary	.830	.244	.232	3.398	.001

a Dependent Variable: LnNetProfitMonthly

This regression addresses our second hypothesis that microfranchisees will have a benefit over similar stand-alones. We find that there is indeed at the 10% level a

statistically significant positive relationship between the microfranchise dummy and lnprofit, one of our methods of measuring business performance. I will now run this regression with two of our other business performance measurements: hourly profit and profit to startup ratio.

Results 5.7

Men only	adj. r-sq	constant	MicroFr Dummy	MicroCr Dummy	Unadj Startup	Unadj Startup^2	Business months	Business months^2	Kaneshie	Survived in5yr
LnNetProfitMonthly	0.247	4.3287	0.2235	1.0351	0.0011	-2.669E-07	0.0032	-6.689E-06	0.3198	0.5706
		0.00	0.07	0.00	0.00	0.05	0.04	0.09	0.01	0.00
LNHourlyProfit	0.251	-1.2657	0.1477	1.0598	0.0012	-3.029E-07	0.0037	-7.720E-06	0.2515	0.5844
		0.00	0.24	0.00	0.00	0.03	0.02	0.05	0.05	0.00
LNProfitToStartupRatio (like ROI)	0.455	1.1249	0.5911	1.1527	-0.0047	1.163E-06	-0.0025	3.770E-05	0.2255	0.0523
		0.00	0.00	0.00	0.00	0.00	0.54	0.05	0.20	0.81

Of special notice is the increase in adjusted r-squared when the dependent variable is our representation of ROI. When this is our dependent variable we see that startup cost actually has a negative relationship (in line with my earlier discussion of the law of diminishing marginal returns) and microfranchise still has a positive correlation. However, Kaneshie and business experience lose significance.

Another important observation is that when looking at hourly profit, the microfranchise dummy is no longer significant. This could mean that Fanmilk vendors are making higher profits because they are working longer hours. This is in line with them having a lower profit margin, hence higher product turnover being the necessary source of higher profits. This is also in line with the fact that most kiosk businesses close at dusk, while the mobile Fanmilk vendors can work late into the evening making sales to the legendary Accra traffic.

I also ran the regression with startup cost recovery time as the dependent variable, however the results were not interpretable, nor significant. This is likely because there is almost no variation in this variable at these low levels in startup cost. Most of these

businesses recovered their startup cost in days or weeks, not in months. We asked this question in terms of months and people were not able to be much more specific than to tell us they recovered their costs in less than a month. I would expect the microfranchise vendors to have recovered their costs the fastest, simply because they had some of the lowest costs, but we will be unable to show this in a regression using the questionnaire data.

I didn't run the regression on profit margin because this is constant for all Fanmilk vendors at 0.17. Also, this margin does not reflect how much money they make. The fact that the microfranchisee profits were higher in our regression while margins lower simply means that they are selling a product that turns over more. It is impossible to run the regression on Inventory turnover or ROA monthly because the microfranchise vendors never carry inventory overnight and have no fixed assets. However these measurements can be used in comparing microcredit with stand-alones.

Microcredit Results Full Sample Model

I will now turn from microfranchising to analyzing the small group of microcredit borrowers we interviewed. Many of the microcredit borrowers were women, so we do not exclude women in this analysis.

Frequencies and Case Summaries: In the following case summary we compare microcredit borrowers and stand-alones. Please see the summary charts, Results 5.1-5.3, listed in the microfranchise analysis section for further information. We see that on average microcredit borrowers have much higher start up costs than the stand-alones, even when we include only those that started with more than 50 new cedis. This is a

much greater disparity between microcredit borrowers and stand-alones than what we saw earlier between microfranchisees and stand-alones. The microcredit businesses score better in all the business measurements except ROA, Profit to Startup Ratio, and startup recovery time. These reflect the microcredit borrowers higher assets and higher startup cost.

Regression Results: We start with the same regression we used in our preliminary analysis of microfranchises only now we add one more independent variable, gender, because women are now a part of our analysis. Below we see the adjusted r-squared is very high for the microcredit group. Results 5.8 are interesting because we have added a significant variable, gender into the mix.

Results 5.8

Business Model	Mode R	R Square	Adjusted R Sq	Std. Error of the Estimate
Stand alone	0.4640	0.2153	0.1394	0.9931
Microcredit	0.8511	0.7244	0.4881	1.1663

Results 5.8

Men and Women, for comparing with Microcredit

Business Model Type		Unstandardized		Standardized		t	Sig.
		B	Std. Error	Beta	B		
Stand alone n=136	(Constant)	4.047	0.547			7.397	0.00
	UnadjStartup	0.002	0.001		0.648	2.899	0.00
	UnadjStartupCost2	(0.000)	0.000		(0.653)	(2.917)	0.00
	Months since busin	0.002	0.002		0.201	1.017	0.31
	businessmonths2	(0.000)	0.000		(0.138)	(0.717)	0.47
	Kaneshie	0.260	0.195		0.109	1.334	0.18
	Age minus years sir	(0.015)	0.012		(0.110)	(1.291)	0.20
	Sum of Entreprene	0.038	0.062		0.052	0.616	0.54
	Survivedin5yre	0.437	0.207		0.180	2.108	0.04
	Endedin5yrs	(0.214)	0.140		(0.129)	(1.522)	0.13
	BeyondSecondary	0.065	0.327		0.018	0.197	0.84
LessThanPrimary	(0.225)	0.355		(0.057)	(0.633)	0.53	
Gender of interview	0.541	0.242		0.202	2.240	0.03	
Microcredit n=26	(Constant)	5.865	2.421			2.423	0.03
	UnadjStartup	0.001	0.000		1.635	3.123	0.01
	UnadjStartupCost2	(0.000)	0.000		(1.525)	(2.902)	0.01
	Months since busin	0.030	0.019		0.921	1.544	0.14
	businessmonths2	(0.000)	0.000		(0.744)	(1.402)	0.18
	Kaneshie	0.055	0.754		0.012	0.074	0.94
	Age minus years sir	(0.062)	0.038		(0.356)	(1.648)	0.12
	Sum of Entreprene	(0.098)	0.203		(0.085)	(0.483)	0.64
	Survivedin5yre	1.391	0.815		0.338	1.708	0.11
	Endedin5yrs	(0.129)	0.431		(0.050)	(0.298)	0.77
	BeyondSecondary	2.270	0.974		0.504	2.332	0.04
LessThanPrimary	(2.483)	1.480		(0.293)	(1.678)	0.12	
Gender of interview	0.070	0.624		0.022	0.113	0.91	

a Dependent Variable: LnNetProfitMonthly

Now business age is no longer a significant independent variable. This could support prior research about how women tend to spend profits on family consumption, whereas men tend to reinvest profits in their business, meaning only men’s businesses would grow over time. (Safa 1995) Another interesting outcome is that for the first time we see education is significant for a specific group, microcredit businesses.

Below I’ve run my model on the entire sample to analyze microcredit borrower’s relationship to profit. This model now includes gender, a business age/gender interaction

term and age at startup because age at startup is nearly significant for the microcredit group in Results 5.8.

Results 5.9

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.543(a)	.295	.259	.93550

a Predictors: (Constant), Gender of interviewee., BeyondSecondary, businessmonths2, Survivedin5yre, UnadjStartupCost2, MicroFranchiseDummy, MicroCreditDummy, Age minus years since startup, BusAgeSQGenderInteraction, Months since business started?, UnadjStartup, BusAgeGenderInteraction

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	87.768	12	7.314	8.357	.000(a)
	Residual	210.039	240	.875		
	Total	297.807	252			

a Predictors: (Constant), Gender of interviewee., BeyondSecondary, businessmonths2, Survivedin5yre, UnadjStartupCost2, MicroFranchiseDummy, MicroCreditDummy, Age minus years since startup, BusAgeSQGenderInteraction, Months since business started?, UnadjStartup, BusAgeGenderInteraction

b Dependent Variable: LnNetProfitMonthly

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta	B	Std. Error	
1	(Constant)	3.746	.389		9.619		.000
	MicroFranchiseDummy	.186	.135	.082	1.379		.169
	MicroCreditDummy	.885	.224	.252	3.949		.000
	UnadjStartup	.001	.000	.542	3.704		.000
	UnadjStartupCost2	-5.66E-008	.000	-.340	-2.443		.015
	Months since business started?	.003	.002	.238	1.923		.056
	businessmonths2	-9.34E-006	.000	-.266	-2.094		.037
	BusAgeFemaleInteraction	.000	.005	-.013	-.060		.952
	BusAgeSQFemaleInteraction	-9.03E-006	.000	-.160	-.852		.395
	Age minus years since startup	-.010	.009	-.076	-1.209		.228
	Survivedin5yre	.461	.160	.164	2.890		.004
	BeyondSecondary	.622	.250	.155	2.485		.014
	Gender of interviewee.	.964	.289	.327	3.334		.001

a Dependent Variable: LnNetProfitMonthly

Once we add the interaction term for gender with business age, we indeed see that business age is significant for profitability for men's businesses but not women's. The interaction term was $I = \text{businessmonths} * (1 - \text{gender})$. Gender is 1 for male and 0 for female. Age of the individual at startup is still not significant. The main purpose of this regression was to look at the microcredit group. We see that those who've used microcredit do indeed earn statistically more profits. I will now look at hourly profit, profit to startup ratio, ROA and inventory turnover as well.

