CONSTRAINTS TO GROWTH OF STREET FOOD ENTERPRISES IN GHANA AND EFFECTS OF TARGETED BUSINESS INTERVENTIONS ON PERFORMANCE

BY:

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A DISSERTATION

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DECLARATION

I, **James Osei Mensah**, the author of this dissertation (Constraints to Growth of Street Food Enterprises in Ghana and Effects of Targeted Business Interventions on Performance) do hereby declare that with the exception of references of other authors' works, which were duly acknowledged, the research work in this dissertation is original and to the best of my knowledge, contains no work previously published by another person nor work which has been accepted for the award of any other degree.

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ABSTRACT

The aim of this study was to the determine constraints to the growth of street food enterprises in Ghana and examine the effects of targeted business management interventions on the practices and performance of these firms. Specifically, the study sought to determine the factors that influence vendors' decision to participate in business management intervention in the form of training. Also, attention was given to effects of only standard business management training (treatment 1) on business practices and performance of vendors as well as the effects of a combined intervention of standard business management training and training on street food vendors' association (treatment 2). Lastly, the study analysed the extent of heterogeneity of the effects of above interventions and whether the effects of treatment 1 and treatment 2 on business practices and performance are significantly different. Data from a randomized field experiment of a freely offered business management course among 516 street food vendors in Kumasi and Tamale metropolises of Ghana were used to achieve the study objectives. Ordinary Least Squares (OLS) regression models were used to estimate whether vendors' self-reported business constraints actually limit business growth whilst probit model was used to analyse determinants of participation in training interventions respectively. Difference-in-differences and instrumental variable analyses were used to estimate Intention to Treat (ITT) and Average Treatment Effect on the Treated (ATET) respectively. Descriptive analyses show that the street food sector is dominated by women with little or no formal education. Based on vendors' selfreported constraints to business growth, high cost of production, limited access to credit, input price variability, inadequate knowledge in business management and limited access to reliable electricity (power) were ranked as the five most critical constraints. Results of OLS analyses also found inadequate managerial skills and financial constraints as the two most critical constraints to growth of street food enterprises, thus confirming assessment based on vendors' perception. The study found formal education, the presence of trusted hands in the business and financial performance of firms to have a significant positive effect on probability of participation whilst vendors' involvement in other economic activity (aside food vending), distance from vending premises to training centre and location of vendor significantly decreased probability of participation. Combined treatment of business management training and training on formation and management of vendors' organization (Treatment 2) had statistically significant positive effect of 40.6% on the overall business practices index whilst record management index increased by 39.5%. Effects of this treatment on business practices were found to be heterogeneous. The study however did not find any significant effects on business performance of treated enterprises although treated vendors with high education experience a 10% increase in gross margin ratio. Treatment 1 (only business management training) on the other hand neither led to any significant improvement in business practices nor performance. The study explained the differences between effects of treatment 1 and 2 by the effects of extra module of formation and management of street food vendors' organization on collective action parameters such as organizational membership, membership commitment and cooperation with other vendors to pursue mutually beneficial goals. Although these parameters may not directly affect vendors' implementation of standard business management practices, they offered committed and cooperating members the platform and an opportunity for either further discussions among vendors on the training content or refresher training from external resource persons at virtually no fees. The study makes several recommendations to improve performance and regulation of the street food sector and also guide the design and implementation of future training programmes.

DEDICATION

I dedicate this dissertation to my parents (Mr. Daniel Mensah and Mrs. Florence Mensah), my wife (Dr. Betty Osei Mensah), my children (Jayden Aseda Osei Mensah and Nhyira Osei Mensah), and all my siblings (Olivia, Frank, Bright, Mary, Kofi Asante, Prince and Daniel).

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If it had not been the LORD who was on our side, now may Israel say...(Psalms 124:1)

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List of Abbreviations/Acronyms

ATET	-	Average Treatment Effect on the Treated
BACs	-	Business Advisory Consultants
DiD	-	Difference-in-difference
FAO	-	Food and Agriculture Organization of the United Nations
GDP	-	Gross Domestic Product
GPRS	-	Ghana Poverty Reduction Strategy
ILO	-	International Labour Organization
ITT	-	Intention to Treat
MSMEs	-	Micro, Small and Medium Scale Enterprises
NBSSI	-	National Board for Small-Scale Industries
SAPs	-	Structural Adjustment Programmes
GSS	-	Ghana Statistical Service
SFVO	-	Street Food Vendor Organization
MSEs	-	Micro and Small Enterprises
WHO	-	World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1. Background

The informal sector or the informal economy, that hitherto was considered as marginal, anti-modernist and peripheral, with little or no importance to the formal sector (Becker, 2004) or the general economic development of nations, has now been acknowledged by many economies (especially, developing economies), as a sector that has come to stay. The informal sector, according to Charmes (2006), constitutes an average of 37.7% of the Gross Domestic Product (GDP) of Sub-Saharan African countries, 30.4% of North Africa, 26.8% of Asia, 25.9% of Latin America and 21.2% of the GDP of the Caribbean.

The sector is characterized by low barriers to entry to entrepreneurship regarding startup capital and skills; acquisition of relevant skills outside formal educational setting; labour intensive means of production; the use of outdated technology; small-scale production; family ownership of businesses; and highly unregulated activities (Schneider, 2002; Portes and Schauffler, 1993). According to the Food and Agriculture Organization (FAO), the absence of specialization, the absence of proper or standard accounting procedure, and the non-payment of all or some taxes which are key characteristics of the sector, have also further reduced barriers to entry (FAO, 2003).

Proponents of the informal sector as marginal (example, Kingdon and Knight, 2007; Fields, 1975; De Soto, 1989; and Marshall, 1987) argue that the sector will fade away after developing countries are able to attain an appreciable level of industrial development coupled with sufficient levels of growth in the economy. They contend that players of the informal sector are destined to remain marginal to the economy (Devey et al., 2005;

Manning, 1993) and that incomes generated are only for survival since they are unable to support basic living.

However, the evidence from most developing countries (Tomlins et al., 2002 in Ghana; FAO, 2000 in Benin and Abidjan of La Côte d'Ivoire) does not support these claims but rather that the informal sector has not only proven not to be ephemeral and marginalized but has also seen a substantial growth in terms of its contributions to employment, household income, GDP, poverty alleviation, food security and reduced societal unrest among other factors. For instance, Charmes (2000) reports that the informal sector accounted for more than 50% of total non-agricultural employment in Latin America and the Carribbean, 80% in some parts of Africa and Asia. Also, the contribution of the informal sector to household income has been reported to be 30% of total income and over 40% of total urban income (ibid). The increasing importance of the sector has been fuelled by rapid urbanization, continuous rural-urban migration, increasing supply of labour coupled with the dwindling labour demand in the formal sector of Ghana (OseiBoateng and Ampratwum, 2011; Ishengoma and Kappel, 2006; Becker, 2004).

In almost all the developing countries that have received significant contributions from the informal sector, street vending, in particular street food vending, has been a critical component (Charmes, 2006; Barth, 1983).

The importance of the street vending sector can also be seen in terms of its ability to meet the food and energy requirements of most people both in rural and urban areas (Osei Mensah et al., 2013). Evidence from Abidjan also suggests that 20% of meals are taken outside home with majority from street vendors (FAO, 2000). The sector also acts as a source of income and employment (Tomlins et al., 2002).

Street food represents any ready-to-eat foods or beverages prepared and/or sold by vendors and hawkers especially in streets and other similar public places (FAO, 2009). Chakravarty and Chanet (1996) corroborated this definition by adding three additional characteristics to the pivotal hallmark of street food, that is, the location. They added that street foods are those prepared in small-scale factories and brought to the street food stalls for sale, or those prepared at the home of the vendor and taken to the street food stall for sale, or food prepared and sold at the street food stall. Street food could also be completely stationary, semi-mobile or mobile/ambulatory. Fixed or stationary vendors may operate from a four-walled stall furnished with tables, chairs, stove whilst others may also display their items on a table, or a cloth spread on the ground. Mobile/ambulatory vendors on the other hand may carry food around either on the head, on a tricycle or on a hand-pulled truck.

1.2. Problem Statement

Street food vending and street foods play important roles in the economic development and the livelihoods of most people (especially urban dwellers) in Ghana and other developing countries. Firstly, street foods serve as an important source of affordable and relatively nutritious meal (Otoo et al., 2011 and Tomlins et al., 2002). Osei Mensah et al. (2013) in a study on street food consumption in the Kumasi metropolis of Ghana found that its patronage is not limited to low income earners. Street foods also serve as a major source of income and livelihood for a large share of urban dwellers, especially women (Otoo et al., 2011; Narumol, 2006; Jimu, 2004; Tomlins et al., 2002). The fact that the sector is dominated by women makes it important in addressing gender-/income gap. Tomlins et al. (2002) in a study in Accra-Ghana found the street food sector to employ over 60, 000 people and has an estimated annual turnover of over US$ 100 million

resulting in profit of about US$ 24 million. Although there are no comprehensive current data, the figure is expected to increase based on the general up trend in the size of the street food sector. Thirdly, the sector promotes local agribusiness industries by absorbing locally grown and processed crops and raw materials. In this way, raw material producers who ordinarily would have had problems with marketing of their produce have readily available marketing outlets. This creates a multiplier effect since the use of local raw materials promotes local farm enterprises. On the other hand, street foods may serve as a major source of food-borne diseases and poisoning, with potentially huge health implications to the country (Rheinlander et al., 2008; Mensah et al., 2002). A study by Maxwell (2000) established a positive correlation between consumption of street foods and the prevalence of gastrointestinal infections. Other studies in Ghana have also found street foods as a major source of zoonotic diseases (King, 2000) and heavy metal, residues of pesticides and chemicals used for spraying crops, especially vegetables, on the field (Tomlins, 2002). These food quality and safety concerns have several ramifications on street food enterprises, consumers and expenditure on public health. Vendors who fall sick because they habour some form of enteric bacteria directly lose man-hours and indirectly lose customers if vendors' absence from business persists. This in turn implies revenue loss to local assemblies.

Despite all the above listed importance of street foods and their ability to serve as a viable engine/tool for economic growth, the street food sector, like many other informal sectors, is constrained by several factors. These factors may include (but not limited to) limited knowledge and skills in business management (Bruhn et al., 2012; Berge et al.,

2011 and Mano et al., 2011) and inadequate supply of skilled workers (Quader and Abdullah, 2008; Ishengoma and Kappel, 2006; Kayanula and Quartey, 2000). Other

factors include limited access to credit and high cost of borrowing (Martey et al., 2013; Abor and Biekpe, 2006 and), high cost of production (Martey et al., 2013; Ishengoma and Kappel, 2008 and Skinner, 2005), lack of access to legal vending premises (Martey et al., 2013 and Bowen et al., 2009), regulatory barriers from city authorities, poor organization and lack of collective action among vendors. These factors either individually or in concert with others work to affect operations of street food enterprises and subsequently performance and growth.

In terms of limited knowledge or skills in business management, managers who are less skilled and experienced have their enterprises facing difficulties with solvency and may also experience *higher expenditure to revenue ratio* (Hall, 2000) due to less efficient combination of production resources. These in the long run affect the firm's ability to remain profitable and subsequently grow. The effect of the knowledge gap of Micro and Small Enterprises (MSE) owners may be addressed if firms are able to attract qualified/skilled workers. However, labour supply to the informal sector has generally been confined to individuals with limited education and vocational skills (Ishengoma and Kappel, 2006 and Kayanula and Quartey, 2000). Thus, the operational inefficiencies recorded by the managers/owners with low managerial skills are exacerbated by unskilled workers that are attracted by such owners.

Limited access to credit affects firms' ability to undertake long-term investment (such as procurement of refrigerator for storage), procure inputs in bulk, attract skilled employees, and secure permanent and legal vending space. High cost of borrowing on the other hand deters MSEs from accessing credit even when these facilities are available. Complex regulatory and legislative procedures also increase costs of production for MSEs who may already be credit constrained. The effect may be that the process and the associated cost

serve as disincentives for most enterprises to either formalize or undertake formal transactions such as business registration, health certification and formal loan acquisition.

Studies by Baker (2008) in Ghana, Ishengoma and Kappel (2006) in Tanzania, Skinner (2005) in South Africa, and Becker (2004) on the informal sector have all identified location of street vendors and micro and small enterprises (MSEs) in general as a problem that needs to be addressed. Most street vendors are either constantly being chased away or harassed by city guards due to their location on the street or completely evicted from the vending location. This leads to insecurity on their part, making it unattractive for them to make long-term investments like construction of permanent vending structures, and carrying out promotional activities. Their ability to attract longterm business opportunities is also limited because business partners may be unsure of their continuous survival and hence their ability to reliably and consistently meet their orders. Poor organization and lack of collective action weaken the bargaining power of street food vendors when dealing with regulatory/legislative institutions and municipal authorities. Also, individual firms may incur higher unit cost of production due to their inability to pool their resources together in the procurement of common inputs and other services.

These constraints have several direct and indirect ramifications on street food vending enterprises, municipal and national authorities, city regulators, consumers and other stakeholders. Specifically, business constraints may limit performance and growth of street food vending enterprises. The inability of firms to grow limits their transition from micro and small informal enterprises to recognised formal enterprises. This in turn reduces street food enterprises' investment and employment potential. Moreover, poor organization of vendors into collective unit weakens their bargaining power when dealing with suppliers, city authorities and other policy makers. From the viewpoint of city

regulators, national and municipal authorities, poor organization on the part of street food vendors indirectly makes their regulation and control of urban space more difficult due to the low regulator to vendor ratio. Lastly, firms' inability to expand their scale of production and subsequently make transition from marginalized, untaxed or inadequately taxed informal players (Devey et al., 2005; FAO, 2003) to recognised formal enterprises limit the extent to which the sector contributes to municipal and national revenues through non-payment and under-payment of taxes and other levies.

In the light of the above challenges, the sector's full potential can be realized if the factors that militate against it are identified and addressed.

In an attempt to address these constraints, some literature on entrepreneurship and development economics, especially in developing countries, asserts that interventions in the form of financial support will be effective for micro and small enterprises (MSEs)

(Fafchamps et al., 2014; Martey et al., 2013; Abor and Quartey, 2010; de Mel et al., 2008 and Abor and Biekpe, 2006). However, ensuring growth and development of MSEs in developing countries through the provision of financial support or capital has not always been positive although there is evidence of positive effects in the literature.

Studies such as Banerjee et al. (2010) evaluated the impact of microcredit in Hyderabad-India and found treated areas to have significantly higher number of new businesses and expenditure on durable goods. Similarly, McKernan (2002) reports a very large (175%) positive and significant increase in self-employment profits of firms that participated in microcredit programmes.

On the other hand, several studies have found no significant effect of capital or microcredit programme. In their study to investigate the impact of both grant and business management training on the development of microenterprises in Tanzania, Berge et al. (2011) found no effect of grant on business performance. Their findings are consistent with others coming from more recent studies by Martinez et al. (2013) and Bruhn et al. (2012). Bruhn et al. (2012) argued that provision of financial capital alone will not suffice in achieving the necessary growth. This is because attainment of desired results from financial capital is contingent on its proper application, which in turn requires adequate managerial competence. Similar findings have been made by Fafchamps et al. (2014), Bjorvatn and Tungodden (2010) and De Mel et al. (2008). All three studies concluded that for SMEs in developing countries to be successful, there is the need to look beyond providing financial capital and microfinance facilities (especially in the form of cash). In light of the above, this study tested the effectiveness of addressing constraints to growth of street food vending enterprises through the delivery of targeted training in business management and effective vendor group organization.

This study therefore addressed the following central research question: *what are the most critical constraints to the growth of street food enterprises in Ghana and what would be the effects of specific business management interventions in addressing these constraints?*

The following specific research questions were addressed by the study:

1. What business constraints limit growth of street food enterprises in Ghana?
2. What factors determine an invited street food vendor's decision to participate in a training offer?
3. What are the effects of only business management training (treatment 1) on business practices and performance of street food enterprises in Ghana?

4. What are the effects of combined training in business management and street food vendors' organizations (treatment 2) on business practices and performance of street food enterprises?

5. Are the effects of only business management and combined training in business management and vendors' membership of street food vendor organizations heterogeneous across vendor and business characteristics?

6. Are there significant differences in the magnitude of the effects of only business management training and combined training in business management and vendors' membership of street food vendor organizations?

1.3. Research Objectives

The overall objective of the study was to determine constraints that limit growth of street food enterprises in Ghana and estimate the effects of addressing these constraints using targeted business management interventions.

Specifically, the study addressed the following research objectives:

1. To determine the most common constraints that limit growth of street food enterprises in Ghana.

2. To identify factors that determine an invited street food vendor's decision to participate in business management training.
3. To estimate effects of only business management training (treatment 1) on business practices and performance of street food enterprises in Ghana.

4. To estimate effects of combined training in business management and vendors' membership of street food vendor organizations on business practices and performance of street food enterprises.
5. To determine whether the effects of only business management training and combined training in business management and vendors' membership of street food vendor organizations are heterogeneous across vendor and business characteristics.
6. To estimate the differences in treatment effects between only business management training and combined training in business management and vendors' membership of street food vendor organizations.

1.4. Study Hypotheses

The following hypotheses were tested by the study:

1. *Each of the following factors*; inadequate managerial skills, financial constraints, poor supply of utility services, theft by employees, complex customer relations, high competition and complex regulatory and banking procedures significantly constrain growth of street food enterprises.

2. Female vendors, vendor's involvement in other economic activity, number of years of vending, distance between the vending premises and training center and previous training experience have significant negative effect on participation in training programme.

3. Education, size of enterprise, business performance (gross margin ratio), and the number of family members involved in the business have significant positive effect on participation in training programme.

4. Business management training and training on vendors' membership of street food vendor organizations have significant positive effect on business practices of vendors and performance of street food vending enterprises.
5. The effects of combined training in business management and vendors' membership of street food vendor organizations on business practices and performance are significantly higher than effects of only business management training.

1.5. Justification of the Study

The importance of the informal sector in general and particularly the street food sector to Ghana cannot be overemphasized; it serves as a source of income and livelihood, source of employment, source of food, contributes to national economies and promotes the development of local agribusiness industries (Otoo et al., 2011; Narumol, 2006; FAO/WHO, 2005; Jimu, 2004; FAO, 2003; and Tomlins et al., 2002). For the street food sector to be developed to a point where it actually plays its role as a viable engine of economic growth and development, it is necessary to identify the factors that limit growth of street food micro-enterprises in Ghana. Once these barriers to growth are identified, measures to address these constraints can be formulated, implemented and the effectiveness of these measures in addressing the constraints tested.

Several studies and researches have been conducted to determine constraints to informal sector enterprises in Ghana and other developing countries. These studies include the

works of Tomlins et al. (2002) on street food vending in Accra-Ghana, Martey et al. (2013) in their study on performance and constraints of small scale enterprises in Accra

Metropolitan area of Ghana, a study by joint US Government and Government of Ghana technical team on the analysis of constraints for partnership growth in Ghana, and Kayanula and Quartey (2000)'s research on the policies for promoting small and medium scale enterprises (SMEs) in Ghana and Malawi. Other constraint-related studies in other places include Quarder and Abdullah (2008) in Bangladesh, Onugu (2005) in Nigeria, Clover and Darroch (2005) in Kwazulu-Natal, South Africa, Skinner (2005) in Durban, Becker (2004), and Mambula (2002) in Nigeria.

However, little is known about the extent to which these constraints actually hinder the growth of street food enterprises in Ghana. Most constraint studies on SMEs in Ghana (example, Tomlins et al., 2002 and Kayanula and Quartey, 2000) have not linked owners'/managers' perceived and subjectively reported constraints to growth of these firms. Those that establish this link (example, Otoo et al., 2012 in Ghana and Ishengoma and Kappel, 2008 in Uganda) used owners'/managers' *perception of growth* since these studies employed cross-sectional data. It is therefore possible for either highly optimistic or pessimistic assessment by few owners (based on their perception) to skew mean constraints towards a particular direction and subsequently lead to a conclusion that is not really a true representation of the broader picture in that sector.

This study addresses these gaps by first identifying the factors that are perceived to constrain growth of street food enterprises in Ghana. Following that the study utilizes panel data from two rounds of survey to assess how growth (measured percentage change in gross margin ratio, percentage change in number of customers served and percentage change in average daily sales per person) is affected by identified business constraints.

This study is important because knowing which factors really hinder growth of SMEs will inform the choice of appropriate policy measure to address them. It also contributes to the literature on constraints to micro, and small scale enterprises (MSEs) especially in informal sector of developing economies.

Also, identifying factors that determine a potential trainee's decision to takeup/participate in business management training will go a long way to facilitate the design and implementation of future training programmes. This will in turn ensure that the expected numbers of targeted audience are reached and hopefully desired results achieved.

With regards to the evaluation of the effectiveness in improving business practices and performance through the delivery of business management training, other studies in Ghana (Karlan et al., 2014; Iddrisu et al., 2012 and Mano et al., 2012) have previously assessed the impact of management training or consulting services on the performance of micro entrepreneurs from selected informal industries. However, this study is unique for three main reasons. Firstly, while previous studies focused on male-dominated or at best gender-balanced industries, this study and intervention are limited to an industry that is largely (over 90%) dominated by females (Mensah et al., 2002; FAO, 2012; and Otoo et al., 2011). Females in developing countries have generally been considered as marginalized as far as access to opportunities like education, credit, and other resources are concerned. It is therefore interesting to find out the effect of business management training on this sector. Secondly, the study included two Ghanaian cities that are socioculturally distinct. Kumasi is the second largest city, relatively developed and an economically active city. Tamale on the other hand still remains relatively underdeveloped with high incidence of poverty and perennial migration of some of its active labour force to the South of Ghana, especially during the lean or non-farming

season. These differences affect the type of foods sold, characteristics of street food vendors and possibly the potential impact of any intervention programme. Lastly, the fact that the study contracted experienced local Business Advisory Consultants (BACs) from statutory government agency responsible for promoting the growth and development of micro and small enterprises in Ghana adds to the credibility of the intervention. For each of the cities, the services of local BACs who understood the cultural dynamics and spoke the local language were employed.

In addition, the inconclusive nature of the effects/impact of business training makes it essential for further research to be carried out as a contribution to the debate. Moreover, despite the surge in studies that evaluate the impact of business training on performance experimentally, a review of available literature suggests that no study, till date, has been conducted in the street food sector. It is therefore possible for results of impact of business management training on practices and performance of street food entrepreneurs to differ from those reported above. This brings to the fore the need to study the impact of business management training on practices and performance of street food enterprises. This will make it possible for conclusions to be drawn that would be useful for formulation of policies and strategies that will enhance the performance and growth of the street food sector.

Addressing the specific and most important factors that constrain the operations of street food enterprises will immensely contribute to the development of the sector as an engine of economic growth and poverty reduction (GPRS, 2005). The importance and relevance (both direct and indirect) of the study to the various stakeholders of the street food sector are briefly discussed.

Government and local assemblies: Based on the results of the study, these authorities will be in a better position to make well considered and informed decisions regarding their policies to manage, regulate and improve the sector. Thus, limited resources of these assemblies can best be directed to where they will make the most impact. This will in turn lead to improvements in the revenue generated from this sector.

Street food vendors: Street food vendors will have a better appreciation of performancedriven factors as well as business constraints. Also, the introduction and delivery of the business interventions will help build the capacities of these vendors. It is expected that owners/managers of street food enterprises would be better equipped to address factors that constrain the operations either individually through an enhanced managerial competence or collectively with other vendors through a strengthened bargaining power. Ultimately, the study results, when utilised, will enable vendors improve on their activities, enhance their performance, increase their income, expand their enterprises, employ more individuals, contribute better to the general economic development. Also, an appreciation of the importance of the sector by local assemblies will indirectly benefit street food enterprises through better collaboration between the two stakeholders.

Local and international support agencies: Based on the results of the constraints analysis, and the results of the evaluation process, well informed decisions can be made by local and international donor agencies regarding the most important areas of the sector/trade that should be given priority attention in their support programmes. Also, the effect of the individual components of the business training programme will enable these agencies better formulate new programmes and refine existing ones. This will in turn enable these support programmes which are aimed at poverty alleviation make the most impact.

Consumers: Ultimately, the consumer stands to benefit from all the positive results of a well-functioning and regulated street food system. It is expected that the business management training delivered to street food vendors will lead to the production of healthy, safe and quality food thus alleviating the negative impact of street foods on consumers. Also, through collective action and peer monitoring by vendors of the same organization/association, it is expected that the incidence of food borne disease will be reduced.

1.6. Organization of the dissertation

The dissertation consists of six chapters. The first chapter presents the introduction to the study. This chapter provides the background to the study, states the research problem, research questions and objectives that the study sought to achieve. Hypotheses and justification for the study are also presented. In chapter two, the theoretical and conceptual frameworks underlying the study are provided. Also, existing body of literature relevant to the subject matter of this study is provided.

Chapter three deals with methodological issues; study areas and rationale behind the choice, type and sources of data, sample and sampling techniques, data collection, design and implementation of business interventions, as well as methods of data analyses.

In chapter four, descriptive characteristics of respondents are provided. Also, descriptive analysis of vendors' perceived constraints to growth are presented as well as statistical test to verify the process of randomly assigning vendors to treatments and control groups.

Empirical results from econometric analysis of constraints to business growth, determinants of participation, and effects of business interventions on the practices and performance of street food enterprises are provided and discussed in chapter five.

Chapter six summarizes, concludes and provides recommendations for policy makers, street food enterprises and further studies.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Street Foods Defined

Street foods, according to the Food and Agriculture Organization (FAO), represent any ready-to-eat foods or beverages prepared and/or sold by vendors and hawkers, especially in streets and other similar public places (FAO, 2009). The preparation and/or sale of these foods may be generally classified into three; (i) those prepared in small scale factories at the local level and brought to the street for sale, (ii) those that are prepared by the vendor at home and brought to the street for sale, and (iii) foods that are prepared and sold at the vending site in the street. The Equity Policy Centre (EPOC) in their study on utilizing street food trade in development programme gave a seemingly simplistic definition that, notwithstanding, introduces an additional dimension to the above definition. According to them, street foods represent all food that could be eaten at the point of purchase which include *semi-processed and unprocessed* food items that can be bought for inclusion in foods prepared by households (EPOC, 1985).

Although the definitions above are generally considered sufficient in describing the activities, it should be noted that the meaning of the concept in certain context may be more complex due to the fact that it is considered as being a social, technical and economic concept with multiple implications depending on who is working with or talking about it (Tedd et al., 2003).

Operational Definition of Street Foods: This study defines street food as any readyto-eat food (excluding beverages, snacks, as well as semi-processed and unprocessed food items that are used as ingredients in the preparation of other foods) prepared and/or sold by vendors and hawkers, especially in streets and other similar public places. This implies that the operational definition of street foods in this study focuses on main meals.

2.2 Constraints to Growth of Micro and Small Enterprises

Micro and small enterprises (MSEs) play a very critical role in the economic development of Ghana and almost all developing countries. They provide

complementary function to larger firms in raising productivity (Liedholm et al., 1994), generate employment (Martey et al., 2013; Liedholm et al., 1994; and Steel and Webster, 1991), serve as a platform for building entrepreneurial capabilities and expertise (Martey et al., 2013 and Brunetti et al., 1997). Other important roles of MSEs include accumulation of capital (Bannock, 2002), diversification of the economies mostly dominated by agriculture (Liedholm et al., 1994). The street food sector specifically serves to create employment, serves as a major source of income and livelihood for various households, provides affordable and relatively cheap foods at convenient locations, contributes significantly to the municipal and national revenues as well as

helping to develop local agribusiness industries since most of their raw materials are locally procured.

Despite the potential role that MSEs play in the economies of developing countries like Ghana, the sector is plagued by several constraints that limit the performance and growth of firms. Different studies have identified different constraints as being the most critical to the growth of MSEs in different places. This is expected since MSEs may exhibit high degree of heterogeneity and complexity. These complexities may result from diversities which in turn may be the result of the definition of what firm size qualifies to be called an MSEs, the sector of the firm, the general macroeconomic situation in a particular country, the immediate environment within which they operate and other factors. Important constraints from literature are briefly discussed below. These factors may broadly be classified into three; internal, external (Ishengoma and

Kappel, 2006 and Schmitz, 1982) and inter-firm (Ishengoma and Kappel, 2006).

2.2.1 Internal Constraints

An internal constraint refers to any factor that originates from within the firm and can be controlled or altered by the owner/manager of the enterprise. Once these factors are identified, it is possible to completely eliminate them or at least reduce their negative impact on the firm through internally initiated strategies or decisions. Frequently reported internal constraints are briefly discussed below.

Inadequate managerial knowledge/skills: Studying small entrepreneurs who were engaged in car repair and metalworking in an industrial cluster of Suame Magazine in Ghana, Mano et al. (2012) concluded that these entrepreneurs need basic skills in business

management. There is also empirical evidence to the effect that provision of managerial skills may improve firm performance (Berge et al., 2011; Mano et al., 2011 and Drexler et al., 2010). For instance, Bruhn et al. (2012) found sales and profits of firms who received business management training to increase by 80% and 120%. Berge et al. (2011) also found a statistically significant increase of about 20-30% in the profits of only trained male entrepreneurs. In addition, managers with less experience have their enterprises facing *difficulties with solvency* and may also experience *higher expenditure to revenue ratio* (Hall, 2000) due to less efficient combination of production resources. These, in the long run, affect the firm's ability to remain profitable and viable.

The effect of the knowledge gap of MSE owners may be addressed if firms are able to attract qualified/skilled workers. However, labour supply to the informal sector has generally been confined to individuals with limited education and vocational skills. In a review of policies aimed at promoting MSEs in Ghana and Malawi, Kayanula and Quartey (2000) identified *inadequate supply of skilled labour/workers* as one of the five important constraints to the development of MSEs in these countries. Similar findings have been made by studies such as Bari et al. (2005), and Ishengoma and Kappel (2006). Thus, the operational inefficiencies recorded by the managers/owners with low managerial skills are exacerbated by unskilled workers that are attracted by such owners.

Inadequate internal capital and lack of collateral to secure external finance: Most MSEs start operating under-capitalized and further worsen their plight through their inability to retain earnings in the firm. The principal source of capital for most MSEs start-ups are own savings and savings of family members (Boohene, 2011). This makes it difficult for most of them to expand, and adopt new and efficient technologies. In order to overcome these challenges, operators of MSEs could have resulted to external funding in the form

of loans and trade credit. However, they usually lack the necessary collateral against which these loans are secured. In Ghana, Abor and Biekpe (2006) found MSEs' lack of requisite collateral as a major constraint to their ability to access formal credit to expand their businesses. The situation is not different in other countries such as South Africa and Bangladesh where Quader and Abdullah (2008) and Clover and Darroch (2005) have found inability of MSEs to meet collateral requirements as a major problem respectively.

2.2.2 External Constraints

Unlike internal constraints, external constraints are exogenously imposed or determined and are not within the control of managers of MSEs. These constraints mostly affect almost all firms within that particular economic environment, although there could be varying degree of impact on the growth and performance of different firms. Differences in impact may result from coping strategies of individual firms, managerial competences, and shock resistant capacity. Important external constraints include limited access to credit, high cost of borrowing, limited access to business development services, complex regulatory procedure, and poor infrastructure.

Limited access to credit and high cost of borrowing have been identified by various studies as an important constraint to the development of MSEs. Using a Growth Diagnostic Approach, a joint US government (USG) and Government of Ghana (GoG) technical team undertook a constraint analysis in order to ascertain the factors that are binding to the economic growth of Ghana. The study found access to credit as a binding constraint. Limited access to credit affects firms' ability to undertake long-term investment, procure inputs in bulk, attract skilled employees, and secure permanent and legal vending space. High cost of borrowing deters MSEs from accessing credit even

when these facilities are available. Martey et al. (2013) also identified lack of credit and high cost of borrowing as constraint factors to SMEs in Ghana.

Another important constraint is the *complex regulatory and legislative procedures in most developing countries*. Most of the regulatory and legislative procedures are complex, slow and costly. This increases the costs of production for MSEs who may already be credit constrained. The effect may be that the legislative process and the associated cost serve as disincentives for most enterprises to formalize. Several studies in Ghana including those of Martey et al. (2013), and Baker (2008) have all concluded, based on empirical findings, that the cumbersome and bureaucratic nature of regulatory institutions affects the costs of most MSEs in Ghana. Firms that continue to operate informally and are unregulated are more likely to experience frequent eviction and demolition of operating structures by city authorities. In addition, *high cost of inputs and unstable input prices* have been identified as a major constraint to MSEs (Martey et al., 2013; Quader and Abdullah, 2008; Bari et al., 2005 and Skinner, 2005). Constant fluctuations in input prices affect firm's ability to plan its activities and expenditure which subsequently hamper its ability to remain profitable and expand its operations.

Poor infrastructure: The state of infrastructure in most developing countries leaves much to be desired. Critical among these are unreliable supply of electricity (and power in general), water, poor road networks, under-developed markets and commercial centres. Most empirical studies on SMEs and the informal sector of Ghana (Martey et al., 2013; USG-GoG technical team, 2011 and Baker, 2008) have identified unreliable supply of electricity and water as a major cause of increased cost of production and hence a major problem that requires immediate attention. Apart from the increase in production cost that results from the need for the firm to provide electricity and water from alternative sources

(at a relatively high cost), the absence of facilities like electricity, water and cooking fuel may force firms to suspend operations in critical situations. This in turn will affect the firm's ability to consistently serve and satisfy customers as well as increase the unit labour cost since most workers (especially those who are permanent) would still be paid even during the non-operational days.

Limited access to Business Development Services (BDS): In a sector that is characterized by high knowledge and skill gaps both at the managerial and employee levels as indicated above, access to services such as training, consultancy among others will help bridge the gap. However, these services are mostly not available or the focus of providers of BDS (in cases where they are available) are not on MSEs due to the inability of the latter to pay for the services. Ishengoma and Kappel (2008) used regression analysis to examine the extent to which the growth of MSEs is associated with business constraints and found limited access to BDS to limit business growth.

Clover and Darroch (2005) conducted a study on owners' perception of factors that constrain the survival and growth of small, medium and micro agribusiness firms in Kwazulu-Natal, South Africa and came out with finding that support the assertion that lack of BDS is a major constraint to the growth of MSEs.

Due to the peculiar choice of location of street food trade, the sector faces *difficulty with access to legal vending premises and poorly located sites.* One major challenge faced by both urban planners and MSEs (especially street vendors) is management of space. Most MSEs, especially street vendors, are either constantly being harassed due to their location on the street or completely evicted. This leads to insecurity on their part, making it unattractive for them to make long-term investments likes permanent vending structures,

and promotional activities. Their ability to attract long-term business transactions is also limited because business partners may also be unsure of their continuous survival. Researchers such as Baker (2008) in Ghana, Skinner (2005) in South Africa, Ishengoma and Kappel (2006) in Tanzania, Becker (2004) on the informal sector have all identified location of street vendors and MSEs in general as a problem that needs to be addressed.

2.2.3 Inter-firm Constraints

Inter-firm constraints arise due to actions or inactions of firms that either result in hyper-competition or poor cooperation and collaboration among street food vendors. These actions or inactions end up reducing the bargaining power of street food vendors among other consequences. These constraints include absence of or weak association among MSEs, and unreliable input suppliers.

Weak or absence of vendor associations: A well-functioning association of enterprises and street vendors presents numerous advantages to member firms. Through collective action, it is easier for such associations to increase their bargaining power when dealing with institutions and municipal authorities. Also, firms that are able to pool their resources together in the procurement of common inputs benefit from economies of scale associated with bulk purchase. This in turn may lead to a reduction in the cost of production of individual firms. However, in most developing countries, these associations are either completely absent or may not be active and functional as would be expected.

Unreliable input suppliers: Lack of proper coordination and cooperation among the operators of a particular supply chain affect planning as well as the speed and efficiency with which the final product is delivered (Mambula, 2002). These may in turn increase the cost of production and subsequently the price of the final product.

High Competition among MSEs: The effects of high competition among MSEs on their growth and performance have widely been presented in literature (Martey et al., 2013; Bari et al., 2005; Onugu, 2005; Bowen et al. 2009). High competition increases the cost of production and erodes the profit of these MSEs.

2.3 Theory of Human Capital Investment

Human Capital (HC) according to Sullivan and Sheffrin (2003) is the set of knowledge, competence and personality characteristics required to produce economic value through the execution or performance of labour. This implies that the process of value creation requires, in addition to tangible factors of production such as land and capital, the managerial or entrepreneurial capacity to effectively and efficiently combine these other factors of production.