Results 5.10

	adj. r- sq	constan t	MicroFr Dummy	MicroCr Dummy	Unadj Startup	Unadj Startup^2	Business Age	Business Age^2	BusAge Gender Interaction	BusAgeSQ Gender Interaction	Survived in 5yr	Beyond Secondary	Gender
LnNetProfit Monthly	0.2580	3.4075 0.00	0.2018 0.13	0.8416 0.00	0.0007 0.00	-5.34E-08 0.02	0.0033 0.06	-8.81E-06 0.05	(0.0007) 0.87	-8.28E-06 0.43	0.4746 0.00	0.5556 0.02	1.0400 0.00
LNHourly Profit	0.2756	(2.0357) 0.00	0.1214 0.36	0.9316 0.00	0.0007 0.00	-5.04E-08 0.03	0.0038 0.03	-1.03E-05 0.02	0.0012 0.79	-1.26E-05 0.23	0.4405 0.01	0.7309 0.00	0.8801 0.00
LnProfitTo StartupRatio (like ROI)	0.3868	0.3752 0.31	0.7559 0.00	1.0004 0.00	(0.0023) 0.00	2.11E-07 0.00	(0.0064) 0.17	0.0001 0.01	(0.0022) 0.77	2.72E-05 0.29	0.0748 0.73	(0.1354) 0.69	0.6314 0.11
LnROA	0.1960	(0.0582) 0.93	(0.0672) 0.92	(0.3844) 0.48	(0.0015) 0.00	1.55E-07 0.00	(0.0141) 0.01	1.33E-05 0.20	(0.0075) 0.51	2.15E-06 0.93	0.0931 0.83	(0.4817) 0.41	0.7075 0.33
LnInventory Turnover	0.0598	2.1677 0.01	3.1844 0.00	0.1202 0.86	(0.0012) 0.02	1.19E-07 0.04	(0.0059) 0.38	2.01E-07 0.99	0.0124 0.40	-3.30E-05 0.29	(0.5590) 0.33	0.5844 0.43	(1.0619) 0.26

Again we see that the model with the highest adjusted r-squared is the one using our ROI approximation as the dependent variable. Inventory turnover is the weakest model and I choose not to analyze its results. For all the first three models, microcredit has a very positive association with the business measurement. I am not surprised that microcredit is positively associated with ROI because these individuals did not use microcredit to increase the startup capital, but rather to grow the business. These businesses are leveraged and therefore are earning income at a higher proportion to the initial equity invested. One cannot compare microcredit users directly with

microfranchisees because they are such a different sample, but one can say that both microfranchisees and microcredit borrowers earn more profit (though not necessarily a better hourly wage for the microfranchisees) and have a better ROI than your run-of-the-mill stand-alone enterprise. Microcredit borrowers have lower return on assets, which reflects their higher fixed assets. Microfranchise in these latest regressions including women is not significant except for inventory turnover (must be the seven agents as the vendors had no inventory) and ROI. The caveat is that it would be better for these microcredit borrowers to be compared to a propensity score matched control group because of the disparity between the characteristics making up the microcredit group and the stand-alone group.

VI. Regression and Results Using Matched Control Group

A. Regressions

Up until now I've simply been using the whole sample to determine which of the many independent variables are the most important ones to include in the model. However, instead of using the whole sample, we ideally want use a control group that matches as closely as possible to our treatment groups in all aspects unaffected by the treatment.

Propensity score matching and Matching by Startup Cost alone: One way we can better match our treatment group is to use a method called Propensity Score Matching.

Propensity score matching is a method where one runs a regression of independent variables with the treatment dummy as the dependent variable in order to find the independent variables that determine a likelihood of receiving treatment. Once

you model the variables that are related to treatment, one can calculate a probability of treatment, or propensity score, for each observation. Then each treatment observation can be matched to a control observation that had the same probability of being included in the treatment group.

The only treatment group I analyzed was the Fanmilk vendors, although a similar method should be applied to the microcredit control group. These vendors are all men. Knowing this I chose to only include men in the initial sample that I applied propensity score matching to. The independent variables I used are startup cost (as a proxy for the initial capital the person had), age at startup, ability to read, and businesses that survived in the last five years (as a proxy for business experience).

Table 6.1 Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1(a)	UnadjStartup	-.032	.007	20.037	1	.000	.968
	AgeatStartup	-.054	.030	3.128	1	.077	.948
	Read	-.668	.339	3.880	1	.049	.513
	Survivedin5yre	-.117	.580	.041	1	.840	.890
	Constant	2.423	.792	9.368	1	.002	11.278

a Variable(s) entered on step 1: UnadjStartup, AgeatStartup, Read, Survivedin5yre.

We see that all variables are significant except the business experience proxy variable. Here is the final result excluding “survivedin5yr”.

Table 6.2 Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 1(a)	UnadjStartup	-.033	.007	21.186	1	.000	.968
	AgeatStartup	-.061	.030	4.054	1	.044	.941
	Read	-.607	.337	3.248	1	.072	.545
	Constant	2.589	.787	10.810	1	.001	13.311

a Variable(s) entered on step 1: UnadjStartup, AgeatStartup, Read.

So the resulting equation is:

Eq. 6.1 PropensityScore = 2.589-.033*StartupCost-.061 *AgeatStartup-.607*Read

From this equation we can compute a propensity score for each of the men surveyed. Then we will match each man in the treatment group with a man who did not receive treatment with a similar propensity score.

Chart 6.1

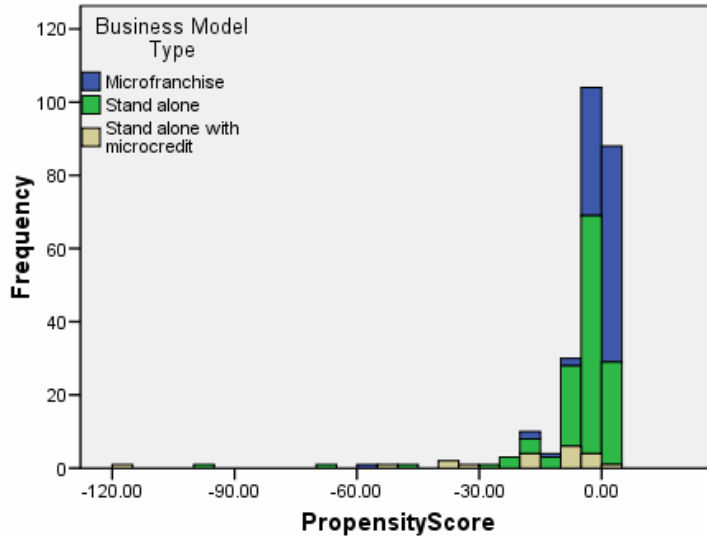


Chart 6.1 shows that there are plenty of stand-alones that overlap the propensity scores of the vendors. The distribution is skewed to the left because the vendors are the lower bound of the startup cost. No one really has a lower cost but many have higher and startup cost is negatively correlated to receiving the treatment. For analysis we will make up a control group including only those stand-alones that match the propensity scores of the vendors. I allowed multiple matching, so if a single stand-alone case matched more than one microfranchise case, it was included more than once.

Unfortunately, I found that this propensity score calculation was insufficient in creating a good comparison group. I found that in the resulting comparison groups, the control group actually ended up having a noticeably lower median startup cost. Startup

cost is the only independent variable in our propensity score calculation that directly effects profit, therefore this is the most important matching characteristic. One reason it may not match up well is that there are limited observations and also that there is a very narrow distribution of microfranchise startup costs. Perhaps in a group with many more observations, and observations of several microfranchises other than Fanmilk, it would be easier to get similar comparison groups. What I found is that the difference in startup cost was actually being compensated for by the difference in the age at startup and literacy of the individual so that while we were matching propensity scores, we were not matching well on the most important variable, startup cost.

As we've shown before, startup cost incorporates how the product is sold (which is correlated to business maturity), the age at startup, and schooling beyond secondary. I therefore decided to define a control group based on startup cost alone. Please refer to the earlier distribution of men's startup costs in Chart 5.1 to get an idea of the distribution used in this group. I matched allowing cases to be repeated in a range of about 1 new Ghana cedi.

Full Sample Model run with Matched Control Group: I'm including here the results for what it would look like if we used the full sample model from Results 5.4 with the startup cost matched control group. You will see that there is very little statistical significance in the matched sample results. The model looks much better in Results 5.4 because that is running the model with the dataset used to develop it.

Table 6.3

Coefficients(a)

Business Model	Ty Moc	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta	B		
Microfranchise	1 (Constant)	3.440	0.433			7.950	0.000
	UnadjStartup	0.024	0.013	0.545		1.890	0.063
	UnadjStartupCost2	0.000	0.000	-0.307		-1.065	0.291
	Months since business sta	0.002	0.004	0.187		0.555	0.581
	businessmonths2	0.000	0.000	0.124		0.369	0.713
	Kaneshie	0.279	0.177	0.195		1.575	0.120
	Age minus years since sta	0.020	0.015	0.168		1.357	0.179
	Sum of Entrepreneurship :	0.068	0.042	0.186		1.615	0.111
	Survivedin5yre	-0.144	0.368	-0.051		-0.392	0.696
	Endedin5yrs	0.092	0.157	0.066		0.582	0.562
LessThanPrimary	-0.092	0.353	-0.028		-0.261	0.795	
Stand alone	1 (Constant)	4.764	0.574			8.300	0.000
	UnadjStartup	0.032	0.017	0.560		1.827	0.073
	UnadjStartupCost2	0.000	0.000	-0.384		-1.375	0.174
	Months since business sta	0.001	0.002	0.277		0.599	0.551
	businessmonths2	0.000	0.000	-0.811		-1.305	0.197
	Kaneshie	-0.334	0.249	-0.184		-1.341	0.185
	Age minus years since sta	0.009	0.015	0.071		0.644	0.522
	Sum of Entrepreneurship :	-0.176	0.065	-0.360		-2.720	0.009
	Survivedin5yre	0.793	0.365	0.248		2.170	0.034
	Endedin5yrs	-0.168	0.204	-0.106		-0.822	0.414
LessThanPrimary	0.641	1.516	0.043		0.423	0.674	
BeyondSecondary	1.289	1.052	0.445		1.226	0.225	

a Dependent Variable: LnNetProfitMonthly

Most every variable loses significance once the groups are compared by startup cost. One explanation is that comparing by startup cost gives you very homogenous groups because of the high correlation with startup cost of many of the other variables. If the independent variables do not vary, we cannot attribute changes in profit to those non-existent variations. One interesting output of this is that now the entrepreneurship score is very significant for stand-alones, however it is negatively related to profit! With so many insignificant variables in the equation, and the already existing evidence of multicollinearity in this sample, I will run some bivariate regressions to see if there are

any significant relationships hiding in there. I will need to rerun some of the earlier regressions using this newly weighted control group.

Startup Cost: It is likely that the relationship with startup cost has changed given that I am using startup cost to weight the control group.

Table 6.4 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.391	.089		49.091	.000
	UnadjStartup	.014	.004	.278	3.643	.000

a Dependent Variable: LnNetProfitMonthly

Table 6.5 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.337	.101		42.747	.000
	UnadjStartup	.024	.009	.465	2.561	.011
	UnadjStartupCost2	.000	.000	-.206	-1.133	.259

a Dependent Variable: LnNetProfitMonthly

Indeed it has changed, it is now only a linear relationship, though still very significant.

Microfranchise dummy: Last time we found that microfranchise had joint significance with startup cost, so I included both in this initial regression.

Table 6.6 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.319	.103		42.066	.000
	UnadjStartup	.014	.004	.270	3.541	.001
	MicroFranchiseDummy	.153	.108	.108	1.409	.161

a Dependent Variable: LnNetProfitMonthly

We see that microfranchise is not significant. However by itself, it is significant at the 10% level.

Table 6.7 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.557	.080		56.671	.000
	MicroFranchiseDummy	.186	.111	.131	1.668	.097

a Dependent Variable: LnNetProfitMonthly

This does not bode well for this model, given we are required to include both startup cost and microfranchise to test our hypothesis. But there is a chance that microfranchise will have joint significance with another independent variable. The most likely is mobile, because every microfranchise vendor is mobile. Like in the earlier example (before matching by startup cost) where every microfranchise vendor had the same startup cost, which lead to joint significance. I will test that next.

How Sold: Previously we divided businesses into two groups only, kiosk_mobile and commercial_market. The greatest disparity was between these two groups. However in this new analysis most all the observations fall into the kiosk_mobile group, so I will look at mobile as its own group. By itself, mobile is not significant.

Table 6.8 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.427	.110		40.240	.000
	UnadjStartup	.015	.004	.289	3.661	.000
	Mobile	-.067	.120	-.044	-.557	.578

a Dependent Variable: LnNetProfitMonthly

But I believe it will be correlated to the microfranchise dummy since all of the microfranchisees were mobile vendors. Only some of the stand-alones were mobile. I

will also include startup cost as that is a variable mobile is likely correlated to as well, and is one we cannot do without in the final regression.

Table 6.9 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.395	.109		40.167	.000
	UnadjStartup	.016	.004	.308	3.934	.000
	MicroFranchiseDummy	.319	.139	.224	2.296	.023
	Mobile	-.289	.153	-.190	-1.890	.061

a Dependent Variable: LnNetProfitMonthly

We see that mobile does indeed have joint significance with startup cost and microfranchise, but only at the 10% level. We also find that microfranchise is now significant at the 5% level. The addition of mobile was important in analyzing microfranchise, because in general the mobile businesses are less profitable. However compared to these other mobile businesses, the microfranchises make more profit.

Business Age: Business age is no longer significant.

Table 6.10 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.410	.107		41.095	.000
	UnadjStartup	.014	.004	.270	3.339	.001
	Months since business started?	.000	.001	-.027	-.328	.743

a Dependent Variable: LnNetProfitMonthly

This might show that businesses that start from this small initial startup don't necessarily grow into larger businesses. It may be more likely the owners use savings from this smaller business to eventually invest in the start of a larger new business. These larger businesses, however, do grow over time, which is why business age was significant in the overall sample.

Location of business: Kaneshie is no longer significant either, though not *grossly* insignificant given the small n.

Table 6.11 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.367	.092		47.569	.000
	UnadjStartup	.014	.004	.266	3.452	.001
	Kaneshie	.144	.127	.087	1.130	.260

a Dependent Variable: LnNetProfitMonthly

Age at startup: The owner’s age at startup is significant in this sample.

Table 6.12 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.893	.239		16.300	.000
	UnadjStartup	.013	.004	.246	3.199	.002
	Age minus years since startup	.022	.010	.172	2.245	.026

a Dependent Variable: LnNetProfitMonthly

Sum of Entrepreneurship Score: Entrepreneurship isn’t significant, but this includes both microfranchise and stand-alones. Earlier in Table 6.3 we saw it mattered for stand-alones only. Perhaps this is worth further investigation.

Table 6.13 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.146	.314		13.213	.000
	UnadjStartup	.013	.004	.250	3.261	.001
	Age minus years since startup	.019	.010	.148	1.864	.064
	Sum of Entrepreneurship score	-.041	.033	-.096	-1.240	.217

a Dependent Variable: LnNetProfitMonthly

Past Business Experience: Number of businesses that survived in the last five years is still significant.

Table 6.14 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.879	.241		16.114	.000
	UnadjStartup	.010	.004	.196	2.455	.015
	Age minus years since startup	.023	.010	.180	2.340	.021
	Survivedin5yre	.516	.242	.166	2.127	.035

a. Dependent Variable: LnNetProfitMonthly

And the number of businesses ended in the last five years still is not significant when included with other variables..

Table 6.15 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.910	.244		16.042	.000
	UnadjStartup	.010	.004	.193	2.415	.017
	Age minus years since startup	.023	.010	.176	2.286	.024
	Survivedin5yre	.502	.243	.162	2.063	.041
	Endedin5yrs	-.083	.098	-.065	-.851	.396

a. Dependent Variable: LnNetProfitMonthly

Independent Variables Synopsis for startup cost matched:

Summary of each variable and whether it is included in the initial startup cost matched model:

Synopsis 6.1

Variable	Initial Testing Sign(10%)	Include In Regressio	Comments
StartupCost	yes	yes	Relationship is linear
BusinessAge	no	no	
Mobile	no	yes	Correlated to startup cost and microfranchise (joint significance)
Kaneshie	no	no	
FoodVendor	no	no	Correlated to microfranchise
Initial finance method	no	no	
Age at business start	yes	yes	
Entrepreneurship	no	yes	A theory we want to test
Survivedin5years	yes	yes	
Failedin5years	no	no	
Marital Status	no	no	
BeyondSecondarySchool	no	yes	Barely not significant at 10%
LessThanPrimary	no	no	
Literacy	no	no	
Gender		no	Excluded all females from sample initially

Microfranchising Matched Regression Results

Up until now I've analyzed both microfranchising and microcredit using the entire sample of observations. Then I used startup cost matching to define a better control group to analyze against the microfranchises. Because of the changes in the sample, I also had to redefine the best model to analyze this sample. In the current section I present the results of this model, as well as well as frequency and case summary analysis of this "matched" sample.

Frequencies and Case Summaries:

Results 6.1

Frequencies MATCHED STARTUP, excluding agents

	n	male %	food %	jeweln %	electron %	telecom %	clothing %	entrepre neur %
Microfranchise	93	93 100%	89 96%	0 0%	0 0%	0 0%	0 0%	27 29%
StandAlone	83	83 100%	7 8%	10 12%	3 4%	6 7%	35 42%	30 36%
Microcredit	9	9 100%	9 100%	0 0%	0 0%	0 0%	0 0%	8 89%

Frequencies excluding agents

	n	mobile %	kiosk %	shop %	market %	saving %	read %	married %
Microfranchise	93	89 96%	3 3%	1 1%	0 0%	80 86%	55 59%	33 35%
StandAlone	83	31 37%	41 49%	2 2%	1 1%	56 67%	59 71%	39 47%
Microcredit	9	0 0%	4 44%	4 44%	5 56%	9 100%	9 100%	5 56%

*is possible to have both

Frequencies MATCHED by Startup, excluding agents

	n	recovered startup %	less than primary %	primary %	junior %	second ary %	beyond secondary %
Microfranchise	93	93 100%	4 4%	19 20%	49 53%	20 22%	1 1%
StandAlone	83	77 93%	0 0%	8 10%	46 55%	23 28%	6 7%
Microcredit	9	9 100%	0 0%	0 0%	9 100%	0 0%	0 0%

There is not a drastic change in the distribution of these characteristics presented

in Results 6.1 for the matched sample, except that most of the microcredit borrowers have been eliminated. It seems the only microcredit borrowers that had similar startup costs to the microfranchisees were also food vendors. Compare to Results 5.1. One change of interest is in entrepreneurship. The microfranchises have the least entrepreneurs and microcredit borrowers the most. However this relationship cannot be confirmed given the small number of microcredit borrowers.