Blundell (1999) categorised human capital into three; one's innate or acquired ability at the early stages of life, knowledge and qualifications that are acquired within the framework of formal education and thirdly, skills, experiences and competencies that are acquired through on-the-job trainings. Labour productivity therefore is the combined and complementary product of these three knowledge sources. Individuals or organizations therefore invest in human capital because there is a probability that their post-investment economic productivity will increase (Fatoki, 2011). Another classification of the concept of human capital is given by Ganotakis (2010). According to Ganotakis, human capital can be grouped into the more general ones that may be measured using individual's educational or academic qualification and the job-specific, tailor-made education, training and skills that are not taught in school but are critical to the success of any business.

Even though the concept of human capital was generally and initially applied with specific reference to employees, Bruderl et al. (1992) argue it can equally be useful and applicable within an entrepreneurial context. Thus, entrepreneurial performance, and more specifically productivity, can directly or indirectly be linked to the extent to which entrepreneurs, individuals and businesses invest in human resources (Schultz, 1961). In the estimation of Schultz, a decision to invest in human capital results in an improvement of the productivity, and ultimately results in positive rate of return. This assertion by Schultz is corroborated by Hessels and Terjesen (2008) by stating that there is a direct relationship between the level of performance of an entrepreneur or business and the extent of investment in human capital. This suggests that innate ability or skills may not suffice in ensuring success of any business. Instead, there is the need to make deliberate and purposeful investment to acquire professional and business skills beyond innate ability.

2.4 Model of Human Capital Investment

An entrepreneur's decision to invest in human capital involves an initial cost. This cost will comprise the explicit tuition or training fees (if applicable), foregone or reduced earnings during the time of the training or schooling as a result of reduced productivity (Blundell, 1999). However, it is the expectation of the individual entrepreneur or investor that the returns to the investment in human capital, in the future, will be higher enough to compensate him/her. This return may be experienced through increased productivity, higher sales, increased profit, more efficient production, and business growth.

Thus, a rational and profit maximizing investor or entrepreneur will only choose to invest in education or training (regardless of the form/type) if the expected return to the

investment or benefit will exceed the cost or the opportunity cost of that investment. It must however be emphasised that the focus of standard economic models when it comes to investments in human capital is on direct or quantifiable costs and benefits (Blundell, 1999).

Thus, the study is premised on the assumption that a profit maximizing street food enterprise will take up the opportunity to be trained in standard business management principles because they expect the future returns (effect on vendor practices and business performance) to be higher than foregone earnings and decline in productivity during the period of training (the opportunity cost). Because training was offered for free in this study, trained individuals did not incur any direct and explicit cost.

2.5 Determinants of participation in business management training

Managerial capital is seen as very critical for the efficient utilization of all resources of the business (Martinez et al., 2013 and Bruhn et al., 2012). In view of this, the past few years have seen a surge in studies of developmental programmes that implement training using randomized field experiments, where a random sub-sample of all firms or micro-entrepreneurs that fall within the project's focus are assigned to receive the proposed training whilst a similar comparison group does not. Some of these studies (Bruhn et al., 2012; Mano et al., 2012; Berge et al., 2011 and Drexler et al., 2010) have reported findings that conclude that business training actually promote the growth and development of these micro, small and medium scale enterprises (MSMEs) although findings are inconclusive in this regard since others have also reported no effect of business training (De Mel et al., 2012; Mano et al., 2012 and Karlan and Valdivia, 2011).

When training is seen to promote growth and development it has occurred through a change and re-orientation of how certain activities are carried out within the firm. For instance, Bruhn et al. (2012), in their study to evaluate the impact of consulting services on small and medium enterprises in Mexico, found a very high effect on sales (80% improvement), profit (120% increase) and an increase in productivity of treated firms relative to those in the control group. Similar findings have been made by Drexler et al. (2010) who reported a significant effect on savings and how finances are managed by SMEs who were trained using simple rule of thumb. Mano et al. (2012) in Ghana have also found a significant effect of managerial training on the probability of business survival. A 20-30% significant increase in profits of male entrepreneurs, and an improvement in the practices and knowledge of both males and females have been reported by Berge et al. (2011). These results are not limited to micro, small and medium size enterprises. Bloom et al. (2013) studied the effect of differences in management practices on the productivity of large scale textile firms in India and found a 17% improvement in productivity.

If business management training has these enormous potential to address most constraints of small and medium scale enterprises why does the take-up or participation rate continue to be low especially when most of these training programmes are offered for free? McKenzie and Woodruff (2014) reviewed recent studies on business training and entrepreneurship and reported the average take-up rate of such freely offered programmes to be 65%. Participation rate can be as low as 39% (Bruhn and Zia, 2013),

49% (Drexler et al., 2012), 50% (Giné and Mansuri, 2011) and 51% in the case of Valdivia (2012). Participation in training programmes can still be low even for initially consented training invitees (Bruhn and Zia, 2013).

Giving account of the challenges they encountered, Bruhn and Zia (2013) wrote "the implementation of the business training programme was quite challenging. We faced considerable reluctance from our treatment group for attending the course, despite the fact that our entire sample consisted of individuals who had initially expressed interest in such a course". If managerial capital is important for business success why was participation in the training course offered by this study low even when it was free and participation highly incentivized? What informs an invitee's decision to attend or not to? Are actual participants characteristically different from non-participants?

Review of limited literature on the subject of the determinants of participation in business management training revealed the following relationships between

owner/manager as well as enterprise characteristics on participation. These relationships guided the choice of explanatory variables in the model of determinants of participation as well as the a priori signs.

Age and experience: It was expected that both age and experience to be negatively related to the probability of attendance. Older vendors are more likely to have been engaged in street food vending longer and hence more experienced. De Mel et al. (2012) found younger firms (operating for less than 5 years) to be more likely to attend management training organized for women engaged in several low income economic activities such as sewing. Experienced vendors appear to be less interested in courses that aim at capacity building since they believe the continued existence of their businesses is a sign of their competence. As reported by Posthuma and Campion (2009), older employees are less motivated to attend training programmes. The level of motivation is also positively related to the probability of participation (Noe and Wilk, 1993).

Education: Educated vendors are more likely to take up the training invitation due to the value they place on education. Moreover, vendors with little or no formal education are more likely to be intimidated from attending due to their own perceived knowledge gap. Bjorvatn and Tugodden (2010) in their study of microfinance clients in Tanzania found that entrepreneurs with higher education had a higher probability to take up training offer and attend consistently. This is corroborated by De Mel et al. (2012) in their study of the impact of management training on the performance of women in Sri Lanka. On the on the hand, Karlan et al. (2014) did not find education of manager/owner as a significant predictor of whether an invitee would take up consulting services in their experimental study among micro and small tailors/dressmakers in Ghana.

Sex: Street food vending is dominated by females (Otoo et al., 2011) with little or no formal education. Blomquist (2013) also indicated that women are more motivated to attend any kind of training than men. Green (1993) and Veum (1993) have however reported findings to the tcontrary. They found men to be more likely to engage in further training programmes relative to their female counterparts.

Involvement in other economic activity: Vendors involved in other economic activity, either primarily or secondarily, are less likely to participate and do so consistently. These vendors are expected to have a very tight schedule and hence minimal or no time available to take up the training course.

Training experience: Vendors who have ever attended any training programme prior to our invitation are less likely to take it up. This is because most vendors during the reconnaissance and baseline surveys complained of deriving little or no benefit from

previous training that principally focused on food safety, health certification procedure and management of urban space.

Size of enterprise and total family member involved in the business: The size of enterprise is expected to be positively related to the probability of participation. Having another hand to steer the affairs of the business affords the vendor the opportunity to stay away from business without the need to stop operations.

Pre-training business management practices score: Vendors with higher score in pretraining business management practices index are more likely to be more educated. This in turn increases the probability that they will participate. The only study that reported the effect of baseline score on business practice (De Mel et al., 2012) did not find any significant relationship between the two variables.

Pre-training performance: Vendors with high pre-training performance are less likely to take up training offer either because they feel they are already doing well enough already or have a higher opportunity cost of participation or both.

2.6 Effects of Business Management Training on Business Practices and Performance

Among the several constraints that militate against the growth and development of micro and small scale enterprises in the informal sector of developing countries, lack of managerial knowledge/skills and inadequate supply of skilled employees have received considerable attention and are predominantly reported in the literature (Bruhn et al.,

2012; Mano et al., 2011, Berge et al., 2011; Abor and Biekpe, 2006; Onugu, 2005;

Ishengoma and Kappel, 2005; Bari et al., 2005; Muzaffer et al., 2009; Quader and Abdullah, 2008 and Kayanula and Quartey, 2000). In view of this challenge, several efforts have been made by governments, non-governmental organizations, donor partners of developing countries, researchers, and firms themselves to ameliorate the situation through the provision/implementation of business/entrepreneurial training to MSEs.

The literature is replete with studies that aim to identify the relationship or the impact of business or managerial training on the performance of the target group. A comprehensive overview of these studies is presented here. Generally, these studies can be classified into two; *'non-experimental'* and *'experimental'*. While the former represents a body of literature that assesses/evaluates the impact of business training programmes prior to the acceptance of experimental (random) design in social programmes and social sciences as a whole, the latter refers to scholarly literature that adopts and applies principles of randomized control experiments to evaluation of social programmes. Thus, it is expedient to mention that non-experimental approaches can only establish a relationship between training and firm performance, and not causality. This arises from the difficulties in capturing or isolating the exact causal effect of an intervention such as training programme amidst other possible factors that can explain the observed changes (Patton et al., 2000). Major findings from both waves of literature are briefly presented below.

2.7.1 Impact of Training on Performance of Firms: Review of Non-experimental Studies

Literature on non-experimental evaluation of the impact of an intervention reveals high degree of inconclusiveness regarding the direction, magnitude and consistency of the impact of training on firm performance. Patton et al. (2000) indicate that "whilst

intuitively it is presumed that investment in training will enhance the performance potential of a small firm, there is very little empirical evidence to support this proposition". Bryan (2006) corroborated this point by concluding that "small firm literature generally reveals an expectation of a positive relationship between training and performance, while evidence for this is scanty".

Evaluating the impact of Start Your Business (SYIB) training programme on women entrepreneurs in Vietnam, Barwa (2003) found that the training programme had both business and social impact on rural women entrepreneurs. Participating women reported 97% and 49% increase in their business performance and private income respectively with a corresponding increase in employment (ibid). This represents a significant impact of training programme and actually a sharp contrast to the above mentioned assertions made by Patton et al. (2000) and Bryan (2006). Similar results have been found by Nguyen et al. (2008) in their study to measure the impact of training on the performance of Vietnamese firms. They found that training increased both the sales and productivity of beneficiary firms by 100% and 72% respectively. Cosh et al. (2003) also reported a positive and statistically significant relationship between employment growth and the firm's expenditure on training. Black and Lynch (1996) in their study of the relationship between human capital investment and productivity have also reported that improving one's education causes an increase in the productivity of firms.

Contrary to the above findings, several other studies have found results that indicate no significant relationship between training and firm performance. Nguyen et al. (2008) stated that the potential results of business training on performance can be negative and counterproductive. Storey and Westhead (1994), after a reviewed literature on the relationship between management training and small firm performance, concluded that

there exist scanty research-based evidence confirming a strong impact of training and attributed that to the difficulty in establishing causality between the two concepts. Winterton and Winterton (1996 in Patton et al., 2000) did not find evidence to support the assertion that there is a link between development of management competence and performance.

In all the above-reviewed literature on non-experimental evaluation of the impact of training on performance, none of these studies had a focus on the street foods.

2.7.2 Impact of Training on Performance of Firms: Review of Experimental Studies A major loophole or flaw with the above reviewed literature that evaluated the impact of business training programmes non-experimentally is the difficulty in establishing verifiable causality between business training and firm performance (Patton et al., 2000) due to problems of identification and endogeneity. In order to overcome this challenge, a new wave of impact evaluation studies emerged that adopted and used the principles of experiments within social/economic settings. List and Reiley (2007) and List (2006) state that field experiment is a hybrid between laboratory experiment and naturally occurring data which affords researchers the opportunity to establish causality instead of just correlation through exogenous variation of the variables.

2.7.2.1 Impact of training on business practices

"A first link in the causal chain from business training to business profitability and growth is that business training improves the knowledge and implementation of business practices by business owners….However, failure to find any change in practices should cast doubt on the ability of the training to improve firm outcomes" (McKenzie and

Woodruff, 2013, p. 67). These remarks point to the fact that adoption and practice of topics and principles that are covered during business training courses are critical if the ultimate aim of such trainings is to be achieved.

Mano et al. (2011) implemented randomized field experiment among micro and small scale entrepreneurs in Suame Magazine, an industrial cluster of Kumasi-Ghana, to examine the extent to which elementary management training affects the practices and performance of these entrepreneurs. They found that trained entrepreneurs are able to improve their customer relations, and record management compared to their untrained colleagues. In a similar study in a knitwear cluster located in Hatay, Vietnam, Sonobe et al. (2011) evaluated the impact of KAIZEN for managerial skills improvement among small and medium enterprises and found training to significantly contribute to adoption and practices of good managerial and production practices such as separation of household and business finances, issuance of invoices that bear the name of the firm, keeping of working tools and equipment where they have been designated to be kept, and separation of raw materials and scraps. Thus, training generally led to significant overall improvement in standard business practices of trained micro-entrepreneurs. However, these improvements may partly be explained by the limited pre-training awareness of and knowledge in standard business practices that were taught during the course.

In the estimation of Sonobe et al. (2011), this increased awareness after training is manifested in the fact that non-participants also recognized the importance of standard business practices in the management of businesses and also copied from trained firms leading to spillover effects. In a different study in Tanzania, Berge et al. (2011) found training to enhance the business practices of trained entrepreneurs. More specifically, the ability of trained entrepreneurs to keep records, manage employee relations and marketing

skills improved (ibid). The effect of training on business practices, according to Berge et al. (2011), was however heterogeneous with male entrepreneurs recording higher impact in terms of entrepreneurs' ability to fire non-performing employees as well as engagement in sectors with higher profit potential. Business training was also seen not to affect entrepreneurial mindset (measured by willingness of entrepreneurs to compete) of female entrepreneurs (Berge et al., 2011). Heterogeneity in treatment effect on business practices has also been confirmed by Gine and Mansuri (2014). They report that business training provided to microfinance clients in rural Pakistan had significant positive effect on knowledge and practices.

Similar results were reported by Martinez et al. (2013) in their assessment of the effectiveness of large scale publicly funded training in Chile, de Mel et al. (2012) among female enterprises in Sri Lanka, Karlan and Vildavia (2011) among

microfinance clients in Peru. Karlan and Vildavia (2011) specifically found that training significantly improved business skills and practices such as ploughing back profits into business, implementation of innovative business ideas/solutions, and keeping track of business withdrawals. Consistent with this, Bruhn and Zia (2013) reported that treatment group in their study was 17% more likely to adopt improved production processes that were taught during their training. They also found trained individuals to be 11% more likely to reinvest their savings into their business and also implemented the principle of separation of personal and business accounts. Similarly, Drexler et al. (2011) found that non-formal and simplified rule-of-thumb (instead of "standard, fundamental-based accounting") financial literacy training significantly affected the probability that micro-entrepreneurs in Dominican Republic will keep separate accounts of business and personal transactions, record all transactions and also undertake formal calculation of business revenues. This suggests that the packaging and presentation of business training is crucial especially when it is targeted at informal microentrepreneurs in developing countries that have less formal educational background.

It can be seen from the above review that the relationship between business training and business practices is almost always straight forward and unidirectional. In other words, practices of participating firms are positively affected by business training although the effect is not always significant, especially among female participants. McKenzie and

Woodruff (2013, p. 67) noted in their paper on review of training and entrepreneurship evaluations that although the various studies exhibit variations in terms of the content of the training *"almost all studies find a positive effect of business training on business practices"*. What needs to be determined is the extent to which this unanimous significant positive effect of training on business skills and performance lasts. Available evidence suggests that effect may be different over time (McKenzie and Woodruff, 2013).

2.7.2.2 Impact of training on business outcomes

Although most experimental studies on evaluation of impact of business training on practices of trained firms or individual have mostly found positive and significant impact, same cannot be said about ultimate outcome or economic performance of firms. The impact of business training on economic performance measures like profit, sales, growth, income etc. are mixed and inconsistent (Berge et al., 2011; Drexler et al., 2010). As pointed out by Drexler et al. (2010, p. 2), *"the evidence so far has been mixed, with large heterogeneity in the estimated success of training programs"*. Some studies have reported findings to suggest that business management training helps improve firms' performance, but many more have presented evidence to the contrary.

Bruhn et al. (2012) investigated the possibility of human capital having a first order effect on the performance and growth of small and medium enterprises in Mexico through the offer of consulting services to randomly selected firms. The results of their impact evaluation revealed that sales and profits of treatment firms increased by 80% and 120% respectively. These results are consistent with findings of Mano et al. (2011) in their study of micro and small scale entrepreneurs in Suame Magazine, an industrial cluster of Kumasi-Ghana. Mano et al. report that estimated effect of business training on gross profit

was statistically significant. Similarly, training programme also increased participating firms' probability of survival by 8-9 percentage points. It should however be emphasised that the small sample size suggests that these results have limited external validity and should therefore be interpreted with the needed caution. In the same regard, Berge et al. (2011) also found a statistically significant increase of about 20-30% in the profits of only treated male entrepreneurs. Kessy and Temu (2010) also evaluated the impact of training on performance of micro and small enterprises served by microfinance institutions in Tanzania and identified that the revenues and assets of participating firms were significantly higher than non-participants.

Contrary to the above, findings have been reported by (de Mel et al., 2012 Fairlie et al., 2012 and Karlan and Valdivia, 2011), that suggest that business training intervention do not significantly affect business outcome. Results from Bruhn and Zia (2013) found that training did not lead to any significant difference between treatment and control businesses as far as performance of their businesses are concerned. They show that training neither significantly improved the rate of start-up of new businesses among treatment entrepreneurs nor increased the chances of survival of already existing businesses. Based on their findings, Bruhn and Zia concluded that lack of managerial skills may not be a first order constraint relative to other factors such as the availability of an attractive business opportunity one can exploit.