This new “matched” stand-alone group is a much better comparison to the microfranchisees. The mean and median initial startup cost match almost exactly between the microfranchise and stand-alone groups. Other characteristics naturally follow suit. Age at startup is closer, recovery time is closer, debt is closer, inventory is

closer (thought still quite different), and net income is closer. Almost all non- mobile and non-kiosk vendors are eliminated from the stand-alone group (overlap is allowed).

Results 6.2

Statistics, MATCHED by Startup cost

Business Model Type			Age	Age at start	Unadj Start up	Hours per day	Recovery time	Debt	Savings	Inventory	Entrepreneurship	Net Income
Microfranchise	N	Valid	93	93	92	92	80	71	93	92	93	84
		Missing	0	0	1	1	13	22	0	1	0	9
	Mean		27.06	23.49	18.23	12.57	1.14	15.97	1.86	0.00	4.60	133.87
	Median		26.00	22.00	20.00	13.00	1.00	0.00	2.00	0.00	5.00	125.76
	Std. Deviation		7.330	5.220	13.635	2.597	1.540	84.696	0.349	0.000	1.656	68.923
Stand alone	N	Valid	83.17	83.17	83.17	83.17	67.74	82.75	83.17	83.17	83.17	74.49
		Missing	0	0	0	0	15.43	0.41	0	0	0	8.68
	Mean		33.36	25.40	18.12	10.68	2.81	20.63	1.67	351.85	4.10	120.61
	Median		31.00	24.00	20.00	11.00	1.00	0.00	2.00	50.00	4.00	103.01
	Std. Deviation		12.869	6.572	14.062	1.818	3.761	117.338	0.472	606.630	1.580	133.310
Microcredit	N	Valid	8.83	8.83	8.83	8.83	8.83	8.83	8.83	8.33	8.83	4.83
		Missing	0	0	0	0	0	0	0	0.5	0	4
	Mean		36.58	24.64	20.46	10.92	6.64	181.13	2.00	2720.00	5.70	173.08
	Median		35.83	25.00	20.00	10.96	5.58	116.67	2.00	3416.67	5.17	124.37
	Std. Deviation		8.255	1.273	9.470	0.647	5.243	118.603	0.000	2529.732	1.453	140.585

There were also some characteristics that became more different between the groups once matched by startup cost. Less of the stand-alones are food vendors now, instead there is a greater percentage of clothing vendors.

The following chart shows the dependent variables for comparison against the Results 5.3. Though it does not limit the analysis to those that started with less than 50

Results 6.3

Statistics for men, weighted by startup cost; no agents

Business Model			Gross					Monthly	Hourly	Recovery	
			Unadj	Profit	Net	Inventory	ROA	Profit To	Profit To	Startup	Startup
			Startup	margin	Monthly	Hourly	monthly	Startup	Startup		
			Percent	Percent	Profit	Profit	Turnover	Ratio	Ratio		
Microfranchise	N	Valid	92	92	84	83	0	0	64	63	80
		Missing	1	1	9	10	93	93	29	30	13
		Mean	18.23	0.17	133.87	0.47			6.97	0.02	1.14
		Median	20.00	0.17	125.76	0.43			5.54	0.02	1.00
		Std. Deviation	13.64	0.02	68.92	0.26			6.31	0.02	1.54
Stand alone	N	Valid	83.17	81.00	74.49	74.49	41.70	41.70	57.99	57.99	67.74
		Missing	0.00	2.16	8.68	8.68	41.46	41.46	25.18	25.18	15.43
		Mean	18.12	0.42	120.61	0.49	20.13	5.61	18.28	0.08	2.81
		Median	20.00	0.40	103.01	0.37	0.34	0.21	4.67	0.02	1.00
		Std. Deviation	14.06	0.26	133.31	0.62	36.89	9.70	35.45	0.15	3.76
Microcredit	N	Valid	8.83	4.83	4.83	4.83	4.00	4.00	4.83	4.83	8.83
		Missing	0.00	4.00	4.00	4.00	4.83	4.83	4.00	4.00	0.00
		Mean	20.46	0.47	173.08	0.63	0.62	0.48	25.02	0.08	6.64
		Median	20.00	0.48	124.37	0.47	0.62	0.48	6.22	0.02	5.58
		Std. Deviation	9.47	0.05	140.58	0.47	0.00	0.00	61.19	0.19	5.24

cedis, it turns out that there are very few observations included with startup costs higher than 50 because almost all of the microfranchisees already fit into that category anyway, and the rest of the sample were matched to a microfranchisees' startup cost.

We see that startup matching does a better job than simply using all <50 cedi startups in approximating the microfranchise mean startup. Both methods result in medians of 20.

Regression Results: "Initial" model run using the matched sample. Please refer back to Results 5.6 to compare with the full sample regression.

Results 6.4

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.090	.330		12.401	.000
	UnadjStartup	.009	.004	.184	2.159	.032
	MicroFranchiseDummy	.286	.137	.200	2.082	.039
	MicroCreditDummy	.410	.325	.099	1.262	.209
	Mobile	-.152	.164	-.100	-.928	.355
	Age minus years since startup	.020	.010	.151	1.886	.061
	Sum of Entrepreneurship score	-.034	.034	-.080	-.999	.319
	Survivedin5yre	.520	.244	.168	2.128	.035
	BeyondSecondary	-.388	.302	-.104	-1.286	.201

a Dependent Variable: LnNetProfitMonthly

There are several insignificant variables here: microcredit, mobile, entrepreneurship and beyond secondary. I choose to drop all insignificant variables but the microcredit dummy because we should differentiate the microcredit borrowers, even if there are only nine of them. The “final” matched model yields the following results.

Results 6.5

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.404(a)	.163	.136	.66687

a Predictors: (Constant), Survivedin5yre, MicroFranchiseDummy, Age minus years since startup, MicroCreditDummy, UnadjStartup

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.124	5	2.625	5.902	.000(a)
	Residual	67.223	151	.445		
	Total	80.347	156			

a Predictors: (Constant), Survivedin5yre, MicroFranchiseDummy, Age minus years since startup, MicroCreditDummy, UnadjStartup

b Dependent Variable: LnNetProfitMonthly

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.714	.251		14.823	.000
	UnadjStartup	.009	.004	.174	2.194	.030
	MicroFranchiseDummy	.222	.109	.155	2.026	.045
	MicroCreditDummy	.492	.314	.119	1.564	.120
	Age minus years since startup	.026	.010	.198	2.583	.011
	Survivedin5yre	.554	.240	.179	2.307	.022

a. Dependent Variable: LnNetProfitMonthly

This final matched model regression has much fewer control variables because the act of matching by startup cost was a method of controlling for many characteristics correlated to startup cost. Microfranchise is significant at the 5% level and positively correlated to profit. Results 6.6 compares the regression results for three different dependent variables.

Results 6.6

Men only, Startup matched	adj. r-sq	constant	MicroFr Dummy	MicroCr Dummy	Unadj Startup	Age at Start	Survived in5yr
LnNetProfitMonthly	0.141	3.714	0.2222	0.492	0.009	0.026	0.554
		0.00	0.05	0.12	0.03	0.01	0.02
LNHourlyProfit	0.080	-1.72	0.116	0.456	0.006	0.022	0.516
		0.00	0.31	0.16	0.13	0.03	0.04
LNProfitToStartupRatio (like ROI)	0.423	2.313	0.004	0.323	-0.06	0.034	0.76
		0.00	0.98	0.39	0.00	0.01	0.01

One thing I've noticed is that microfranchise is very insignificant to for

LNProfitToStartupRatio (and LNHourlyProfit), but becomes significant as more and more variables are added. The adjusted r-squared in the following equation is very high at .666 and microfranchise is significant at the 10% level, almost at the 5% level.

However we are including many variables that are insignificant.

Results 6.7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.816(a)	.666	.626	.63123

a Predictors: (Constant), MicroCreditDummy, businessmonths2, LessThanPrimary, UnadjStartupCost2, BeyondSecondary, Kaneshie, Age minus years since startup, Sum of Entrepreneurship score, MicroFranchiseDummy, Survivedin5yre, Endedin5yrs, Months since business started?, UnadjStartup

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	85.522	13	6.579	16.510	.000(a)
	Residual	42.897	108	.398		
	Total	128.419	121			

a Predictors: (Constant), MicroCreditDummy, businessmonths2, LessThanPrimary, UnadjStartupCost2, BeyondSecondary, Kaneshie, Age minus years since startup, Sum of Entrepreneurship score, MicroFranchiseDummy, Survivedin5yre, Endedin5yrs, Months since business started?, UnadjStartup

b Dependent Variable: LNProfitToStartupRatio

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.126	.461		6.777	.000
	UnadjStartup	-.119	.018	-1.310	-6.670	.000
	UnadjStartupCost2	.001	.000	.839	4.420	.000
	Months since business started?	.003	.003	.162	.923	.358
	businessmonths2	1.84E-005	.000	.195	1.093	.277
	Kaneshie	-.031	.145	-.013	-.211	.833
	Age minus years since startup	.005	.012	.026	.435	.664
	Sum of Entrepreneurship score	.019	.041	.030	.480	.632
	Survivedin5yre	.120	.251	.030	.479	.633
	Endedin5yrs	-.026	.123	-.015	-.213	.832
	BeyondSecondary	.837	.939	.054	.891	.375
	LessThanPrimary	.168	.435	.022	.386	.700
	MicroFranchiseDummy	.243	.127	.118	1.909	.059
	MicroCreditDummy	.343	.360	.065	.951	.344

a Dependent Variable: LNProfitToStartupRatio

I suspect that if we had a larger sample size, more of these variables would be significant

and we could justify including many of them in our model.

C. Microcredit Matched Results

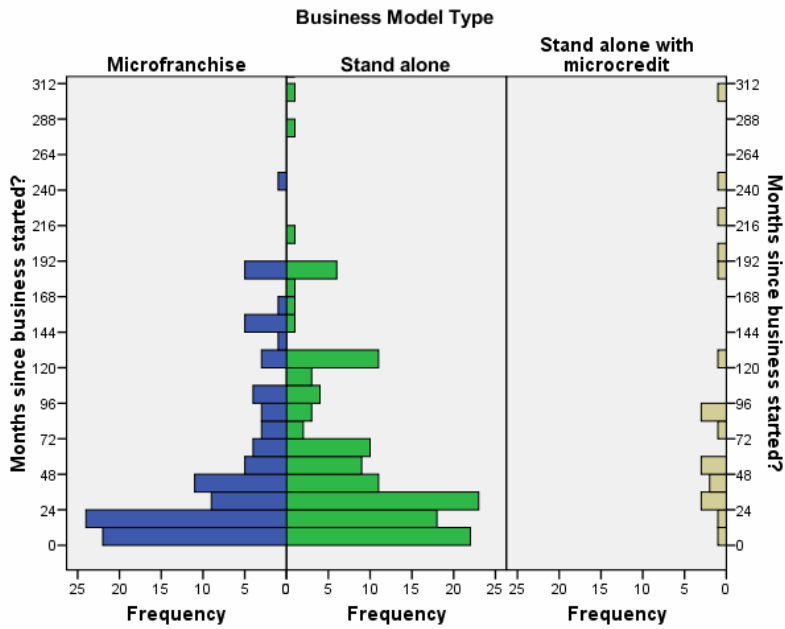
Since the purpose of my research was to look at microfranchising, I do not feel it necessary to go through the same rigorous process analyzing microcredit borrowers as analyzing the microfranchisees. I will leave the microcredit analysis to future research that will hopefully include the Bangladesh data. However, anyone interested in repeating the microfranchise matching process with microcredit borrowers in this dataset should beware of the very small n.

VII. Testing the Hypothesis Business Growth Model

In all this analysis I have not yet addressed Chart 2.1 in the hypothesis section. Given that this is only baseline, we don't have actual data tracking the growth of the microfranchises versus the stand-alones and microcredit borrowers. The best that we can do is to try to make some rough comparisons of businesses that are the same age. This ignores business failure rates, but still may yield some interesting results. My strategy was to run the original model with the original sample, dividing the sample by different business ages. If I had used the startup cost matched control group, the sample size would have been too small to make many meaningful observations.

First, let's take a look at the business age distribution for each group.

Chart 7.1



We see in this chart that the majority of the business ages in the sample are less than 36 months. Just where in our growth spectrum that puts us on our hypothetical Chart 2.1 is uncertain. So first I looked at six months old and younger and ran our regression model. Then I did it again at one year and got very similar results. I've only included the one-year results here.

Table 7.1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.711(a)	.505	.366	.66034

a Predictors: (Constant), Survivedin5yre, businessmonths2, Kaneshie, MicroCreditDummy, MicroFranchiseDummy, Months since business started?, UnadjStartup

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta	B	Std. Error	
1	(Constant)	3.792	.574		6.608		.000
	MicroFranchiseDummy	.607	.265	.370	2.291		.031
	MicroCreditDummy	5.524	9.872	1.159	.560		.581
	UnadjStartup	-.001	.003	-.643	-.304		.764
	Months since business started?	.217	.353	.462	.615		.544
	businessmonths2	-.031	.048	-.484	-.648		.523
	Kaneshie	.311	.263	.175	1.184		.248
	Survivedin5yre	.776	.379	.435	2.048		.051

a Dependent Variable: LnNetProfitMonthly **UnadjStartup2 was dropped by SPSS due to multicollinearity
 *there was only two microcredit observations less or equal to one year old

We see that for businesses a year old and younger, microfranchises are more profitable holding all else constant. As would be expected, months in business is not significant for a sample of such a narrow range of business ages. An interesting observation though is that startup cost is not significant here. This is the first time in all of the many regressions run, that startup cost is not an important indicator of profitability. This could support our hypothesis that it takes stand-alones, which in general have a higher startup cost, a longer time in business to reach their potential profitability (at least longer than a year). It seems that these businesses at one year and younger, still have not reached that point, and therefore the initial investment is not yet reflected in the earnings.

As soon as I extended the business age cutoff past one year, startup cost becomes significant. However this run will still include all businesses that are under one year of

age. To show that being a microfranchise is beneficial at first, but perhaps does not have the same long run profitability potential as our hypothesis suggests, we would need to also look at only businesses older than a certain cutoff age and see if microfranchises were worse off. This would be reflected by a significant negative beta.

I initially tried running businesses older than one year and found that startup cost was significant, but microfranchise was not significant at all. I then tried businesses older than 24 months, 36 months, and 48 months just in case there was an interim period where the stand-alones and microfranchises were at the same profitability level, and therefore the dummy would not show significance. Each time the microfranchise beta was not significantly different from zero. Here I've posted the regression results for all businesses older than one year.

Table 7.2 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.529(a)	.279	.237	.85989

a Predictors: (Constant), Survivedin5yre, UnadjStartupCost2, Months since business started?, Kaneshie, MicroFranchiseDummy, MicroCreditDummy, businessmonths2, UnadjStartup

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.274	.179		23.869	.000
	MicroFranchiseDummy	.165	.170	.081	.972	.333
	MicroCreditDummy	.966	.273	.282	3.532	.001
	UnadjStartup	.002	.001	.699	3.153	.002
	UnadjStartupCost2	-1.42E-006	.000	-.645	-3.097	.002
	Months since business started?	.004	.002	.261	1.729	.086
	businessmonths2	-7.08E-006	.000	-.233	-1.560	.121
	Kaneshie	.273	.167	.123	1.630	.105
	Survivedin5yre	.557	.218	.191	2.555	.012

a Dependent Variable: LnNetProfitMonthly

These results support the idea that microfranchises are most beneficial in increasing profits in the early business stages. It does not support that they are less profitable in later business stages, but rather show no statistical difference. However, our sample gets sparser the further months one goes out. Also, our model doesn't take into account that many business owners may leave their smaller business and start a new larger one once they've saved enough, rather than simply growing their initial business.

VIII. Conclusion

This concludes only a small portion of the possible research obtainable from this dataset and there are many issues that need further study. Once the Bangladesh data is added, and follow-up surveys can be administered to create a time series, more conclusive evidence may be presented. However, despite this only being a baseline study, there have been some interesting observations about the Fanmilk microfranchises in Accra, Ghana. First of all, these microfranchises reach a poorer segment of the population than microcredit. Not only are the microfranchisees poorer, but they are also younger, male, less likely to be literate or have higher education, more likely to be single and have less business experience.

The microfranchise dummy has been shown to be statistically different from a control group of stand-alones in determining profit, whether matched by startup cost or not. The microfranchise dummy had a positive relationship to profit, although this relationship disappeared once the number of hours worked was considered. Also, this significant positive relationship seems to exist only in the first year of business and these microfranchises don't show a relationship between profit and business age; both observations support the hypothetical business growth model.

Other variables that are also significant in explaining small Ghanaian business profitability are startup cost, business age, gender, owner's age at start, business experience, microcredit use and higher education. There are also other characteristics that indirectly effect profitability through their relationship with startup cost.

In conclusion, there are some preliminary results that do show microfranchising as being a beneficial business model for addressing the poor's lack of access to formal sector jobs in Accra, however this is only the beginning and much further research is needed to determine if microfranchising can be a part of the poverty solution.

IX. Suggestions for further research

- Do matched-control group analysis for microcredit borrowers using Ghana dataset.
- Analyze relationships having to do with entrepreneurship, business success and business experience.
- Reevaluate once Bangladesh data is added to be able to look at microfranchises other than Fanmilk. Perhaps it will then be possible to use propensity score matching to create a good control group.
- Reevaluate once longitudinal data is collected.
- Analyze household expense data.
- Look at different models for ROA and inventory turnover dependent variables as the models presented here really only seem to work for net profit and ROI.