In a rather large scale experiment in a developed country, Fairlie et al. (2012) evaluated the Project Growing America through Entrepreneurship (GATE) and found no positive average effects of training on business earnings and that the point estimates were even negative. The study also revealed that although training increased the level of business ownership, the effects dissipate over time. Similar to these findings, Kessy and Temu

(2010) did not find any statistical differences between trained and untrained entrepreneurs as far as business growth (measured by number of employees) is concerned. In addition to the above results that support the inability of business training programmes to improve business performances, evidence from a randomized control trial in Sri Lanka by de Mel at al. (2012) indicate that provision of *training alone* does not improve the profits, sales or capital stock of operating female entrepreneurs. Likewise, Karlan and Valdivia (2011) concluded after analyzing the impact of entrepreneurship training on clients of microfinance clients in Peru that there is statistically weak evidence to suggest that business training improved performance of entrepreneurs as measured by sales, employment generation and profit margins.

Other studies that have found similar results include Drexler et al. (2010), where standard accounting approach of training entrepreneurs was seen to have no effect on business outcomes such as profits, sales and investment behavior of trained individuals; Martinez et al. (2013) also did not find any significant difference between treatment and control groups regarding the number employees employed by the two groups after the training.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Study areas and rationale behind the choice

The study areas are Kumasi and Tamale Metropolitan Assemblies. Kumasi and Tamale Metropolitan Assemblies were purposively selected as study areas for this study due to the following reasons. First, these cities have a considerable number of urban poor; thus, achieving the objectives of the study will go a long way in helping the street food sector perform its important roles creating jobs, providing incomes and ensuring food security among others. Although Accra (the capital of Ghana and other cities) that also have a considerable number of urban poor could have been selected for the same reason, the current study chose not to since previous works on street foods have mostly been concentrated in Accra (example; Tomlins et al., 2002; Mensah et al., 2002; and Maxwell et al., 2000) with only few focused on other cities (example; Otoo et al., 2011 and Rheinlander et al., 2008 focused on Kumasi).

Apart from the above reasons, Kumasi and Tamale were selected due to the sociocultural as well as economic differences between the two cities. While Kumasi is the second largest city, relatively developed and an economically active city throughout the year, Tamale still remains relatively under-developed with high incidence of poverty and perennial migration of some of its active labour force to the South of Ghana, especially during the non-farming season. These differences may affect the type of foods sold, characteristics of street food vendors and the potential impact of any intervention

programme. Also, it is believed that the few studies conducted in Kumasi would provide a grounded basis for this study and provide insightful background information for the commencement of the study.

Tamale Metropolitan Assembly (TaMA) is one of the 26 districts and the only Metropolitan Assembly in the Northern Region. The assembly has about 116 communities with urban, peri-urban and rural distribution being 12, 93 and 11 respectively. Administratively, it is divided into 3 sub-metropolitan Councils (Tamale South, Central and North). Tamale is the third most populous settlement in Ghana in terms of population with 537,986 inhabitants (GSS, 2012). TaMA occupies a total land area of 750km^2. The assembly is dominated by Muslims (84%) with percentage of Christians being 13.7.TaMA has the lowest level of employment (52.6%) and highest proportion of economically non-active population of 38.2% within the Northern region.

The high rate of economically inactive population in the metropolis, coupled with its strategic location in terms of trade increases the demand for ready-to-eat foods and makes the street food sector an important one. There is currently no official statistics on the population of street food vendors in Tamale. However, distribution of food vendors across the three Sub-Metro District Councils is believed to be approximately 19%, 67% and 14% for North, Central and South Metros respectively (TaMA, 2012). Whereas food vending during the day is popular in all three sub-metros, night vending is more popular within the central business areas of Tamale central. Popular foods vended in the area include *tuo zaafi* (*TZ*), *waakye*, porridge (*Hausa kooko*), *koose*, *banku*, and plain

rice.

Kumasi Metropolitan Assembly, located in Ashanti Region, on the other hand has a total surface area of 254 sq km and is located in the transitional forest zone and is about 270km north of the national capital, Accra. It is the second most populace city with an estimated population of 2,069,350. The unique centrality of the city as a traversing point from all parts of the country makes it a special place for many to migrate to. Administratively, KMA is divided into 9 sub-metropolitan councils. It is highly cosmopolitan with Ashantes being the dominant tribe. The proportions of the population in the metropolis in terms of religion are 78.8%, 16.0%, 0.3% and 0.7% for Christianity, Islam, Traditional, and other religions respectively (www.ghanadistricts.com).

Economically, Kumasi is an important business hub due to its central location, linking the three Norther regions and Brong-Ahafo to other parts of Ghana. In addition, informal economic activities such as manufacturing, trading and commerce are very popular. Its popular industrial cluster, Suame Magizine, the Kumasi Central Market, Kejetia Lorry Park, the Central Business District, Adum, and Wood Village accommodate hundreds of thousands of informal sector players. These economic areas and other satellites markets and lorry parks within the metropolis increases the demand for street foods since most of these informal workers and traders spend several hours away from home. The population of street food vendors in the metropolis is estimated to be about 20,000, although official statistics are unavailable. Organization and cooperation among vendors is extremely limited. However, a few 'inactive' vendor associations exist. These include The Ghana Traditional Caterers Association, Maggi Fast Foods Association of Ghana (MAFFAG), Peace and Love Food Association, Asafo Chop Bar Association. Several food types are prepared and sold in the Kumasi. However, *fufu*, fried rice, kenkey, *banku*, *tuo zaafi*, porridge (*Hausa kooko*), *waakye*, plain rice and are the most common.

3.2 Type and Sources of Data

Both primary and secondary data were used in the study with the former being the main. Primary data was collected from street food vendors focused on their demographic characteristics, their business objectives, their business constraints, cost and revenue of the business activities, their membership of and commitment to street food vendor associations, the level of cooperation with other street food vendors, reasons for deciding to either take up the training intervention or not, knowledge and practice of the components of the training programme, and history of training received.

Authorities of Kumasi and Tamale Metropolitan Assemblies were also contacted to obtain information on street food vending regulations and policies, process of managing street food vending activities in Kumasi and Tamale and the challenges confronting them.

Secondary data was obtained from the Health Inspectorate Division of Kumasi and Tamale Metropolitan Assemblies, Food and Drugs Authority of Ghana, National Board for Small-Scale Industries (NBSSI), Food Research Institute and already published literature on the subject matter. SME training manual obtained from NBSSI formed the basis for developing the manual used to train street food vendors assigned to the treatment group.

3.3 Sampling Technique

A multi-stage sampling procedure, employing a combination of stratified, simple random, purposive and quota sampling, was used in the selection of five hundred and sixteen (516) street food enterprises. Based on the reasons given above, Kumasi and Tamale Metropolitan Assemblies (KMA and TaMA) were purposively selected as study areas.

Within each area, all sub-metros making up the assembly were included. That is, a complete census of sub-metros (9 in Kumasi and 3 in Tamale) of the assemblies was conducted. In the next stage, simple random sampling technique using lottery method was employed to select one town/suburb was selected from each of the 9 sub-metros of

KMA whiles all suburbs of the three sub-metros in TaMA were included.

Table 3.1: Distribution of respondents by sub-metro the business is located

Name of Sub-Metro	Sample size
Kumasi Metropolitan Area (n = 207)	
1. Bantama	21
2. Suame	21
3. Asokwa	40
4. Subin	27
5. Manhyia	18
6. Tafo	25
7. Nyieaso	18
8. Kwadaso	19
9. Oforikrom	17
Tamale Metropolitan Area (n = 309)	
1. Tamale North Sub-Metro	45
2. Tamale Central Sub-Metro	134
3. Tamale South Sub-Metro	131

Source: Field survey (2013)

In the next stage, street food enterprises were stratified based on food type. In situations where an enterprise deals in more than one food type, the dominant food was used to define the enterprise. Out of the four strata of enterprises (based on food vended), two food types were purposively sampled from each study area based on their predominance/popularity as well as their socio-economic importance in the economies of

these areas. Thus, *fufu*[1] and *check-check*[2] (comprising fried and jollof rice) enterprises were selected from Kumasi whilst *waakye*[3] and *tuo zaafi (TZ)*[4] enterprises were selected from Tamale.

With the objective to reduce the rate of attrition over the study period, several sampling criteria were purposively developed. The first was to purposively focus on only street food enterprises operating in permanent structures. The choice of stationary/permanent enterprises was informed by the fact that the study was designed to collect panel data over a one year period. In view of this, tracing and following up on enterprises were going to be practically difficult if non-stationary enterprises had been included. Secondly, the study purposively limited itself to vending enterprises that had been operating for at least three years. The rationale behind this criterion was that the study and the business interventions were planned to target committed vendors so as to achieve the ultimate impact of the project. Thus, duration of operation was used as a measure of commitment to the street food trade and the probability that the street food vending is not a temporal shock management option for the vendor.

The last criterion had to the do with selection of food vending enterprises with at least one employee aside the owner/manager. Preliminary evidence during reconnaissance study suggested that vendors' ability or decision to cooperate with researchers largely depends on whether they had trusted hands to take over the affairs of the business whilst working

[1] Fufu is a staple starchy food prepared by pounding boiled cassava and plantain together in a mortar and pistle, while continuously turning it with the hand. Fufu can also be prepared from boiled cocoyam or yam. Fufu is usually served and eaten with soup.

[2] Check-check is a food vending outlet that serves mostly fried rice and jollof rice. Fried rice is prepared by steaming boiled rice, vegetables and spices together. Jollof on the other hand is prepared by boiling rice together with tomato sauce/stew.

[3] Waakye is prepared by boiling rice and beans together. It is usually served with a hot sauce, spaghetti, gari and vegetable salad.

[4] Tuo zaafi is a maize or millet dough and cassava dough dumplings prepared and served with green leafy vegetable soup.

with researchers either in the form of responding to questionnaire, participating in training programmes or attending meetings of vendor associations.

Finally, a complete census of ***all food vendors*** that met all three criteria from the sampled areas were interviewed. At the end of the census, the total sample had 99 (19.2%), 108 (20.9%), 172 (33.3%) and 137 (26.6%) representation for *fufu*, *checkcheck*, *waakye* and *tuo zaafi* enterprises respectively. Table 3.1 presents distribution of sampled enterprises from the two study areas as well as the number of enterprises from the various sub-metros. Thus, the final sample size of 516 represents all vending enterprises who meet all the above stated criteria in the various sub-metros.

3.4 Methods of data collection

A mixed method was used in collecting data for the study. Creswell (2003, p. 4) stated that *"...to include only quantitative and qualitative methods falls short of the major approaches being used today in the social and human sciences"*. The data collection methods used can be generally classified into two phases: pre-survey (informal discussions, stakeholder discussions and reconnaissance study) and survey stages (consisting of baseline and follow-up surveys). The pre-survey methods were principally qualitative and had the objective of getting first-hand and in-depth insight into the street food trade as well as obtaining valuable information for the design and construction of data collection instrument for the survey which is principally quantitative and structured. These methods are explained below.

3.4.1 Pre-survey phase

i. Informal interviews with the heads of the health inspectorate division of Kumasi and Tamale Metropolitan Assemblies

The aim of these interview sessions was to obtain information on the rules and regulations governing street vending in general and street food vending in particular. Also, available records of registered street food vendors, revenue generated from street food vendors, licensing and registration procedures, cost of regulating street food vending to the various assemblies were also gathered. Other data/information gathered included current and future mechanisms to control and regulate the activities of street food vendors.

ii. Stakeholder discussions

Stakeholder discussions with major players were organized during the launch of the Ghana Street Food project. The project launch took place on September 12, 2012 on the campus of Kwame Nkrumah University of Science and Technology.

This discussion aimed at identifying the major business-related constraints to street food vending in Ghana and also suggest possible interventions that can help address the constraints. Participants included two street food vendors (the President of a street food vendor association and an ordinary street food vendor), the Director of the health inspectorate division of Kumasi Metropolitan Assembly (KMA), a staff of National

Board for Small-Scale Industries (NBSSI), a Senior Lecturer/Researcher of the Department of Agricultural Economics, Agribusiness & Extension of KNUST.

Following the stakeholder discussions, the outcome of the discussion was analyzed, reviewed and subjected to criticisms by panel of experts and other participants at the project launch.

iii. Reconnaissance survey

A reconnaissance survey of 343 street food vendors was conducted between December 2012 and January 2013. This process, among other things, was to obtain first-hand information about vendors' business constraints, training needs, vending experience and history, reasons behind the choice of street food vending business, employee size, and source of business capital. Another important reason for this survey was to attempt conducting a census of street food vendors in the sampled areas who fall within the above operational definition of street foods.

3.4.2 Survey phase

i. Pre-testing of data collection instrument

The questionnaire for the baseline survey was pre-tested on 10 street food vendors who met the operational definition but were outside the sampled study areas. The objectives of the pre-testing were to verify the understandability of the questions by respondents and also to identify aspects of the questionnaire which needed to be omitted, added or revised, all in an attempt to improve the quality of the final data collection instrument.

ii. Baseline survey of street food enterprises

Baseline survey was conducted between May and June of 2013. A broad spectrum of data was gathered during this survey. These include vendors' demographic characteristics, business objectives, business constraints, size of workforce, business experience, cost and revenue of business activities, business assets, history of business, membership of and commitment to street food vendor associations, knowledge and practice of the components of the training programme, and history of training received. The results of

the baseline survey also informed decision on the design of the content of the training intervention. The same questionnaire was used (without any modification) on both the treatment and control groups. Also, the survey was done on cross-sectional basis in order to rule out any impact of time or seasonal differentials.

Personal face-to-face interviews using a structured questionnaire were used for data collection. The questionnaire principally consisted of close-ended questions with few open-ended questions aimed at obtaining vendor-specific responses.

iii. In-depth study of selected street food vendors

In order to obtain more detailed information on the street food enterprise other than what a structured questionnaire (used in the baseline survey) can capture and to enable validation of survey data, a selected number of vendors were closely studied through participant observation. For each of these vendors their activities at the vending and/or processing sites were closely monitored. Specific information that were observed included the use of family and other unpaid labour in the activity, the vendors' skill level, observation of fundamental quality and safety guidelines in their operations, and any information from the survey that requires elucidation. These data were also important as they helped in understanding the mechanisms through which the effect of business interventions work in affecting business performance.

This approach principally employed observations, informal and unstructured interviews with street food vendors to obtain firsthand information about their business operations.

iv. Follow-up survey of treatment and control groups

This follow-up survey had the objective of collecting data comparable to the baseline survey data. This enabled an assessment of effects of training interventions on the performance of treatment group. The follow-up survey was conducted between June and July of 2014 (corresponding to 5 to 6 months after the delivery of training intervention). The study was able to interview 401 vendors (262 of the treatment and 139 of control vendors) during the follow-up survey. This represents participation rate of 77.7%. The attrition seems to be fairly balanced between control and treatment groups; 62 and 53 respectively (distributed 5 and 48 between training participants and non-participants respectively). The content of the follow-up survey questionnaire included almost all items in the baseline survey questionnaire. In addition, the follow-up survey questionnaire sought to find out street food vendors' own perception of the effect of the training intervention on the performance of their enterprises and how the initially identified constraints had been addressed after the introduction of the training. Also, views of vendors and other stakeholders were sought on how policy strategies should be redesigned and/or repackaged to achieve maximum impact. Data collection instrument and methods were the same as those used in the baseline survey above.

3.5 Validation of Self-Reported Data from Street Food vendors

Self-reported data given by street food vendors was the principal source of information for this study. This was exclusively so for the baseline survey where record keeping in the form of writing was virtually absent and shoddily kept in the few cases where the vendors made an attempt.

Several measures were taken in order to reduce the noise associated with the data and improve data reliability. Firstly, enumerators were adequately equipped to ask critical probing questions as a means of validating data vendors gave them prior to the baseline survey. Secondly, thorough discussions were held as far as assets valuation was concerned. Enumerators were made to have a fair idea of the prices of most assets and inputs that were captured during the reconnaissance study. This helped them to seek clarifications where suspicious figures were assigned to certain assets and inputs. Thirdly, physical evidence was politely demanded in most cases. This was particularly so when it came to business practices such as record keeping, savings, budgeting, possession of assets, etc. that could be verified. Lastly, following the lead of other authors (example, de Mel et al., 2007; Mano et al., 2012 and Karlan and Valdivia, 2010), stated figures as opposed to those obtained from step-by-step calculations were used for analysis. This decision was motivated by several factors such as inaccuracies in costing and pricing and the less difficulty in stating profit. De Mel et al. (2007), argue that microenterprises may underreport their revenues by close to one-third and concluded that using stated profit will suffice. However, vendors were guided to ensure that stated figures actually included all cost and revenue items and were adequately and correctly captured.

3.6 Stratification and randomization procedure for training experiment The study sought to determine means of addressing constraints that militate against the growth of street food vending enterprises. In other to achieve this, business management and vendors' organization training interventions were administered to stratified randomized sub-samples of the 516 street food vendors.

The study sample was first stratified on the basis of geographical location into two; Kumasi and Tamale strata. Within each stratum, vendors were further stratified based on

the type of food being sold. Vendors in each food stratum were then stratified into three on the basis of their scale of production which was measured by the number of employees within the enterprise. Stratum 1, 2 and 3 would comprise vendors with less than 5, 5 to 9 and 10 or more employees respectively.

Within each of the final stratification stratum (12 in total consisting of 3 employee based stratification for the 4 food types), random numbers were generated for each vendor using random number generator formula in excel. The random numbers were then converted into values after which these values were sorted from highest to lowest. The first 30.2% of vendors within each of the 12 strata were assigned to the first treatment group, the second 30.6% to the second treatment group whilst the remaining 39.2% were assigned to the control group. In all, 156 vendors were randomly assigned to the first treatment group, 158 to the second treatment group and 202 to the control group. The stratification process ensured that treatment and control vendors were geographically apart enough to reduce (if not totally prevent) the possibility of control groups mixing up with treatment groups. Evidence from follow-up survey showed that the strategy was successful since there was virtually no interaction between treatment and control vendors. Two different variations of the training were administered to two different treatment groups.

The two different treatments are briefly explained below and also summarized in Table 3.2.

1. **Treatment 1**: A stratified random sub-sample constituting the treatment group 1 received only business management training.

2. **Treatment 2**: A stratified random sub-sample constituting the treatment group 2 received business management training *with extra* module on street food vendors' association formation training.