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Appendix A: Business Terms and Ratios

Balance Sheet: The financial statement that shows all assets and debts of a business at a single point in time. It is like a snapshot of what the business looks like. The “balance” is that $\text{Assets} = \text{Liabilities} + \text{Equity}$

Gross Profit = Revenue – Cost of Goods Sold (before other operating expenses); calculated using $\text{sales} * \text{gross profit margin}$. If the person gave a “profit” number, but not a sales number, it was determined if this profit were gross or net by looking at daily profit (C33) and inputs (C32) questions; e.g. if $\text{profit} < \text{inputs}$, it must be net not gross if person reports they have positive income from business. Fanmilk agents and vendors that gave a “profit” number were giving the commission earned, which is gross profit. Almost all non-Fanmilk “profit” numbers reported were obviously net of all inputs.

Gross Profit Margin = $\text{Gross Profit} / \text{Revenue}$ Not very applicable to service industry (=1); calculated using costs and sales prices weighted by units sold given in questionnaire C20-C26.

Inventory Turnover = $\text{COGS} / \text{avg inventory}$; it is more correct to use COGS than sales

Income Statement: The financial statement that shows all transactions over a certain period of time (usually a year or a quarter, in our case, two weeks) and their effect on income. The income statement tracks all revenues and expenses and the resulting net income.

Net Income = $\text{Operating income} - \text{other expenses} - \text{taxes}$; in this case $\text{Net Income} = \text{Operating Income}$

Operating Income = $\text{Gross Profit} - \text{operating expenses}$

Recovery Time: Time it takes to earn back in profits the initial startup cost or investment.

Return on Assets = $\text{Gross Profit} / \text{Assets}$

Startup Cost : All initial outlays required to start business. The initial investment. (e.g. Inventory, cost of kiosk, fees)

Appendix B: Further Independent Variable Regressions

Full Sample

Product category: Price and profit margin, two factors key in determining income, vary depending on the product being sold. Therefore, we may find that income is also correlated to the product being sold. Initially there were many categories listed as options on the questionnaire. So many, in fact, that running a regression with all of them resulted in no significant category. Because all of the Fanmilk microfranchises were food vendors, we mainly care about if the product, food, is statistically different than other categories in explaining profit. We see that it is not. Even before accounting for startup cost it had a p-value of 0.20.

Table aB-1

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.681	.100		46.979	.000
	UnadjStartup	.001	.000	.661	4.546	.000
	UnadjStartupCost2	-6.90E-008	.000	-.414	-2.872	.004
	FoodVendor	-.024	.131	-.011	-.182	.856

a Dependent Variable: LnNetProfitMonthly

Initial finance method: I would not expect financing method to effect income because it is the startup quantity that should matter in determining profit, not the method in obtaining it. Especially because we did not ask for or include interest payments in calculating business income, so there should be no obvious effect of using credit. Personal funded is the omitted variable.

Table aB-2

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta	B	Std. Error	
1	(Constant)	4.701	.086		54.633		.000
	UnadjStartup	.001	.000	.618	3.936		.000
	UnadjStartupCost2	-5.95E-008	.000	-.366	-2.354		.019
	FamilyFunded	-.137	.160	-.053	-.856		.393
	MicrocreditFunded	-.029	.451	-.004	-.065		.948
	otherfunding	.763	.308	.153	2.476		.014

a Dependent Variable: LnNetProfitMonthly

We see that compared to funding the startup of a business yourself, neither familyfunded nor microcreditfunded are statistically different. Granted, we must realize that we were only able to find eight people who had used microcredit to actually start their business. Microcredit was more commonly used to fund a business already in existence. Otherfunding is significant, but it includes only 12 observations. This regression is really only meaningful for discovering a difference between personal funding and family funding, and one could argue that one’s family’s funds are not much different than one’s personal funds. Therefore, I do not feel the need to control for this variable.

Marital Status: Can marital status effect profitability? Our sample looked like this:

Table aB-3

Marital status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	married	126	42.0	42.1	42.1
	cohabitating	15	5.0	5.0	47.2
	divorced	18	6.0	6.0	53.2
	widowed	9	3.0	3.0	56.2
	single, never married	131	43.7	43.8	100.0
	Total	299	99.7	100.0	
Missing	System	1	.3		
Total		300	100.0		

I decided to analyze whether being married was an indicator of profitability.

Table aB-4

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta	B	Std. Error	
1	(Constant)	4.647	.087		53.401	.000	
	UnadjStartup	.001	.000	.659	4.590	.000	
	UnadjStartupCost2	-6.90E-008	.000	-.414	-2.896	.004	
	Married	.056	.131	.026	.426	.670	

a Dependent Variable: LnNetProfitMonthly

Being married is not significant and adding it actually decreases the adjust r-squared. I do not have a theory of marital status influencing business profitability, so I will not include this variable.

Education: The education system in Ghana is set up with levels primary, junior secondary, senior secondary and then post-secondary institutions such as university. According to the World Bank’s on-line country database 72% of the relevant population completed primary school in 2005. Currently 88% of the relevant population is enrolled in primary, while only 37% are enrolled in secondary and 2.8% post secondary. This is in line with the distribution in our sample, which shows that only about one third of those that finished primary school could be expected to go on to complete secondary school (100/283). Analysis of this variable required considerable thought, as many assumed relationships between education and income were not obvious in this sample.

Dropping JuniorSchool

Table aB-5

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t		Sig.
		B	Std. Error	Beta	B	Std. Error	
1	(Constant)	4.693	.096		49.028	.000	
	UnadjStartup	.001	.000	.597	4.180	.000	
	UnadjStartupCost2	-6.52E-008	.000	-.391	-2.772	.006	
	LessThanPrimary	-.483	.276	-.105	-1.748	.082	
	PrimarySchool	-.069	.192	-.022	-.361	.718	
	SecondarySchool	-.064	.154	-.026	-.416	.678	
	BeyondSecondary	.622	.252	.155	2.466	.014	

a Dependent Variable: LnNetProfitMonthly

An initial analysis shows that there is no statistically significant difference between graduating from primary school or secondary school versus junior school. We see that there is a very significant negative effect of not finishing primary school and a positive effect of going beyond secondary school. These two categories may also be viewed as a reflection of socioeconomic status. Only children from the poorest backgrounds would not attend at least primary school, and only young adults from a more elite background would be able to go on to university. We would expect then that this would be reflected in the amount of capital an individual started with. Those who didn't finish primary school, were likely the poorest, and likely started with the least money, and just the opposite for those with.

Table aB-6 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	139.056	60.512		2.298	.022
	LessThanPrimary	-70.031	190.155	-.021	-.368	.713
	PrimarySchool	133.469	129.076	.061	1.034	.302
	SecondarySchool	12.252	102.929	.007	.119	.905
	BeyondSecondary	733.984	156.396	.274	4.693	.000

a Dependent Variable: UnadjStartup

However, we see that beyondsecondary is the only group with a significant relationship to startup capital. So the group that has education beyond secondary is truly of a different status economically than all others. However, it is difficult to come to any conclusions based on this information because we were purposely targeting businesses with low startup costs in our sample. This means we have not allowed much variation in startup cost, so there may still be a stronger relationship between economic resources and education (which would indicate a social class link), asides from simply the “beyondsecondary” group, but our sample will not show it.

One would maybe think that beyondsecondary is only a significant indicator of profit because these people have more initial capital than others. The following

regression shows this is not the case. Even when controlling for startup capital,

beyondsecondary is still significant.

Table aB-7 **Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.632	.071		65.375	.000
	UnadjStartup	.001	.000	.605	4.257	.000
	UnadjStartupCost2	-6.64E-008	.000	-.398	-2.830	.005
	BeyondSecondary	.679	.243	.169	2.791	.006

a Dependent Variable: LnNetProfitMonthly

Perhaps there is a difference in education’s effect on income based on what type of business you are in. I’d expect the success of mobile vendors to have little to do with their level of education, whereas someone who is running a larger business may benefit from additional education. We should be able to see this interaction by running the income/education regression separately for each category of business (kiosk, mobile, etc). These regressions did not reveal any new information. However, a binary logit regression with the dependent variable as the type of business (kiosk_mobile/ commercial_market), and the independent variables as education, did show that attending secondary school and beyond was statistically significant in determining the type of business entered when compared to Junior school alone. People with a Secondary school education and beyond are more likely to own businesses in a traditional market or own a commercial store.

In conclusion, even after including other control variables not shown here, our sample does not show an indication that education, other than less than primary, or more than secondary, determines profitability of a business. This is likely because the businesses we targeted were almost all purchasing goods for resale on a very small scale, and it may just be that level of education is not as relevant for sales, a non-professional line of work. Another option is that perhaps level of education achieved is not indicative of quality of education received. I will evaluate this next.

Literacy: According to the World Bank’s on-line country database, Ghana has an adult literacy rate of 57%. In our survey sample, 64% said they could read a newspaper and write a letter in English without help. All beyondsecondary cases were literate, making its standard error uninterpretable, but the significance of the other variables remains even if beyondsecondary is dropped. Below we see that level of education achieved is very significant in explaining literacy.