3. **Control group**: A randomized sub-sample constituting the control group received none of the two trainings above although they possessed characteristics that were as similar (if not the same) as the treatment groups.

Table 3.2: Description of experimental groups (treatments and control groups)

		Business Management Training	
		YES	**NO**
Street Food Vendors' Association Training	**YES**	**Treatment 2** Business Management training + Street Food Vendor Association training	**Treatment 1** Business Management training
	NO		**Control** No form of training

Source: Author's construct (2014)

3.7 Brief Description of Content of Training Interventions

A brief description of the various packages of the training and the individual modules under each package is given below.

3.7.1 Package 1: Entrepreneurship/business management training

Module 1: Street food vending and entrepreneurship

The objective of this module was designed to get course participants to appreciate their role as micro-entrepreneurs and approach everything they do with a 'business mentality'. Specific topics covered by this module include introduction to entrepreneurship,

definition and qualities of an entrepreneur and the business perspective of street food vending.

Module 2: Business planning

With the understanding obtained from module one, this module aimed at helping course participants understand the process and importance of business planning. Topics covered under this section include the meaning and importance of business planning; consequences of not planning; what is a business plan; content of a business plan and using the business plan.

Module 3: Business record keeping and analysis (record management)

Most small business owners/managers question why they should spend time to keep record of their business operations when they are already burdened with a lot of work. They perceive business records keeping as an activity that makes no immediate economic contribution to their business but requires a lot of effort and time. This module aimed to let participants appreciate the importance of record keeping and analysis, the types of business records and how to practically apply record management in the street food business.

Module 4: Costing and pricing

Appropriately calculating the cost of products and services and setting the right price for these products and services should be the most important consideration of any growthoriented business. Unfortunately, most MSE owner/mangers do not see the reason why they should spend time to accurately calculate how much cost they incur in producing

their products or providing their services. This module was planned to enable participants and business operators know the correct but simple methods they could use to cost and price their products and services. Specific topics covered under this module include meaning of costing and pricing; basic concepts in costing; pricing methods; consequences of improper costing and pricing; cost reduction measures and practical steps to costing and pricing.

Module 5: Financial management

Most MSE owners/managers mention limited access to credit as the most important challenge to the growth of their businesses. However, not many SME owners/managers appreciate the potential of the resources they already have. While they are pre-occupied with the production and marketing of their products and services, owners/managers of SMEs tend to neglect the most important aspect of running their businesses which is the planning, directing, monitoring, organizing and controlling the monetary resources of the business. A business may therefore be producing the best of products, have a welldefined and growing target market and still fail if the operator does not properly manage the money that flows in and out of the business. Knowing some basic financial management principles at both personal and business levels is one sure way that SME operators can successfully avoid the collapse of their businesses. Specific topics treated include the meaning and importance of financial management; budgeting, cash flow management, meaning and importance of savings and loan acquisition procedure.

Module 6: Sales, marketing and customer relationship management

One of the most critical factors for business success is marketing. In fact no business can grow without the existence of reliable customers who are willing and able to pay for the

products and services of the business. The key to satisfying customers is to understand their needs and expectations. It is therefore argued that businesses that have poor orientation towards the needs of the market have limited chances of survival. This module therefore aimed at addressing issues such as understanding the needs and expectations of customers, marketing and marketing mix strategies, customer satisfaction and customer care.

3.7.2 Package 2 (Module 7): Formation and management of Street Food Vendor Organization

Street Food Vendor Organization (SFVO) is a group of street food vendors who come together to pursue a common agenda because of the belief that they can achieve more by working together. SFVOs have a common goal which may be to have a common voice as far as dealing with local and national authorities are concerned, pooling resources together to help members in need. Vendors who join SFVO do so voluntarily. However, current evidence points to limited availability of these vendor associations. The few ones available are less functional. This module aimed at introducing participants to the concept of collective action through vendor associations. Specific topics covered under this section include importance of SFVOs, how to start/join a vendor association, proper management of vendor associations and conflict resolution.

3.8 Design and delivery of training interventions

In collaboration with the National Board for Small-Scale Industries (NBSSI) and in consultation with selected lead vendors, a training manual consisting of the seven modules explained above was developed. Inputs were also received from the Directorate of Extension Services of the Ministry of Agriculture, Ghana. Delivery of training to the

treatment group of vendors was done by Business Advisory Consultants (BACs) from NBSSI. In an attempt to ensure the growth of Micro and Small Enterprises that are generally considered as important in the economic development of many developing countries, the NBSSI was established by the government of Ghana by Act 434 of 1981.

The board is mandated to promote the growth and development of Micro and Small Enterprises (MSEs) (NBSSI, 2014). Each of the BACs recruited for this study had minimum of 5 year experience in training small and medium scale entrepreneurs and had been using a training manual very similar to that of this study for the same time period.

To ensure that all trainers (BACs) understood the import of the intervention and randomization procedure, a training of trainers' session was organized for these BACs. Two important issues that were addressed include having a common understanding about what each module within the training manual was about, and for them to make the training more practical. Also, trainers were encouraged to ensure that vendors strictly adhered to their respective treatment groups, which worked to perfection.

Each of the treatment groups was divided into three different classes (with 50-53 expected participants) prior to the start of the training to ensure effective teaching, participation and learning in a typical adult course (Mano et al., 2012). This implies that there were six expected classes prior to the day of the training. However, the actual class sizes during the training were 35 in Kumasi and 55 and 52 for treatments 1 and 2 respectively (in Tamale). In Kumasi, all 35 attendees belonged to the treatment group 2 hence there was no class for treatment group 2. Also, one vendor who attended the training only during the first day and hence did not meet the graduation criterion was treated as a non-participant in subsequent sections, especially during analysis of data.

3.8.1 Duration of course and graduation requirement

Training lasted four to five days depending on whether one belonged to treatment 1 or 2 with a training session typically lasting 4 hours each day. Participants were transported from a central location to and from training venues on daily basis. On the first day of the training, the participants were informed of the need to attend at least 75% of the training in order to qualify for graduation and receive certificate of participation. All those (except one) who turned up on the first day of the training completed at least 75% of the course. A graduation ceremony was organized on the last day. Course materials such as lecture slides, exercise books, and special record keeping booklets were given to participants at the end of the training.

In terms of delivery methods, a combination of preliminary lectures, role play by participants, group works/assignments, and experience sharing experienced food and successful food vendors were adopted.

3.8.2 Invitation of Participants

Training participants were invited to the programme through official invitation letters which were hand-delivered. However, in cases where letters could not be delivered in person, they were contacted via their mobile phones. The letter explained the rationale for the training, the date and time, venue and the incentive package such as course certificate, T- shirt, lunch/refreshment, transportation arrangements and T & T allowance. As a way of reminder, each invitee was contacted through their mobile phones on three occasions after the letters had been handed over to them. These were three days before the training, a day before the training and the morning before the commencement of the training.

3.8.3 Distribution of vendors by treatment status, participation and attrition rates

Distribution of vendors by treatment status, participation and attrition rate are presented in Table 3.2 below. A total of 141 invited vendors actually participated in the training programme. Sixty (60) out this total number were from treatment group 1 with the remaining 81 being from treatment group 2. This represents a participation rate of approximately 45%. During the follow-up survey period, five (5) participating vendors could not be contacted. It can also be seen from the fifth column that the final panel sample has a relatively balanced representation of vendors from all three groups. Table 3.3 also shows that attrition rate was highest in the control group (31.2%) with a total attrition rate of 22.3% in the pooled sample.

Table 3.3: Distribution of vendors by treatment status, participation and attrition rate

Treatment Group	Total vendors assigned to group (n)	Total vendors invited	Total Participating and graduating	Vendor participating in both baseline & follow-up	% attrition
Treatment 1	156	156	55 (5*)	129	17.3
Treatment 2	158	158	81	133	15.8
Control	202			139	31.2
Total	516	314	136 (+5*)	401	22.3

Source: Field survey (2014); * = number of graduating vendors who could not be reached during the follow-up survey

3.9 Methods of Data Analysis

3.9.1. Descriptive Analyses

Descriptive statistics comprising means and standard deviations, as well as percentages and frequency tables were used in describing the socio-economic characteristics of street food vendors as well as the characteristics of the vending enterprises in the total sample, sample of control and nonparticipating treatment vendors (used for analysis of effects of

business constraints on performance and growth of street food enterprises) and sample of invited vendors (used for analyzing determinants of participation in

training).

3.9.2. Analysis of business constraints faced by street food vendors

For each of the 23 factors that were identified through stakeholder discussions and reconnaissance survey as being possible constraints to business growth, vendors were asked to rank the extent to which they agree to the factors are being constraints to business growth. This ranking was done by using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree). The result of these rankings, showing the mean constraint indices is presented in Table 4.12. For the purpose of analysis, these rankings were recoded. Factors with scores above 3 were considered to be constraints and assigned a value of 1 or 0 if the score is 3 or below. Table 4.13 shows the results of computations from these re-categorizations.

Also, factor analysis was employed to isolate the underlying (common) factors that explain the correlations among the identified potential constraints as well as to determine the extent to which each original constraint depends on each of the common factors. The result of the factor analysis also aimed at grouping the identified potential constraints into related groups so as to reduce the number of dimensions (constraints) that entered the OLS regression models. The scores of the isolated common factors were obtained by computing the average score of the individual original factors that depend on that isolated common factor.

3.9.3. Estimation of performance of street food enterprises

Entrepreneurs have varied reasons and objectives for establishing their own businesses. Whilst some of these objectives are economic or financial, others are social or personal. The performance indicators used for this study are briefly discussed below.

i. Business practices (output indicators)

The immediate results of any business training intervention programme are changes that occur in the daily operational activities of the trainees. These output indicators are important since the content of the training programme must first be understood, adopted/practised by the vendors before they can lead to the next level of indicator (financial/economic).

The output indicators (expressed in the form of indices) that were used in this study are business planning, record management, and financial management. These three business management practices had 3, 11 and 7 sub-components/activities respectively (see Appendix I). In order to avoid any bias in the individual indices and as well as the overall business practices due to the differences in the weight of these three practices, their scores were normalised and held between zero (0) and one (1). An overall business practice index that sums all three normalized indices was also computed. Table 3.4 gives an overview of the process of computing business practice indices.

Table 3.4: Calculation of business practice indices

Business Practice	Type of index	Computation of Index
Business planning	Raw business planning index	$B_i = b_1+b_2+b_3$
	Standardized business planning index	$Bp = \frac{i_B}{3}\ ;\ 1 \leq Bp \geq 0$
Financial	Raw financial management index	$F_i = f_1+f_2+f_3+\ldots+f_{11}$

Management	Standardized financial management index	$FM = \frac{i}{11}$; $1 \leq FM \geq 0^F$
Record Management	Raw record management index	$R_i = f_1+f_2+f_3+\ldots+f_7$
	Standardized record management index	$RM = \frac{Ri}{7}$; $1 \leq RM \geq 0$
Total	Overall Business Practice Index (BPI)	BPI = $Bp + FM + RM$

Source: Author's construct (2014)

ii. Financial/economic (Outcome indicators)

Gross margin ratio, average number of customers served per day and average daily sales per customer (ratio of total sales to number of customers served) were computed to determine the financial performance of street food vending enterprises. Computation of these indicators was based a typical day's production. The units of analyses presented in Table 3.5 for the different food types are based on the major ingredient or material used in the production process. Daily estimates were obtained for items or raw materials that were procured and used over more than one day.

The following formulae were used in computing the gross margin ratio and average sales respectively from table 3.6 below:

Gross Margin (GH¢) = Total Revenue (Sales) − Total Operating/Variable Costs

$$\textbf{Gross Margin Ratio (\%)} = \frac{\text{Gross Margin (GH¢)}}{\text{Total Revenue (Sales)}} * 100\%$$

$$\textbf{Average sales per customer (GH¢)} = \frac{\text{Total Revenue (Sales)}}{\text{Number of customers served daily}}$$

Table 3.5: Unit of analysis for a typical (daily) production cycle

Food type	Main raw material	Quantity of raw material used (kg)	Unit of analysis (kg)
Check check	Rice	10	10
Fufu	Cassava	136	

	Plantain	24	160
Waakye	Rice	10	12.4
	Beans	2.4	
Tuo zaafi (TZ)	Maize	9.6	14.4
	Cassava	4.8	

Source: Estimated from field data (2014)

Table 3.6: Computation of daily gross margin ratio

Total sales (revenue from food sold)	**(A)**
Operating/Variable Costs	
Raw materials (food items, meat & fish products, vegetables	
Transportation	
Daily wage of labour	
Milling	
Fuel (firewood, charcoal, LPG, etc.)	
Water	
Toll (ticket) and other taxes	
Waste disposal	
Total Operating Costs	**(B)**
Gross Margin	**(C) = A - B**
Gross Margin Ratio	**D =** $\left(\frac{C}{A}\right) * 100\ \%$

Source: Author's construct (2015)

Although Liedholm and Mead (1999) posit that employee number represents an objective, easy to capture and easy to apply measure of growth, qualitative evidence during field survey revealed that a change in employee number may be less indicative of growth, although the study theoretically agree to this assertion. This is because while some vendors may intentionally refuse to increase the workforce to deal with operational and cost inefficiencies, others prefer to remain legislatively unnoticed, moderate or small. In view of all the aforementioned reasons, the study adopted the above measures of performance and growth and captured data with caution.

Also, all nominal follow-up monetary values were adjusted for inflation using the average food consumer price index (CPI) for Ashanti and Northern regions from June

2013 to June 2014 (time lapse between baseline and follow-surveys).

3.9.4. Verification of randomization in the training experiment

Arithmetic mean values and percentages were computed for four categories of characteristics; characteristics of vendors, characteristics of businesses, business practices and business results/outcomes. Using t-test of equality, the mean values of the three sample categories; treatment 1, treatment 2 and control were compared and tested for equality.

3.9.5. Estimation of effects of business constraints on firms' growth

Most constraint studies on MSEs in Ghana (example, Kayanula and Quartey, 2000; Tomlins et al., 2002) have not linked owners'/managers' perceived and subjectively reported constraints to the performance and growth of these firms. Those that establish this link (Otoo et al., 2012 in Ghana and Ishengoma and Kappel, 2008 in Uganda) usually use owners'/managers' *perception of growth* since these studies employ crosssectional data. It is therefore possible for either highly optimistic or pessimistic assessment by few owners (based on their perception) to skew mean constraints towards a particular direction and subsequently lead to a conclusion that is not really a true representation of the broader picture in that sector. This section of this study addresses these gaps by linking factors that vendors themselves perceived to constrain the growth of street food enterprises in Ghana to measures of business growth. The study achieved this by utilizing panel data from first and second rounds of survey to assess whether growth (measured by percentage change in daily gross margin ratio, number of customers served daily and daily average sales per person between baseline and followup) are significantly limited by identified business constraints.

Three separate Ordinary Least Square (OLS) regressions were modelled to estimate the effects of business constraints and vendor/business characteristics on each of the measures of firms' growth (percentage changes in firms' gross margin ratio, number of customers served daily and average sales), between the baseline and follow-up. $y_i = \beta_0 + \beta_1 IMS + \beta_2 FC + \beta_3 PSUS + \beta_4 Thft + \beta_5 Ccrm + \beta_6 Comp + \beta_7 CRBP + \beta_9 Sex + \beta_{10} Edu + \beta_{11} Exp + \beta_{12} City + \beta_{13} Size + e_i$

…….. (1)

Where y_i continuous dependent variables (percentage changes in firms' gross margin ratio, number of customers served and average sales per customer) explained and defined in table 3.7 below. Also, the definition of business constraints; *IMS, FC, PSUS, Thft, LP, Ccrm, Comp,* and *CRBP* as well as vendor and enterprise characteristics are explained Table 3.7 below. e_i represents the error term.

Table 3.7: Definition of variables used for OLS estimations

Variable	***Definition of Variables***	
Dependent variables		
Growth in gross margin ratio	Percentage change in daily gross margin ratio (%) between baseline and follow-up	
Growth in Number of Customers served daily	Percentage change in number of customers served (%) between baseline and follow-up	
Growth in average sales per person	Percentage change in daily average sales (%) between baseline and follow-up	
Independent variable		
IMS	Inadequate managerial skills	Mean score for *IMS* (sum of individual constraints divide by number of constraints loading on *IMS*)
FC	Financial constraints	Mean score for *FC* (sum of individual constraints divide by number of constraints loading on *FC*)
PSUS	Poor supply of utility services	Mean score for *PSUS* (sum of individual constraints divide by number of constraints loading on *PSUS*)
Thft	Theft by employees	Mean score for *Thft* (sum of individual constraints divide by number of constraints loading on *Thft*)
Ccrm	Complex customer relations	Mean score for *Ccrm* (sum of individual constraints divide by number of constraints loading on *Ccrm*)
Comp	High competition	Mean score for *Comp* (sum of individual constraints divide by number of constraints loading on *Comp*)
CRBP	Complex regulatory and banking procedure	Mean score for *CRBP* (sum of individual constraints divide by number of constraints loading on *CRBP*)
Edu	Education	Years of formal education
City	City business is located	Kumasi = 1, Tamale = 0
Size	Size of business	Total number of workforce (owner/manager plus other hired and non-hired/family employees)
Exp	Experience of vendor	Number of years the vendor has been in street food business

Source: Author's construct (2015)

3.9.6. Estimating determinants of training participation

In order to understand the factors that influence an invitee's decision to participate in the training the study employed a probit model to estimate the probability of participation given the characteristics of the vendor and his/her enterprise.

The probit model is given by:

$$P(y=1|x_i) = \Phi(x\beta)$$

Where:

y represents participation (y = 1 if an invited vendor participated; 0 = otherwise) x_i are vectors of independent variables and β are the coefficients of these independent variables. Φ indicates the cumulative standard normal probability distribution function.

Empirically, the probit model is given by:

$$P(y=1|x_i) = \Phi(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + ... + \beta_{10} x_{10}) \quad (2)$$

Where β_0 is the constant term, β_1 to β_{10} are the coefficients of the independent variables 1 to 10 and x_1 *to* x_{10} are the independent variables defined in Table 3.5 below their economic a priori signs.

The marginal effect of the probit model, which is easier to interpret than the coefficients, is given by:

$$\partial P / \partial x_j = \phi(x'\beta)\beta_j \quad (3)$$

where ϕ denotes the standard normal probability density function.

Table 3.8: Definition of variables used in the binary probit analysis and their expected signs

Characteristics	Expected sign
Dependent variables	
Participation; 1 = attended the training, 0 = otherwise	
Vendor Characteristics	
X_1 = Sex (male = 1, female = 0)	+
X_2 = Education (years of formal education of vendors in years)	+
X_3 = Experience (number of years vendor has been involved in food vending)	–
X_4 = Involvement in other economic activity aside food vending (Yes = 1, No = 0)	–
X_5 = Training experience (Ever benefited from training Yes = 1, No = 0)	–
Enterprise Characteristics	
X_6 = Size of enterprise (number of people involved in the business)	+
X_7 = Location (Kumasi = 1, Tamale = 0)	+
X_8 = Distance between business premises and training venue	–
Vendors' practices of standard business management principles	
X_9 = Baseline business management practice index	–
Pre-training performance	
X_{10}= Daily gross margin ratio	–

Source: Author's construct (2015)

3.9.7. Evaluation of Effects of Human Capital Investment

Under the assumption of profit maximization being the primary objective of street food vending enterprises, a vendor will participate in business management training when the expected net benefit (B_i) is greater than the opportunity cost of attending the training (C_i).

Thus, if the decision to participate is represented by Y_n, then:

$$Y_n = \begin{cases} 1, \text{if } Bi > Ci, \\ 0, \text{if } Bi < Ci \end{cases} \qquad (4)$$

Although C_i in equation 4 can be justifiably represented by the practices and performance of the street food vendor prior to receiving invitation to participate in the training programme (and direct cost of training if providers had charged a fee), it should however be noted that B_i is not observed (and hence not quantifiable) at the time of decision making. Thus, vendors make their choice based on expected or perceived benefit of the training. This expectation (and by inference the choice) is also influenced by vector of enterprise characteristics (size, type of food sold, location, baseline performance) and vendor characteristics (education, experience, sex, previous training experience).

Having invested in the firm's human capital through participation in business management training, it is expected that the performance of participating firms (Y_i^T) should be greater than the performance of non-participating firms (Y_i^C) after posttraining evaluation of impact or effect of intervention, assuming treatment and control firms were similar in all dimensions prior to the training intervention.

Evaluation of impact or effect of any programme or intervention is fundamentally a matter of being able to identify an appropriate and convincing counterfactual (Duflo and Kremer, 2004; Khandker et al., 2010). That is, what would have been the performance of the trained vendors had they not benefited from the training on business management? Conversely, what would have been the performance of the untrained vendors had they benefited from the training programme?

An evaluation of the effect of the business management training will involve a comparison between the outcomes (practices and performance) of the actual (treated/trained) and counterfactual (control/non-trained). However, it is not practically possible for any vendor to assume this dual state (for both actual and counterfactual outcomes). At each

point in time, a vendor is either trained or untrained. So, to be able to correctly estimate a programme's effect or impact on the treatment group, it is important to identify or create a counterfactual that is convincing and reliable (Khandker et al., 2010).

If Y_i^T is assumed to be the outcome of vendors in the treatment group (who were assigned to receive training in business management), and Y_i^C that of vendors in the control group (who receive no training), then the interest of the evaluation will be to estimate the effect of receiving training in business management ($Y_i^T - Y_i^C$). However, it can never happen that a particular vendor records both outcomes (i.e. Y_i^T and Y_i^C). In such a case, the best expectation will be to estimate the average effect (ATE) of the training (Duflo, 2005) as expressed in equation 1 below.

$$E[Y_i^T - Y_i^C] = ATE \quad (5)$$

Thus, the effect (D) will be obtained by taking the average of the control group's outcome from that of the treatment group.

$$D = E[Y_i^T | \text{Trained}] - E[Y_i^C | \text{Non-trained}]$$

$$D = E[Y_i^T | T] - E[Y_i^C | C] \quad (6)$$

If the term $E[Y_i^C | T]$, that is the expected outcome for the non-trained vendors had they received the training, is subtracted from and added to equation (6):

$$D = E[Y_i^T | T] - E[Y_i^C | T] - E[Y_i^C | C] - E[Y_i^C | T] \quad (7)$$

$$D = E[Y_i^T - Y_i^C | T] + E[Y_i^C | T] - E[Y_i^C | C] \quad (8)$$

From equation (1)

$$E[Y_i^T - Y_i^C] = ATE. \quad (9)$$

This implies that:

$$D = ATE + E[Y_i^C|T] - E[Y_i^C|C] \quad (10)$$

From equation (10), $E[Y_i^C|T] - E[Y_i^C|C]$ corresponds to selection bias (B), which represents the presence of non-random or systematic differences between the treated and the control groups.

$$\text{Thus, } D = ATE + B \quad (11)$$

$B = E[Y_i^C|T] - E[Y_i^C|C]$ in equation 11 is the extent of selection bias that occurs when D is used as an estimate of the average treatment effect (ATE) (Khandker et al., 2010). In view of this, an assessment of the effect of business management training will aim at getting (B) to be equal to zero, getting rid of the selection bias or accounting for it if it cannot be gotten rid of in the setup of the research (ibid).

The following sub-sections discuss the methodological or econometric approaches used to address or overcome the problem of selection bias.

3.9.7.1. Randomized Experiments

Randomization offers the most ideal setup as far as evaluation of the effect of a particular treatment on an outcome is concerned (Duflo, 2005). In a randomized evaluation, the problem of selection bias is avoided as long as the evaluation of the programme's effect is conducted at the level of randomization. In this setup a sample of N individual vendors are selected from the population. The selection/choice of the sample from the given population need not necessarily be done randomly, although the assignment of the units into treatment and control should be random. That is, the sample selection may be

contingent on certain observable factors or meeting of particular policy criteria (Khandker et al., 2010). However, sample selection that is random ensures the experimental results are externally valid. The sample is then randomly divided into treatment (receive policy intervention) and control (does not receive any intervention). Random assignment of units into treatment and control groups on the other hand ensures internal validity of results. Following the random assignment of units into treatment and control groups, the treatment sample receives the proposed policy intervention while the control sample does not.

The effect of the treatment therefore becomes the difference between the average outcome of the treated and the control groups. Although randomizations gets around the problem of selection bias (where individual choices are systematically influenced by their outcomes or expected gains), it does not overcome the problem of missing data. That is, it is impossible at any point in time to observe both the potential outcome for the treated and the control in any single individual. Thus, estimation of impact or effect of the policy intervention can be done at the sample level rather than at the individual level.

$$\check{D} = \hat{E}\,(Y|T) - \hat{E}\,(Y|C) \qquad (12)$$

where $\hat{E}$ is the empirical mean

Since the assignment of the treatment has been done randomly there is no selection bias,

$$E[Y_i^C|T] - E[Y_i^C|C] = 0 \qquad (13)$$

This implies that:

$$E[Y_i|T] - E[Y_i|C] = E[Y_i^T - Y_i^C|T] \quad (14)$$

$$= E[Y_i^T - Y_i^C] \quad (15)$$

Problems of Randomized Experiments: Although randomized experiments offer the most ideal setup for programme evaluation, there are several challenges that make it difficult to implement empirically. First of these challenges is the *cost implications*. In the field of economics, implementation of experiments effectively is very costly and difficult. These result in their limited scale of implementation in most cases coupled with management issues (Duflo, 2005). Related to this first challenge is *ethical concern* of withholding the treatment from equally eligible persons (Ravallion, 2005; Khandker et al., 2010 and Duflo, 2005).

Thirdly, the limited scope of randomized experiments poses *threat to the external validity* of results. Impact measured at the small scale level may not be replicated if the project is supposed to be scaled up. The results may be only applicable within a given context or circumstances hence results may be of limited national policy interest.

Also, the *internal validity* of results from randomized experiments may be threatened by *non-compliance* and *mix up of treatment and control groups*. The former case may occur when individuals who have been assigned to receive the treatment refuse to take it up or members of the control group manage to receive the treatment (Khandker et al., 2010). Another problem encountered by evaluators of intervention is *Hawthorne effects*. This happens when subjects being studied tend to behave differently or report results different because they know that they are being studied or observed. This makes it difficult to generalize the results of such study to a natural context where they are not under any observation (Duflo, 2005).

3.9.7.2. Propensity Score Matching

In the absence of randomized experiments due to the aforementioned practical difficulties in their implementation in the field of economics, it is important to attempt mimicking the randomization process to create a counterfactual group that is as similar as the treatment group in terms of observed characteristics (Khandker et al., 2010). In such an instance, propensity score matching (PSM) offers a credible alternative. Rosenbaum and Rubin (1983) define propensity score as the conditional probability of assignment to a treatment given a vector of covariates. PSM aims at creating a comparison group that is hinged on the probability of participating in the treatment, using pre-treatment characteristics after which participants are matched with nonparticipants (Khandker et al., 2010). Average treatment effect of the programme then becomes the differences in outcome between the treatment and the control groups. In view of the fact that the construct of the comparison group is based on observed characteristics, it is safe to assume that PSM avoids the problem of endogenous placement, leaving the researcher with only the task of having to balance the propensity scores (Ravallion, 2005). This implies that any estimated impact of the intervention under PSM is always contingent on the variables that are used for matching. This in turn is dependent on the quantity and quality of data available to the researcher (ibid).

For the estimated average treatment effect to be valid, two essential assumptions need to hold. *Conditional independence assumption:* the unobserved characteristics of

individuals do not have to affect their participation or otherwise. That is, the application of PSM is limited to situations where only observed characteristics are believed to be the only factors that affect participation of individuals in the programme.

Given a set of observable covariates, X, that is not affected by the treatment, potential outcome, Y, is independent of treatment assignment, T. If Y_i^T represents outcome for treatment group and Y_i^C represents outcome for control group, then the conditional independence assumption implies that:

$$(Y_i^T, Y_i^C) \perp T_i | X) \quad (16)$$

Sizeable common support or overlap: the second assumption is that there should be sizeable common support or overlap in propensity scores across treatment and control groups: $0 < P(T_i = 1 | X_i < 1$ (Khandker et al., 2010; Caliendo and Kopeining, 2005 and Rosenbaum and Rubin, 1983).

There is almost always a problem of identification when using PSM. This is because, regardless of the vector, X, along which participants and non-participants are matched, it is practically impossible to have two individuals that are exactly similar since there would be different characteristics. To overcome this challenge, PSM matches participants and non-participants on the basis of a propensity score which reflects the probability of participating conditional on certain observed characteristics groups

(Rosenbaum and Rubin, 1983). Thus, PSM in one way or the other helps to address the "curse of dimensionality" which arises when one tries to match the two groups on every possible characteristic, especially when X is very large (Khandker et al., 2010).

The procedure for implementing PSM involves:

a. Estimation of a model of participation using a logit or probit model (in a binary treatment situation) or multinomial probit (in the event of non-binary treatment),

b. Definition of the region of common support (where distributions of the propensity score for treatment and control overlap) and balancing tests (to verify whether the mean propensity score and the mean of X covariates are the same) (ibid). That is there is the need to verify if $\acute{P}(X|T = 1) = \acute{P}(X|T = 0)$,

c. Matching of participants to nonparticipants on the basis of the estimated propensity scores using any of the following matching criteria; nearest neighbor, caliper and radius, interval or stratification, kernel and local linear and difference-in-difference,

d. Calculation of average treatment effect which will be equal to the mean difference in outcomes over the common support, when units in the comparison group are weighted by the propensity score distribution of participants.

3.9.7.3. Difference-in-differences Analysis

In a randomized evaluation, the problem of selection bias is avoided as long as the evaluation of the programme's effect is conducted at the level of randomization. It should however be noted that although the invitation to the programme was randomized, participation in the training programme could not have been randomized and was not randomized. Individual invited members had to take the personal decision to attend or not. In view of this, the difference-in-differences framework estimates the effect of the business management training by comparing the outcomes of treatment and control vendors before and after the training. When we assume that unobserved heterogeneity is time invariant and uncorrelated with the treatment over time, the outcome changes of the non-participants will be equal to the counterfactual for the treatment group.

$$E[Y_1^C - Y_0^C | T = 0] = E[Y_1^C - Y_0^C | T = 1] \quad (17)$$

The basic difference-in-differences model for estimating the effect of offering business management to the treatment food vendors is:

$$y_i = \beta_0 + \beta_1 Treat_i + \beta_2 Time_i + \beta_3 (Treat_i * Time_i) + \beta_{ki} X_{ki} + \varepsilon_i \quad (18)$$

Where:

β_0 = constant term

β_1 = treatment group specific effect (to account for average permanent differences between treatment and control group groups)

β_2 = time trend common to control and treatment groups

β_3 = true effect of treatment

ε_i = random, unobserved error term

$Time_i$ = time dimension

$Treat_i$ = treatment; 1 for treatment group and 0 for control group

β_{ki} = coefficients of covariates of vendor and business characteristics

X_{ki} = covariates of vendor and business characteristics

To obtain a good estimator, an unbiased estimator, $E[\beta_3`] = \beta_3$. For this to be correct and the interpretation correctly done, the following assumptions should hold:

1. The outcome model should be correctly specified
2. That is, the error term is uncorrelated with the other variables in the equation:

$Cov(\varepsilon_i, Treat_i) = 0$

$Cov(\varepsilon_i, Time) = 0$

$Cov(\varepsilon_i, Treat_i * Time) = 0$

The second assumption referred to as the *parallel-trend* assumption, should hold. It implies that unobserved characteristics affecting programme participation do not vary over time with treatment status. The above estimation is based on the assumption of time-invariant linear selection effects, so that differencing the differences between treatment and control groups eliminates the bias (Heckman et al., 1998). That is, vendors that will not be exposed to the treatment (the firms that are not going to be trained), will produce the same impact as the vendors who will be exposed to the treatment, had they not been treated (Venetoklis, 2002).

Under the above conditions, the expected values of the average outcomes can be determined from equation 18 above.

$$E[\bar{Y}_{0}^{T}] = \beta_0 + \beta_1$$

$$E[\bar{Y}_{1}^{T}] = \beta_0 + \beta_1 + \beta_2 + \beta_3 \quad (19)$$

$$E[\bar{Y}_{0}^{C}] = \beta_0$$

$$E[\bar{Y}_{1}^{C}] = \beta_0 + \beta_2$$

The difference in difference estimator (DiD) will be the difference in average outcome in the treatment group before and after the treatment *minus* the difference in average outcome in the control group before and after treatment. The difference-in-differences (DiD) estimator calculates average treatment effect by forming simple averages over the treatment and control groups between the pre-treatment period, 0, and post-treatment period, 1, that is changes in the outcome variables, $Y_{i,}$ for treated food vendors are compared with corresponding changes for non-treated individuals (Caliendo and Hujer, 2005; Heckman et al., 1998).

$$DiD = (E[\bar{Y}_{1}^{T}] - E[\bar{Y}_{0}^{T}]) - (E[\bar{Y}_{1}^{C}] - E[\bar{Y}_{0}^{C}]) \quad (20)$$

Substituting the parameters in equation (2) into equation (3),

$$= [(\beta_0 + \beta_1 + \beta_2 + \beta_3) - (\beta_0 + \beta_1)] - (\beta_0 + \beta_2 - \beta_0)$$

$$= (\beta_2 + \beta_3) - \beta_2$$

$$DiD = \beta_3 \quad (21)$$

3.9.7.4. Instrumental Variables Analysis

The above estimate (in equation 14) corresponds to intention to treat (ITT) estimate of the business management training which according to Berge et al. (2011) allows for better and cleaner interpretation of results. However, since not all the invited vendors from the treatment group actually attended the training, the above ITT estimates will not give a true picture of the effect of the programme (De Mel et al., 2012 and Berge et al., 2011). In other words, although assignment to the treatment group is random and ignorable, compliance within treatment group is not perfect such that actual participation or receipt of the treatment is non-ignorable (Angrist et al., 1996). Under such circumstances the true treatment effect would be attenuated by the vendors who did not participate in the training.

In order to address the above problem, the study employs the instrumental variable analysis to estimate the average treatment effect on the treated by instrumenting random assignment to treatment group (treatment status) on training attendance status (participation).

Let Y_i be the observed outcome (business practices or results) for vendor *i*. Also let D_i be the observed treatment (participation in training) and Z_i be observed treatment status. In this instance a standard dummy endogenous variables model for this problem would be given by:

$$Y_i = \beta_0 + \beta_1 D_i + \beta_{ki} X_{ki} + \varepsilon_i \quad (22)$$

$$D_i^* = \alpha_0 + \alpha_1 Z_i + \alpha_{ki} X_{ki} + \nu_i \quad (23)$$

and

$$Di = \begin{cases} 1 \text{ if } D_i^* > 0, \\ 0 \text{ if } D_i^* \leq 0 \end{cases} \quad (24)$$

where the coefficient β_1 denotes the causal effect of participation, D, on the outcome variables, Y. The underlying assumption for the latent index formulation containing D_i^* is that a decision to participate in the training is contingent on the expected utility of participating and not participating (Angrist et al., 1996).

Two assumptions should hold for correct estimation of β_1. Firstly, the instrumental variable, Z_i, should be uncorrelated with the disturbance terms ε_i and ν_i.

$$E[Z_i \cdot \varepsilon_i] = 0, \qquad E[Z_i \cdot \nu_i] = 0 \quad (25)$$

Secondly, the covariance between the treatment variable, D_i and the random assignment, Z_i, is not equal to zero. This implies that,

$$\text{cov}(D_i, Z_i) \neq 0 \quad (26)$$

If the instrumental variable, Z_i, is truly uncorrelated with the disturbance term as in equation 25, then any effect of Z on Y can only be through D since Z is not contained in equation 22. In other words, the instrument does not directly affect the outcome variable except through D (ibid).

3.9.8. Estimation of treatment effects of business interventions

To estimate effects of business interventions; business management training alone as well as both business management and street food vendor organization training on vendors' practices of standard managerial principles that were taught during the course of the study and business performance, intent to treat (ITT) estimates were computed. ITT estimates were obtained by comparing practices and performance of vendors who were randomly assigned to treatment 1 with those in the control group (ITT estimates for only business management training) and treatment 2 and control (to obtain combined effects of both business management and street food vendor organization

training).

ITT estimates were computed for each of the three business practices; business planning, financial management and record management, as well the overall business practice index (obtained by summing the scores for each of the three practices). Business planning, financial management and record management have three (3), eleven (11) and seven (7) specific practices respectively as shown in appendix I. In order to avoid any bias in the overall business practices due to the differences in the weight of these three practices, their scores were normalised and held between zero (0) and one (1). Also, estimates representing effects of treatment interventions on business results; gross margin ratio, average customers served per day and average sales per customer were computed as described above.