Table aB-8 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	300.639(a)	.255	.351

a Estimation terminated at iteration number 20 because maximum iterations has been reached. Final solution cannot be found.

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)						
LessThanPrimary	-2.475	.776	10.189	1	.001	.084
PrimarySchool	-1.628	.404	16.232	1	.000	.196
SecondarySchool	1.463	.395	13.697	1	.000	4.319
BeyondSecondary	20.673	8038.594	.000	1	.998	95133519
Constant	.530	.173	9.353	1	.002	7.912
						1.698

a Variable(s) entered on step 1: LessThanPrimary, PrimarySchool, SecondarySchool, BeyondSecondary.

So we see that education is a powerful indicator of ability to read. So does ability to read effect profitability?

Table aB-9 Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.705	.113		41.720	.000
	Can you read a newspaper without help? (numbers do not match survey)	.191	.140	.085	1.364	.174

a Dependent Variable: LnNetProfitMonthly

Table aB-10

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.593	.109		41.968	.000
	UnadjStartup	.001	.000	.655	4.586	.000
	UnadjStartupCost2	-6.83E-008	.000	-.410	-2.872	.004
	Can you read a newspaper without help? (numbers do not match survey)	.120	.134	.053	.897	.371

a Dependent Variable: LnNetProfitMonthly

Literacy is not significant by itself nor once startup cost is added to the regression. In fact it seems there is a lot of overlap between startup cost and literacy, causing literacy to lose so much significance.

Matched Sample

Product being sold: The foodvendor relationship was similar to before matched by startup cost. By itself it's significant, but loses significance when microfranchise is added due to collinearity. Please see CorrChart.

Initial financing method: Same as before. See Table aB-2.

Marital Status: Marital status is not significant.

Table aB-11

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	4.233	.114		36.991	.000
	MicroFranchiseDummy	.189	.110	.133	1.722	.087
	MicroCreditDummy	.468	.321	.113	1.459	.147
	UnadjStartup	.014	.004	.271	3.552	.001
	Married	.146	.112	.099	1.302	.195

a Dependent Variable: LnNetProfitMonthly

Education: Education is not significant although beyondsecondary is almost significant at the 10% level. Therefore I will keep that in the regression.

Table aB-12**Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.881	.243		15.943	.000
	UnadjStartup	.010	.004	.196	2.447	.016
	Age minus years since startup	.023	.010	.179	2.317	.022
	Survivedin5yre	.515	.243	.166	2.118	.036
	LessThanPrimary	-.020	.383	-.004	-.052	.958

a Dependent Variable: LnNetProfitMonthly

Table aB-13**Coefficients(a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta	B	Std. Error
1	(Constant)	3.963	.245		16.174	.000
	UnadjStartup	.008	.004	.164	2.010	.046
	Age minus years since startup	.022	.010	.167	2.178	.031
	Survivedin5yre	.556	.242	.179	2.292	.023
	BeyondSecondary	-.469	.290	-.126	-1.617	.108

a Dependent Variable: LnNetProfitMonthly

Literacy: Like before, literacy is not significant. See Table aB-10.

Appendix C: Ghana Quarterly CPI, 1985-2006

Quarter	CPI	Quarter	CPI	Quarter	CPI
Q1 1985	2.5	Q1 1993	15.4	Q1 2001	122.3
Q2 1985	2.6	Q2 1993	16.5	Q2 2001	132.1
Q3 1985	2.6	Q3 1993	17.1	Q3 2001	137.2
Q4 1985	2.7	Q4 1993	17.5	Q4 2001	140.1
Q1 1986	3	Q1 1994	18.8	Q1 2002	144.4
Q2 1986	3.2	Q2 1994	20	Q2 2002	150.9
Q3 1986	3.2	Q3 1994	21.2	Q3 2002	155.2
Q4 1986	3.5	Q4 1994	23	Q4 2002	159.8
Q1 1987	4	Q1 1995	26.1	Q1 2003	180.8
Q2 1987	4.6	Q2 1995	31.1	Q2 2003	195.9
Q3 1987	4.7	Q3 1995	35.9	Q3 2003	198.4
Q4 1987	4.8	Q4 1995	39.2	Q4 2003	198.1
Q1 1988	5.4	Q1 1996	43.7	Q1 2004	206.9
Q2 1988	6.1	Q2 1996	48	Q2 2004	218.3
Q3 1988	6.2	Q3 1996	50	Q3 2004	223.4
Q4 1988	6.2	Q4 1996	52.2	Q4 2004	222.2
Q1 1989	6.8	Q1 1997	56.9	Q1 2005	236.1
Q2 1989	7.5	Q2 1997	62	Q2 2005	253.7
Q3 1989	7.6	Q3 1997	64.2	Q3 2005	256.6
Q4 1989	7.9	Q4 1997	61.9	Q4 2005	256
Q1 1990	9.1	Q1 1998	65.8	Q1 2006	264.7
Q2 1990	10.2	Q2 1998	73.3	Q2 2006	279.2
Q3 1990	10.7	Q3 1998	73.2	Q3 2006	285.2
Q4 1990	10.9	Q4 1998	72	Q4 2006	282.8
Q1 1991	11.6	Q1 1999	75.5	Q1 2007	282.8
Q2 1991	12.2	Q2 1999	80.6	Q2 2007	282.8
Q3 1991	12.2	Q3 1999	82.1	Q3 2007	282.8
Q4 1991	12.2	Q4 1999	81.4		
Q1 1992	12.5	Q1 2000	86.8		
Q2 1992	13.3	Q2 2000	95.7		
Q3 1992	13.6	Q3 2000	104.2		
Q4 1992	13.8	Q4 2000	113.4		

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Appendix D: MicroFranchisee/Stand-Alone Business Questionnaire

BYU Economic Self-Reliance Center

Preliminary Information:

- >AA1< Tracking ID number: _____
- >AA2< Interviewer's Name: _____
- >AA3< Translator Name: _____
- >AA4< Date: _____
- >AA5< Beg Time: _____ am/pm
- >AA6< End Time: _____ am/pm
- >AA7< Country: _____
- >AA8< Region or City: _____
- >AA9< Area (or District) where interview takes place: _____
- >AA10< Business street address: _____
- >AA11< Business Model Type: Microfranchise Microfranchise w/MC Stand-Alone Stand-Alone
- >AA12< If Micro-credit, name of MFI: _____
- >AA13< Association Member: Yes / No Name of Association _____
- >AA14< Place of Interview: _____
- >AA15< Language of Interview: _____

[Interviewer Reads the Following]

Thank you so much for meeting with me.

My name is _____. I come from Brigham Young University in the United States. I am interviewing about 300 businesses owners in Ghana/Bangladesh/Guatemala/El Salvador. The purpose of this study is to better understand how businesses works here—for example I will ask questions about your business background, about how you manage your business, and about your business successes and challenges. We are compiling this information to help economic development in Ghana/Bangladesh/Guatemala/El Salvador.

This interview should take about 30 minutes. The information you provide will be kept completely confidential and will not be shared with the government. Your answers will be combined with the answers of many other business owners, so nothing you say can harm you or your business, cause your taxes to increase or anything like that.

OK? Can we begin?

***Do not ask. Instead observe and record answer.*

What is your name?

>A1< Name: _____

>A2< Do you own this business?

1. Yes
2. No

>A3< **Gender

1. Male
2. Female

>A4< How old are you?

Years: _____

Now I am going to ask you a few questions about this current Business (Microfranchise/Startup business).

>C1< How long has your business been in operation?

Months: _____

>C2< What was the initial startup cost of this business? (**Probe** e.g. Land, rent, products, overhead, transportation, what items did they need, etc)

Initial cost (Local currency) _____

>C3< Is this business your household's primary source of income? A household is a single person, or a group of people who live under the same roof, combine their incomes and assets. A household member is someone who has lived in the household for at least 6 months over the last year.

1. Yes
2. No

>C4< Where do you sell your product(s)? (Circle all that apply)

1. Home(inside)
2. Home(outside)
3. Industrial site
4. Traditional market, rotating (*only certain days of week or month*)
5. Traditional market, permanent
6. Commercial district shop
7. Roadside - kiosk
8. Mobile
9. Other: _____

****Do not ask if at site of business. Only ask to interviewee if not at site of business.*

>C5< ****Category of business: circle all that apply*

1. food vendor
2. jewelry vendor
3. electronic vendor
4. telecommunications
5. clothing
6. other _____

>C6< ****More Detailed description of business (record anything of special interest):*

>C7< Does your business.....? (Circle all that apply)

1. Manufactures goods to sell
2. Purchase goods for resale
3. Offer services

>C8< During the past year have you had any paid employees? By year we mean the last 12 months.

1. No
2. Yes

>C9< Do any of your family or friends work in your business?

1. No [If No, skip to >C11<]
2. Yes

>C10< If yes, are they paid?

1. No
2. Yes

>C11< How many days per month does your business usually operate? *Probe and ask how many days do they take off per month for various reasons (funerals, children, holiday, sickness, weather...).*

If answers in days per week, write response here:

- a) Days per month: _____ b) Days per week: _____

>C12< Specifically, during the **last** 2 weeks, for how many days did your business operate? By two weeks we mean the past 14 days. *Probe if you think answer is generalized and not specific to the last two weeks.*

Days business operating (2 weeks) _____

>C13< On average, how many hours per day does your business operate?