Each of the columns in the tables showing results of the effects of the interventions on business practices and performance represents a regression taking the form:

$$y_i = \beta_0 + \beta_1 Treat_i + \beta_2 Time_i + \beta_3 (Treat_i * Time_i) + \sum \beta_{ki} X_{ki} + \varepsilon_i \qquad (27)$$

Where y_i is the dependent variable for a particular regression (i.e. either the business practice indices or business performance indicators already explained under section 3.9.3). $Treat_i$ is an indicator for being assigned to the a treatment group (either T1 or T2), β_3 is an intent to treat (ITT) effect, β_0 is the constant term, β_1 is treatment group specific effect (to account for average permanent differences between treatment and control group groups), β_2 time trend common to control and treatment groups, $Time_i$ represents time dimension. The analysis also controls for vendor and business characteristics with X_{ki} representing covariates of vendor and business characteristics whilst β_{ki} are coefficients of covariates of vendor and business characteristics.

However, since not all the invited vendors from the treatment group actually attended the training, the above ITT estimates will not give a true picture of the effect of the programme (De Mel et al., 2012 and Berge et al., 2011). In other words, although assignment to the treatment group is random and ignorable, compliance within

treatment group is not perfect such that actual participation or receipt of the treatment is non-ignorable (Angrist et al., 1996). Under such circumstances the true treatment effects would be attenuated by the vendors who did not participate in the training.

In order to address the above problem, the study employed the instrumental variable analysis to estimate the Average Treatment Effect on the Treated (ATET) by instrumenting random assignment to treatment group (treatment status) on training attendance status (participation).

The study instrumented completing at least 75-80% of the course by being assigned to the treatment group to estimate Average Treatment Effect on the Treated (ATET).

$$P_i = \alpha + \gamma Z_i + \delta_i X_i + u_i$$

(28)

$$Y_i = \alpha + \beta P_i + \gamma_i X_i + \varepsilon_i$$

Where:

Z = instrument (1 = treatment, random assignment to receive intervention; 0 = control)

P = participation (participated in the training; 0 = otherwise)

X_i = covariates of vendor and business characteristics u_i and

ε_i are error terms in the respective equations

3.9.9. Challenges in Impact Evaluation/Assessment during Field Experiment The validity and reliability of any impact evaluation study are generally affected by several factors. These challenges according to Mckenzie and Woodruff (2013) include power, timing of measurement, attrition, and measurement procedure.

a. Power of the study

The power of a statistical test is its relative ability to accurately measure what it sets out to measure. That is, its ability to accept or reject the study hypothesis accordingly. In other words, if the hypothesis is accepted when it ought to be rejected, the test is said to lack power and vice versa. Some factors that affect the power of a measure or study are the sample size, and the degree of heterogeneity of the sample. The more different the firms are, the harder it is to detect changes in their average outcomes arising from treatment (McKenzie and Woodruff, 2013). The current study addressed these limitations by focusing on SMEs within the same business, street food vending. In addition, the sample size of 401 vendors is fairly large compared to previous studies.

For instance, studies by (Mano et al. 2012 and Sonobe et al., 2011) had sample size of 113, and 161 respectively. Another factor that affects the power is the level of allocation of intervention/treatment. The power is high when treatment is administered at an

individual level than at a group level. In view of this, the study's intervention was administered at the level of individual street food vendors.

b. Timing of Measurement of Effects

Evidence from empirical studies by (Woolcock, 2009 and De Mel et al., 2012) suggests that there is a significant difference in the short-term and long-term impacts of many policy programmes. In view of this, it is difficult for experimental researchers to determine accurately how much time to allow after the implementation of treatment/intervention (McKenzie and Woodruff, 2013). Moreover, the magnitude of the impact may fluctuate with time making it difficult to confidently conclude in this regard. Empirical evidence suggests that impact assessments have been conducted between 4 and 31 months after intervention (McKenzie and Woodruff, 2013). Also, whilst studies such as (Mano et al., 2012 and Fields et al., 2010 and Drexler et al., 2012) have conducted single round of follow-up 12, 4 and 12 months respectively after intervention, others such as (Berge et al., 2011 and De Mel et al., 2012) have conducted multiple rounds of follow-ups. These multiple follow-up studies range from 4/5 months after intervention to 29-31 months. Although the impact of training on business outcomes such as business survival and profit may take some time to be realized, it is possible for treated firms to practice some of the training content shortly after receiving the intervention. Moreover, some firms may revert to old practices time. It is therefore possible to miss these short-term changes when impact assessment is limited to medium to long-term (McKenzie and Woodruff, 2013). Hence, impact evaluation studies should ideally cover short- and long-term in order to identify the trajectory of effects (ibid).

c. Respondent attrition

The degree of respondent attrition can also be a major source of challenge when measuring the impact of policies. Attrition resulting from collapse of businesses, relocation or respondents just refusing to continue the study disrupts the composition and size of the sample (McKenzie and Woodruff, 2013). While studies such as (Fields et al., 2010 and de Mel et al., 2012) have recorded low levels of attrition of 5.3% and 6% respectively, Karlan and Valdivia (2011) and Calderon et al. (2012) reported attrition rates and 24% and 28% respectively. In order to address this limitation, the current study limited itself to street food enterprises operating from permanent structures. In addition, these enterprises should have been in operation for a minimum of 3 years.

d. Measurement difficulties and unreliable data

A major measurement challenge during impact evaluation is the ability to obtain accurate and realistic performance data from treated individuals or groups. The difficulty arises from the fact that most small-scale entrepreneurs do not keep record of their activities, or are reluctant to disclose certain information (especially income and profit) or respondents may 'fake' doing what the programme asked them to do even when that is not the case (Drexler et al., 2012; De Mel et al., 2009; Giné and Mansuri 2011). For instance, Drexler et al. (2012) reported that trained individuals may indicate the performance of certain activities simply because these activities were taught during the training programme. In addition, De Mel et al. (2009) compared the accuracy SME profits obtained directly from business owners and those computed from revenue minus cost and found that firms may deliberately underreport revenue by almost 30%.

CHAPTER FOUR

4.0 RESPONDENTS CHARACTERISTICS AND VENDORS PERCEPTION OF BUSINESS CONSTRAINTS

4.1. Introduction

This chapter presents descriptive characteristics of sampled vendors and enterprises and vendors' assessment of factors that they perceive to constrain growth of their street food enterprises. Three different samples are described; the pooled sample of five hundred and sixteen (516) vending enterprises, a random sub-sample of two hundred and sixtythree (263) street food enterprises used for the analysis of the effect of business constraints on the growth of street food enterprises. This sample comprises invited vendors who did not take up the training and vendors in the control group who were part of both baseline and follow-up surveys. Both categories of vendors made it possible to collect both baseline and follow-up data that have not been influenced by any form of intervention. This in turn made it possible to attribute any growth or otherwise to the effect of business constraints. Lastly, descriptive characteristics of three hundred and fourteen (314) invited vendors

(both from treatment 1 and 2) used for the analysis of determinants of participation are also presented. Mean constraint indices based on vendors' perceived constraints to growth as well as students' t-test of equality to verify randomization process for the training experiment are also presented.

4.2. Socio-economic Characteristics of Respondents and Sampled Enterprises

4.2.1 Sex of respondents

Table 4.1 it shows that majority of vendors (469 representing 90.9%) in the pooled sample are female whilst the remaining 47 (representing 9.1%) are male. In Tamale, almost all vendors (99.4%) were female. This corroborates the findings of other studies (Mensah et al., 2002; FAO, 2012 and Otoo et al., 2011) which concluded that street food vending is largely dominated by women.

Table 4.1: Distribution of respondents by sex

Sex	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
Male	47	9.1	45	21.7	2	0.6
Female	469	90.9	161	77.8	307	99.4
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.2.2 Age of respondents

Respondents' age are categorized and presented in Table 4.2. Respondents in the 30-60 age category represents the dominant group in the pooled sample (76.4%) and both two study areas (65.2% and 83.8% for Kumasi and Tamale respectively). Only few respondents beyond 60 years were engaged in street food vending. Findings from Levesque and Minniti (2006), Watkins et al. (2003) and Martey et al. (2013) indicate that there is a significant positive relationship between age of the entrepreneur and business performance. Whereas Martey et al. (2013) attribute this to the lack of innovativeness on the part of older entrepreneurs, Levesque and Minniti (2006) argue that younger business owners are more motivated, energetic, committed and are well able to take higher risks that older owners. Table 4.2: Distribution of respondents by age

Age (years)	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
≤30	115	22.3	67	32.4	48	15.5
31-60	394	76.4	135	65.2	259	83.8
>60	7	1.4	5	2.4	2	0.6

Source: Estimated from field data, 2013.

4.2.3 Educational level of respondents

Table 4.3 presents the distribution of respondents by their level of formal education attained. More than one-third (36.6%) of respondents in the pooled sample had never had any formal education. The proportion of vendors with no formal education is higher (53.7%) in Tamale compared to 11.6% in Kumasi. Also, 35 respondents (representing

6.8%) had tertiary education with this figure principally driven by respondents from Kumasi. Generally, respondents from Kumasi were more educated than their counterparts from Tamale. The educational background of the vendor may affect business performance. For instance, both Martey et al. (2013) and Aworemi et al. (2010) have found formal educational background of an entrepreneur to positively affect business performance. Having formal educations facilitates one's appreciation of innovative business management concepts, undertake effective planning and take wellinformed decisions that will lead to an improved business performance.

Table 4.3: Distribution of respondents by educational level

Educational level (Formal)	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
None	190	36.6	24	11.6	166	53.7
Primary	76	14.7	20	9.7	56	18.1
JSS/Middle School	155	30.0	88	42.5	67	21.7
SSS/SHS	46	8.9	29	14.0	17	5.5
Technical/Vocational	14	2.7	13	6.3	1	0.3
Tertiary	35	6.8	33	15.9	2	0.6
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.2.4 Marital Status of respondents

Table 4.4 provides the distribution of respondents according to marital status. Eighty percent (80.0%) of vendors in the pooled sample were married while 60.9% and 92.9% of respondents were married in Kumasi and Tamale respectively. It can also be seen that most of the single (never married) respondents were from Kumasi. According to Martey et al. (2013), the marital status of the owner of a small business has negative effect on the performance of the business. This, they attributed to the high expenditure incurred by married entrepreneurs to take care of spouses, although the latter can also serve as a source of labour for the business (ibid).

Table 4.4: Distribution of respondents by marital status

Marital Status	**Pooled sample**		**Kumasi**		**Tamale**	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**
Single (never married)	68	13	55	26.6	13	4.2
Married	413	80.0	126	60.9	287	92.9
Separated	8	1.6	6	2.9	2	0.6
Divorced	16	3.1	14	6.8	2	0.6
Widowed	11	2.1	6	2.9	5	1.6
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.2.5 Religious affiliation of respondents

Religious affiliation of respondents is presented in Table 4.5. It can be seen that majority of vendors (92.3%) in Kumasi profess the Christian faith while 302 out of 309 vendors (representing 97.7%) in Tamale are Muslims. This is consistent with figures of

2010 population and housing census where Christianity was the dominant religious faith (71.2%) in Ghana except in the Northern region of Ghana where Islam dominates with

60.0%.

Table 4.5: Distribution of respondents by religious affiliation

Religion	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
Christianity	196	38.0	191	92.3	6	1.9
Islam	317	61.4	14	6.8	302	97.7
Traditional	1	0.2	1	0.5	0	0.0
Other	2	0.4	1	0.5	1	0.3
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.2.6 Ethnicity of respondents

In terms of ethnic distribution of respondents, table 4.6 shows that majority of respondents (81.6%) from Kumasi were Akans while almost all (99%) respondents from Tamale are Northeners. This is consistent with the ethnic profile of the two regions given under the description of the study areas in section 3.1 above.

Table 4.6: Distribution of respondents by ethnic background

Ethnicity	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
Akan	171	33.1	169	81.6	2	0.6
Ewe	7	1.4	6	2.9	1	0.3
Ga	2	0.4	2	1.0	0	0.0
Northerner	326	63.2	20	9.7	306	99.0
Other	10	1.9	10	4.8	0	0.0
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.2.7 Food Vending Experience of respondents

Table 4.7 shows the food vending experience (measured by the number of years of operating a food vending enterprise) of respondents. Most venders (65.5%) were found to be in their first decade of operating a food vending enterprise. This is similar for both Kumasi and Tamale. It can also be seen that a considerable proportion of vendors had been in the trade for a decade with one vendor from Kumasi operating for over 30 years (specifically 45 years). Martey et al. (2013) found a significant positive relationship

between experience and business profit. According to Radipere and Dhliwayo (2014), older businesses usually have a strong network of business partners and customers and may also have better relationship with financial institutions. These factors may help older business operate better and hence improve performance.

Table 4.7: Distribution of respondents by food vending experience

Vending Experience	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
3 - 10 years	338	65.5	134	64.7	204	66.0
10-20 years	158	30.6	63	30.4	95	30.7
21-30 years	19	3.7	9	4.3	10	3.2
Above 30 years	1	0.2	1	0.5	0	0.0
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.2.8 Size of Enterprise of respondents

Table 4.8 presents the distribution of sampled enterprises by their size. Total workforce (number of employees in addition to the owner/manager) was used as a measure of size of enterprise. Majority (57.3%) of street food enterprises in the pooled sample had a total workforce of less than 5 (1 – 4) signifying the dominance of micro enterprises in the street food trade. This is so in both cities with the percentage of micro enterprises in Tamale being even higher (61.2%). A total of 33.9% of the pooled sample also operated business having a total workforce of between 11 and 20.

Table 4.8: Distribution of respondents by size of food vending enterprise

Size of Enterprise (Number of workers)	Pooled sample		Kumasi		Tamale	
	Freq.	%	Freq.	%	Freq.	%
2 – 4	296	57.3	107	51.7	189	61.2
5 – 10	175	33.9	74	35.7	101	32.7
11 – 20	37	7.2	21	10.1	16	5.2

21 – 30	5	1.0	5	2.4	0	0.0
31 – 40	2	0.4	0	0.0	2	0.6
41 – 50	1	0.2	0	0.0	1	0.3
Total	**516**	**100**	**207**	**100**	**309**	**100**

Source: Estimated from field data, 2013.

4.3. Characteristics of Respondents and Enterprises Used for Analysis of Business Constraints (Sub-sample of 263 enterprises)

Table 4.9 shows the characteristics of vendors and enterprise that were part of the control group and vendors who were invited for the training but failed attend or take up the training. This is because, there two groups were not affected by any of policy interventions administered in this study. However, vendors who could not be interviewed during the follow-up survey were excluded since there will be no follow-up data to enable the study determine whether there was any growth or not. This subsample enables the study to have two rounds of data that have not been affected by the training intervention. From the table majority of vendors in the total sample (238 representing 90.49%) are female whilst the remaining 9.51% are male. In Tamale, all vendors, except one, were females. It is also interesting to note that 23 out of 25 male respondents were in the sale of *check-check* (*fried rice/jollof rice*).

A typical food vendor is young and married with an average of almost six years of formal education with about 98 (representing 37.3%) having no formal education at all. Also, a typical street food enterprise has a total workforce of 5 (with a range between 1 and 41) and has been in operation for 9 years (with the most experienced vendor being in business for 45 years). This implies that, the design and implementation should be done in such a

way that the intervention package would be understood and appreciated by vendors who have little or no formal education.

In financial terms, it was found that a typical vendor recorded a daily sales revenue of approximately GH¢ 347, gross margin of almost GH¢ 83 and a gross margin ratio of almost 18%. The table also shows that vendors from Kumasi had higher daily sales revenue and gross margin (approximately GH¢ 401 and GH¢ 103 respectively) relative to vendors from Tamale (approximately GH¢ 308 and GH¢ 70 respectively). However, the gross margin ratio of the latter is higher than that of the former. Several factors may account for this. Vendors operating in Tamale may either be more cost effective and hence able to retain more of their sales revenue as profit or the price of food may be higher in Tamale than Kumasi where competition among street food vendors is very high. This latter point is corroborated by the relatively higher average sales per customer in Tamale as shown in the last row of table 4.9.

Table 4.9: Descriptive characteristics of sub-sample used to analyze business constraints

Variable	**Pooled sample (N = 263)**	**Kumasi (n = 110)**	**Tamale (n = 153)**
Categorical variables	Percent	Percent	Percent
Sex of owner/manager:			
Female	90.49	78.18 21.82	99.35
Male	9.51		0.65
Principal food sold:			
Fufu	20.15 21.29	49.09	-
Check-check	32.70	50.91	-
Waakye	25.86	-	56.21
Tuo zaafi		-	43.79
Location:			
Kumasi	58.17	100.00	-
Tamale	41.83	-	100.00
Marital status:			

Single (never married) Married Separated Divorced Widowed	12.93 78.71 1.90 3.42 3.04		27.27 59.09 2.73 7.27 3.64		2.61 92.81 1.31 0.66 2.61	
Continuous variables:	**Mean**	**SD***	**Mean**	**SD***	**Mean**	**SD***
Age of owner/manager (years)	38.53	9.05	37.72	10.96	39.12	7.36
Educational level (years)	5.87	4.98	8.89	4.03	3.69	4.45
Size (total workforce)	5.22	4.68	5.54	4.73	10.35	5.53
Experience (years of operation)	9.50	6.25	8.32	6.98	4.99	4.66
Daily gross revenue (sales) (GH¢)	346.75	289.79	401.18	342.38	307.62	238.75
Daily number of customers served	129.47	109.72	181.82	137.59	91.83	61.36
Daily gross margin (GH¢)	83.91	79.08	103.21	92.35	70.04	64.79
Daily gross margin ratio (%)	18.11	9.44	17.45	8.97	18.59	9.77
Daily average sales per person (GH¢)	3.17	1.59	3.30	1.95	3.06	1.27

Source: Estimated from field data, 2014. ; *******SD = standard deviation

4.4. Characteristics of Respondents and Enterprises (Sub-sample of 314 vendors Used to Estimate Determinants of Participation in Training)

From Table 4.10 below, the proportion of females receiving training invitation (91.4%) is consistent with the dominance of females in the street food trade (Mensah et al., 2002; and Otoo et al., 2011). In Tamale, the dominance of female is almost 100%. Street food vending is the principal and the only economic activity most of them (82.8%) are engaged in. Only 17.2% of the pooled sample was involved in any secondary economic activity with the figure being relatively higher in Tamale.