Hours per day _____

If this person has no employees or family/friends assisting in the business, > skip to C16<

>C14< During the past two weeks, how many days per week did **you** spend working on your business?
Days _____

>C15< During the past two weeks, how many hours per week did **you** spend working on your business?
Hours _____

>C16< Have you recovered your initial startup cost yet?
1. Yes
2. No [If No, skip to >C18<]

>C17< If Yes, how soon after starting your business did you recover your initial startup costs?
Months: _____

>C18< If No, how much of your initial startup costs have you recovered?
Percentage: _____%

>C19< How did you finance the initial startup of this business? (Circle all that apply)
1. Personal funds
2. Spouse
3. Family (excluding spouse) & Friends
4. Microcredit (e.g. credit union association)
5. Formal banking system (e.g. Eccobank, Barclays)
6. Credit with supplier (e.g. up front cost paid for, consignment)
7. Informal money lender
8. Other: _____

>L1< Have you **ever** received a formal business loan? If so, how long ago was your first business loan? *Not including credit with suppliers.*
1. Never Received
2. Received, Months _____

>L2< How many loans do you currently have? *Both informal and formal, not including credit with suppliers.*

>L3< What is your current total business indebtedness: including credit with suppliers and formal loans.

>L4< Do you have any saving, both informal and formal?
1. Yes
2. No [If No, skip to >C19<]

>L5< What is your total current savings?

>L6< How long has it taken you to save this amount?

Now I'm going to ask about the things that you sell...

>C20< What do you sell most of?	>C21< How much does it cost you to purchase this item	>C22< What unit of measure do you use to purchase this item in?	>C23< What unit do you sell in?	>C24< Sell unit purchase unit e.g. how many slices (units) can you get per yam	>C25< How many do you usually sell each unit for?	>C26< How many do you sell on an average day?
a.	a.	a.	a.	a.	a.	a.
b.	b.	b.	b.	b.	b.	b.
c.	c.	c.	c.	c.	c.	c.
d.	d.	d.	d.	d.	d.	d.

>C27< Specifically, during the **last** two weeks, has your household consumed any goods from this business
1. No
2. Yes, if Yes what was the cost? *Probe if needed and use answers to C21 and C22 to help get answer.*

Local Currency _____

>C28< During the last year, for how many months did your business operate?
Months: _____

>C29< During the months that your business was in operations, were sales high, average, low or none. *Read months to interviewee and record response.*

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.

>C30< During any average month, what were your average sales to customers in that month? *Probe further if you suspect they are reporting profit and not gross sales.*

If answer in weeks, write response below:
a) Monthly sales (Local Currency) _____ b) Weekly Sales (Local Currency): _____

If interviewee, after probing, is unable to report gross sales but able to report profit, record here:
If answer in weeks, write response below:
c) Monthly Profit (Local Currency): _____ d) Weekly Profit (Local Currency): _____

>C31< During the **last** two weeks, how much were your sales to customers? *Probe further if you suspect they are reporting profit and not gross sales or if response sounds general and not specific to last two weeks.*

a) Two weeks sales (Local currency): _____
If interviewee, after probing, is unable to report gross sales but is able to report profit, record here:
b) Two weeks Profit (Local currency): _____

>C32< During the last two weeks, how much have you spent on inputs? (labor, raw materials, items for resale, transport, electricity, water, fuel, rental, maintenance, insurance, etc.) **Operating Costs**

- C32a – rent Local currency _____
- C32b - labor Local currency _____
- C32c – raw materials Local currency _____
- C32d – items for resale Local currency _____
- C32e – transportation Local currency _____
- C32f – electricity & water Local currency _____
- C32g – fuel Local currency _____
- C32h – maintenance Local currency _____
- C32i – Other: _____ Local currency _____
- Total Inputs: =====> Local currency _____

>C33< On average, how much money is usually left over after daily business expenditures? *Daily profit*
Local currency _____

>C34< What is the value of your current inventory?
Local currency _____

>C35< If you did not buy any further inventory, how many days would your current inventory last?
Days: _____

>C36< How often do you purchase new inventory?
Days: _____

>C37< How difficult is it for you to purchase new inventory?
1. Very difficult
2. Somewhat difficult
3. Neither difficult nor easy
4. Somewhat easy

Now I'm going to ask about your business assets... *Not including inventory (see C34)*

	>C38< How much could you sell for?	>C39< Do you own or do you share? O/S
	Local Currency:	
Land	a.	a.
Buildings	b.	b.
Equipment/Machinery	c.	c.
Furniture	d.	d.
Tools	e.	e.
Large vehicles(cars, etc)	f.	f.
Small vehicles(bikes...)	g.	g.
Other durable goods	h.	h.
	i.	i.
Total Assets (not including inventory)	j.	j.

>C40< Why did you choose this business and why do you think it is successful?

>C41< What are the top challenges for your business?

Now I am going to ask you a few questions about your microfranchise. (for microfranchise only)

>M1< If you had not started your business (*microfranchise*), what would you have done for income?

1. Worked as an employee in an existing family business
2. Worked as an employee in an established business
3. Started a new business
4. Other: _____

>M2< Do you pay fees to _____(the microfranchisor) to operate your business?

1. No
2. Yes, if "yes," how much in local currency _____

>M3< Do you have a contract with _____(the microfranchisor)?

1. No
2. Yes, If "yes," how long is contract _____

>M4< What do you get from the microfranchisor? (Circle all that apply)

1. manuals
2. training
3. mentoring
4. central purchase
5. monitoring / evaluation
6. advertisement / marketing
7. Other: _____

Now I am going to ask you a few questions about your business experience and interests.

>B1< Have you had any formal business training?

1. Yes
2. No [Skip to >B5<]

>B2< If yes, for how long?

>B3< What kind of business training did you receive?

>B4< Who provided your business training?

>B5< How many businesses have you owned in the last five years?

>B6 & B7< What types of businesses were these? (manufacturing, services, or goods for resale)

>B6< Nature of Business	>B7< Still in Operation? Yes/No
a. Business #1	a.
b. Business #2	b.
c. Business #3	c.
d. Business #4	d.

>B8< Would you prefer to:

1. operate your own business, or
2. work as an employee for an established company (e.g. security, petrol station....?)

>B9< Why?

Choose the most accurate description of yourself for each of the following questions (*Do not give more than 5 minutes to answer rest of B questions*):

>B10< Can you: (choose one)

1. raise money for a business if you didn't have enough, or
2. provide an investor with a lot of very good ideas for a new business.

>B11< Can you :

1. often see opportunities for your plans to fit with those of other people, or
2. rarely find that results match what you expect.

>B12< You are more:

1. action oriented, or
2. accuracy oriented.

>B13< You want things:

1. open to possibilities, or
2. settled and decided.

>B14< You have:

1. enormous drive, or
2. high respect for service, generosity, and harmony.

>B15< You are more comfortable in:

1. new situations, or
2. familiar territory.

>B16< When confronted with a new business problem you can:

1. recall quite vividly the details of similar situations you know about, or
2. usually figure out what to do, even if it is by trial and error.

>B17< You are more:

1. aware of many new business situations, some which succeeded, and others which failed, and why, or
2. familiar with your own affairs, but keep up on business in general.

Now I am going to ask you a few questions about yourself. (Specify language by country)

>A5< Can you read in _____ without help? Like a newspaper. *Use official language of country.*

1. Yes
2. No

>A6< Can you write in _____ without help? Like a letter to someone. *Use official language of country.*

1. Yes
2. No

>A7< Can you do simple math without a calculator? (*subtraction, division, multiplication & division*)

1. Yes
2. No

>A8< What is your highest level of education? *Find and use equivalent school levels for country of survey.*

1. Primary
2. Junior
3. Secondary
4. Beyond secondary school

>A9< Are you:

1. married
2. cohabitating, living with a partner (non-spouse)
3. divorced
4. widowed, or
5. single, never married

>A10< **Including yourself**, how many people are in your household? *Define household at this point.*

Number in household: _____

>A11< **Including yourself**, how many individuals earn income for your household?

>A12< **Including yourself**, what is the average combined daily income of all earners in your household?

Local currency: _____

>A13< How much does your household usually spend **per week** for buying food?

Local currency: _____

>A14< How much did your household spend in the last year on clothing and shoes for everyone in this household (excluding uniforms for school)?

Local currency: _____

>A15< How much does your household usually spend each month on Rent and Utilities (i.e., electricity, phone, water - including purchased drinking water - sewage and trash collection, etc.)?

- a) Rent (Local currency): _____ *portion of rental allocated to household*
- b) Utilities (Local currency): _____

We would like to follow-up with you in the future to see how you are doing. We know that sometimes people move. Could you please give us your contact information as well as two other people who always know how to contact you. We will ONLY use this contact information to locate you if you move.

Nickname: _____
Formal Name: _____
Street Address: _____
Apt No. _____
City: _____ Country: _____
Home Phone No. _____
Cell Phone No. _____

Name of Person #1: _____
Street Address: _____
Apt No. _____
City: _____ Country: _____
Home Phone No. _____
Cell Phone No. _____

Name of Person #2: _____
Street Address: _____
Apt No. _____
City: _____ Country: _____
Home Phone No. _____
Cell Phone No. _____

Thank you for your time today!