The average years of formal education is approximately 6 for the pooled sample. However, there exist a remarkable disparity between Kumasi (approximately 9 years) and Tamale (approximately 4 years). In terms of training experience, only 22.29% of the invited vendors had had any form of training prior to receiving the training invitation for the current study. Virtually none of these training had business management as its focus (mostly; regulation, hygiene and food safety trainings are offered). A typical vendor

invited for the training was 39 years old, had a total firm size of almost 6 workers and had been involved in street food vending for about 8 years.

In financial terms, a typical vendor invited to the training makes a daily sales revenue of approximately GH¢ 364, profit of almost GH¢ 87 and a profit margin of almost 18%. The table also shows that whereas invited vendors from Kumasi had higher daily sales revenue (44.3% higher) and profit (67.5%), profit margins are higher in Tamale. This is an indication that vendors operating in Tamale are more cost effective and hence able to retain more of their sales revenue as profit.

Table 4.10: Descriptive characteristics of invited vendors

Variable	**Pooled sample (N=314)**		**Kumasi (n=112)**		**Tamale (n=202)**	
Categorical variables:	Percent		Percent		Percent	
Sex of owner/manager						
Female	91.4		77.7		99.0	
Male	8.6		22.3		1.0	
Involvement in other economic activity						
Yes	17.2		12.5		19.8	
No	82.8		87.5		80.2	
Location						
Kumasi	35.7		100.0		-	
Tamale	64.3		-		100.0	
Previous training experience						
Yes	22.3		32.1		83.2	
No	77.7		67.9		16.8	
	Pooled sample		**Kumasi**		**Tamale**	
Continuous variables:	**Mean**	**SD***	**Mean**	**SD***	**Mean**	**SD***

Age of owner/manager (years)	39.1	9.2 5.0	37.1	10.6	39.1	7.4
Educational level (years)	5.8	5.0	9.2	3.9 5.0	3.9	4.5
Size (total workforce)	5.6	1.6	5.2	1.3	5.2	4.7
Total family member involved in the business	1.7	5.8	1.1	6.3	2.0	1.6
Experience (years of operation)	8.5	320.7	8.4	415.6	8.5	5.6
Average daily sales (GH¢)	364.5	9.5	455.1	10.9	315.4	240.8
Gross margin ratio (%)	17.6		16.8		18.1	8.6

Source: Estimated from field data, 2014. ; ** SD = Standard deviation (US$ 1.00 = GH¢ 2.03 as at June 30, 2013; US$ 1.00 = GH¢ 3.19 as at Nov 22, 2014)*

4.5. Distribution of treatment vendors by participation in training programme Table 4.11 presents a description of street food vendors based on the number invited to attend the training programme, the number who actually participated in the programme together with the percentage of participation. Data was also disaggregated by the city of business and the food type. The table shows that participation rates were higher for vendors operating in Tamale, as well as those involved in the sale of *tuo zaafi*.

Table 4.11: Distribution of street food vendors by participation

	Number Invited	**Number who participated**	**% participation**
Busi ness location (city)			
Tamale	204	106	51.96
Kumasi	112	35	31.25
Food type			
Fufu	51	13	25.49
Check check	63	22	34.92
Waakye	123	61	49.59
Tuo zaafi	77	45	58.44
Pooled sample	**314**	**141**	**44.90**

Source: Estimated from field data, 2014.

4.6. Self-reported Constraints to Operations of Street Food Enterprises Table 4.12 presents the mean score for the 23 potential constraints that were identified through literature and the reconnaissance survey as described above.

According to Table 4.12, only 5 out of the 23 constraints were considered by the pooled sample to be binding to the growth of street food enterprises. *High cost of production* was ranked (by the pooled sample) as being the most binding of all the constraints with a mean score of 3.70. The high cost of production results from high cost of raw materials and other inputs, and the multiplicity of taxes imposed on vendors. This result is consistent with findings of Martey et al. (2013) in their study of constraints to small scale enterprises in Accra Metropolitan area of Ghana. Similarly, Association of Ghana Industries (AGI) in its report for the 4th quarter of 2012 also found high cost of raw materials as one of the top four constraints militating against the growth of Ghanaian enterprises. Lack of access to credit, input price variability, inadequate knowledge in business management, and lack of access to reliable electricity supply were ranked as the second, third, fourth and fifth most critical constraints respectively. A joint study by US government and Government of Ghana as well as Abor and Biekpe (2006) in their study of constraints to Ghanaian firms have both reported limited access to credit as constraining the growth SMEs in Ghana.

Table 4.12: Vendors' Perceived Constraints to Growth of Street Food Enterprises in Ghana (ordinal scores)

Business constraints	Mean score of pooled sample (n = 263)	**Mean constraint by city**		**Mean constraints by food type**			
		Kumasi (n = 110)	Tamale (n = 153)	Fufu Vendors (n = 53)	Checkcheck Vendors (n = 56)	Waakye Vendors (n = 86)	TZ Vendors (n = 68)
High cost of production *(HCP)*	**3.70[1]**	**3.72[2]**	**3.68[2]**	**3.79[1]**	**3.63[5]**	**3.67[2]**	**3.69[2]**
Lack of access to credit *(LC)*	**3.50[2]**	**3.37[4]**	**3.59[3]**	**3.04[5]**	**3.73[4]**	**3.58[3]**	**3.56[3]**
Input price variability *(PI)*	**3.46[3]**	**3.08[5]**	**3.73[1]**	**3.34[3]**	**2.86[1]**	**3.72[1]**	**3.72[1]**
Inadequate knowledge in business management *(LBizK)*	**3.34[4]**	**3.78[1]**	**3.03[4]**	**3.75[2]**	**3.79[2]**	**3.12[4]**	2.94
Lack of access to reliable power *(LP)*	**3.14[5]**	**3.55[3]**	2.84	**3.34[3]**	**3.75[3]**	2.62	**3.13[5]**
Competition from other vendors and formal restaurants **(** *Comp***)**	2.87	2.83	2.90[5]	2.83	2.84	2.99[5]	2.76
Inconsistent and unreliable supply of raw materials *(IS)*	2.84	2.82	2.86	**3.10[4]**	2.63	2.91	2.76
High/excessive demands from customers *(C-D)*	2.70	2.43	2.90[5]	2.60	2.32	2.99[5]	2.75
Inadequate/lack of skilled workers *(LSW)*	2.63	2.75	2.55	**3.10[4]**	2.46	2.50	2.59
Lack of access to water *(LW)*	2.57	2.13	2.89	2.09	2.16	2.66	**3.16[4]**
Lack of access to skills training *programmes (LTP)*	2.54	2.53	2.55	2.51	2.57	2.50	2.59
High tax rates *(HT)*	2.29	2.64	2.05	2.40	2.88	2.19	1.87
Limited access to improved technology *(LT)*	2.22	2.71	1.94	2.77	2.68	2.09	1.74
Complex loan acquisition procedure *(CLP)*	2.40	2.10	2.32	1.98	2.18	2.37	2.24
Numerous personal/family problems (*FP*)	2.15	2.06	2.21	2.23	1.91	2.23	2.18
Weak bargaining power due to lack cooperation of vendors *(WB)*	2.12	2.45	1.88	2.55	2.39	1.84	1.91
Lack of access to safe and legal working place (*LSP)*	2.10	2.36	1.91	2.13	2.55	1.93	1.91
Harassment/Extortion by Local Government Authorities *(Ha)*	2.01	2.33	1.78	2.19	2.46	1.57	2.04
Lack of proper storage equipment (fridge and freezer) *(LSE)*	1.90	2.10	1.75	2.34	1.89	1.76	1.74
Customers not willing to pay appropriate price *(LPrice)*	1.82	2.29	1.48	2.28	2.30	1.58	1.35
Theft by Employees *(ET)*	1.78	2.27	1.43	2.42	2.13	1.41	1.49

Bureaucratic nature of certification process *(CB)*	1.65	2.25	1.22	2.64	1.89	1.26	1.18
Lack of access to good roads *(LR)*	1.30	1.44	2.21	1.38	1.91	1.28	1.10

Source: Estimated from field data, 2013. ; *Ranking scale: (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree) that a factor is a constraint*

The result on input price variability is consistent with earlier works by (Martey et al., 2013; Quader and Abdullah, 2008; and Skinner, 2005). Input price variability makes planning of business operations difficult. A picture reflective of this concern is captured in the following complaint by a *waakye* vendor from Tamale: "*you are no longer sure of which figures to put on your budget for input purchase when going to the market. They keep increasing the prices of raw materials almost every day. It makes it even difficult for us to plan and even price our food appropriately*".

Lack/limited access to reliable electricity power for business operations was considered the fourth most binding constraint. This is especially so for check-check vendors whose peak business time is at night. Most respondents who vend at night indicated that poor supply of power by the national grid has a negative impact on their customer base as well their own security. Other vendors who aimed at maintaining their customer base through the provision of alternative power sources such as generators, rechargeable lamps did so at an extra cost arising from purchase of power generators and cost of

fuelling.

Beyond these five constraints which were unanimously agreed by all categories of vendors to be binding, inconsistent and unreliable supply of raw materials, inadequate/lack of skilled workers also had mean constraint indices beyond 3 for *fufu* whilst the index for lack of access to water was also binding for vendors of *tuo zaafi*.

4.7. Results of Factor Analysis

Factor analysis was employed to isolate the underlying (common) factors that explain the correlations among the identified potential constraints as well as to determine the extent to which each original constraint depends on each of the common factors. The result of the factor analysis also aimed at grouping the identified potential constraints into related groups so as to reduce the number of dimensions (constraints) that entered the OLS regression models.

In order to be certain that factor analysis is an appropriate tool for handling the data from a sample of 263 owners/managers of street food enterprises, the Kaiser-Mayer Olkin (KMO) test was used to determine the extent to which the variation in the constraints are explained by the common factors. The communality of the performance index ranges between 0 (indicating that the common factors explain none of the variance) and 1 (indicating all the variance is explained by the common factors).

Generally, a KMO score of between 0.5 and 1.0 is considered acceptable (Malhotra, 2007). Thus, a KMO value of 0.744 is a good indication of sample adequacy and a confirmation of the appropriateness of factor analysis. Also, the communalities for the potential constraints ranged between 0.525 and 0.721 with an average of 0.60. This implies that on the average 60% of the variation in each constraint can be explained by the common factors.

Table 4.13 below also shows the Eigen values, the percentage of variance and the cumulative percentage variance accounted for by the extracted factors. Eight out of the

twenty-three constraints had Eigen values exceeding 1.0. The percentage of variance accounted for by the eight factors ranges between 4.4% and 15.5% and the eight factors together account for 60.04% of the overall variance.

Table 4.13: Results of factor analysis

Factor	**Mean Score of Factors**		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Eigenvalue			3.546	2.471	1.860	1.321	1.310	1.150	1.086	1.066
% of Variance			15.418	10.744	8.085	5.741	5.697	5.001	4.720	4.635
Cumulative %			15.418	26.162	34.247	39.988	45.685	50.686	55.407	60.042
Potential Constraints		**Communalities**								
Lack of access to skills training programmes	Inadequate Managerial Skills **(2.62)**	.691	**.805**	-.070	.006	.127	.196	.003	.061	.077
Inadequate/lack of skilled workers		.645	**.753**	-.199	.049	-.009	.135	.237	.118	.157
Limited access to improved technology		.620	**.744**	.076	.218	.038	.321	.176	-.024	.029
Lack of knowledge on business management		.567	**.641**	-.071	.328	.208	.015	.221	.332	.110
Weak bargaining power due to lack of cooperation of vendors		.563	**.509**	-.007	.074	.345	.090	-.017	-.155	.393
Inconsistent and unreliable supply of raw materials		.615	**.747**	-.114	-.011	-.296	-.067	.036	-.111	.153
High cost of production	Financial constraints **(3.24)**	.550	-.007	**.694**	.156	-.240	-.034	-.077	-.078	-.028
Constant fluctuations/change in input prices		.593	-.034	**.646**	.167	.088	.026	.038	.155	-.167
High tax rates		.538	.383	**.630**	-.042	.306	.199	.066	.168	-.127
Lack of credit (start-up and expansion)		.569	-.001	**.551**	-.234	.010	-.244	.342	-.170	.286
Lack of access to water	Poor Supply of Utility Services **(2.85)**	.550	-.272	.058	-.196	**.587**	.088	-.199	.192	.155
Lack of access to reliable power		.554	.072	.071	.360	**.608**	.037	.310	.048	-.040
Theft by employees	Theft by employees **(1.78)**	.537	.017	.037	**.709**	.013	.047	.097	.050	.029
Customers not willing to pay appropriate price	Complex Customer Relations **(2.26)**	.525	.027	.174	.457	.171	**.540**	-.074	.192	.071
High/excessive demands from customers		.632	.429	-.097	.014	.434	**.582**	-.036	.133	.002
Numerous personal/family problems		.578	.075	.374	.230	-.471	-.023	.269	-.116	.205
Lack of proper storage equipment (fridge and freezer)	High Competition **(2.38)**	.721	.214	-.134	.313	.174	.477	**.529**	-.005	-.061
Competition from other vendors and formal restaurants		.560	.159	-.009	.033	-.021	-.053	**.831**	.054	.088
Complex loan acquisition procedure		.542	.221	.024	.146	-.008	.147	.054	**.751**	.085
Bureaucratic nature of certification process		.601	.172	-.035	-.007	.021	.253	-.017	**.788**	.030

Lack of access to safe and legal working place	Complex Regulatory and Banking Procedure **(1.99)**	.554	.093	.083	.472	.102	-.039	.181	**.681**	.084
Harassment/Extortion by Local Government Authorities		.655	.078	-.032	.075	-.023	.086	.062	**.775**	.096
Lack of access to good roads		.697	.309	.224	-.189	-.444	-.177	.167	.075	.485

Source: Estimated from field data, 2013. ; *Ranking scale: (1=strongly disagree, 2=disagree, 3=neutral, 4 = agree and 5= strongly agree) that a factor is a constraint*

Using a promax oblique method of rotation, the factor loadings in Table 4.13 were obtained. According to Quarder and Abdullah (2008), promax rotation allows

correlation among the factors thus helping to achieve a simple and realistic structure.

According to the results of the rotation, factor 1 has high and positive loadings for constraints such as lack of access to skills training programmes, inadequate/lack of skilled workers, limited access to improved technology, lack of knowledge on business management, inconsistent and unreliable supply of raw materials and weak bargaining power due to lack of cooperation of vendors. All these constraints are related to limited competence of owners/managers and employees to make good decisions based on sound managerial principles. This may result from the fact that most on these vendors are oblivious of the need to do so or are unable to secure the services of business management/advisory consultants, even when the awareness is there. Factor 1 is therefore labelled *'inadequate managerial skills'*. A constraint like 'weak bargaining power due to lack of cooperation among vendors' can indirectly be linked to managerial inadequacies since cooperating and negotiating with even a competitor for mutual benefit is a key skill needed by every manager. Inadequate access to business management skills and improved technology was also found to be critical constraints to growth of street food enterprises in Ghana. Thus, the results of the factor analysis are consistent with the findings in the Table 4.12 above.

High cost of production, constant fluctuations/change in input prices, lack of credit (start-up and expansion), and high tax rates loaded high on factor 2. Factor 2 is therefore labelled *'financial constraints'*. Again, these findings are consistent with the outcome of binding constraints identified above and other studies like Martey et al. (2013) and Abor and

Biekpe (2006) that focused on constraints to SME growth in Ghana. These constraints increase the cost of business operations, affect the planning process of these vendors and subsequently reduce the profit of these enterprises. Factor 3 loaded high on only one constraint, *theft by employees*. Factor 3 is therefore labelled same. Interactions with owners/managers of street food enterprises revealed that a major problem they face is theft and diversion of money and other resources by their workers.

Factor 4 on the other hand has high positive loadings/correlation on/with lack of access to water and lack of access to reliable power (electricity). These two constraints greatly affect the smooth operations of the businesses of vendors and assurance of food safety. In cases where vendors experience acute shortage in the supply of water, observing the required hygiene (through constant washing of utensils and provision of clean water for consumers) is compromised in an attempt to economize the limited water available.

Unreliable power (electricity) affects night operations of vendors. Factor 4 is captioned *'poor supply of utility services'.*

Customers not willing to pay appropriate price, and high/excessive demands from customers also loaded high on factor 5. The factor is accordingly labelled *'complex customer relations'*. Most vendors assert they have difficulties passing on the high cost of production to consumers/customers since doing so will lead to loss of customers.

Competition from other street food vendors and formal restaurants as well as lack of storage equipment such as fridge and freezers were also considered important constraints and loaded high on factor 6 *(high competition and lack of storage equipment*). From vendors' perspective, intense competition especially when it is based on price of food erode the profit margin making growth and long-term sustainability of businesses

difficult. Moreover, lack of freezers and fridges to store perishable inputs and left-over foods makes it difficult to purchase and prepare foods in bulk. Thus, it becomes difficult for these firms to benefit from economies of scale.

Bureaucratic nature of (health) certification process, lack of access to safe and legal working place, and harassment/extortion by local government authorities have high loadings on factor 7. The seventh factor is therefore named *'complex regulatory/banking system'*. The bureaucratic nature of the health certification process according to most of the interviewed vendors makes it difficult, frustrating and unattractive for them to go through the process. Even those who once secured the certification do not always undergo the mandatory yearly renewal for the same reason. Constant eviction of vendors and decongestion exercises undertaken by city authorities coupled with the associated extortion by city guards create problems of vendors since customers are lost when there is a re-location. Factor 8 has low loadings on all the constraints and can therefore be concluded as not explaining any of the constraints.

Based on the results of the factor analysis, the seven isolated common factors were used as explanatory variable in the three OLS regressions in Table 5.1. These factors are inadequate managerial skills, financial constraints, poor supply of utility services, theft by employees, complex customer relations, high competition and complex regulatory and banking procedure.

4.8. Verification of randomization of training experiment

Tables 4.14 to 4.16 present summary statistics describing the baseline characteristics of the study sample by treatment status of vendors together with that of the total sample of each treatment category as a means of verifying the randomization process. Although

baseline data are used, results presented here have limited the analyses to vendors who were interviewed both at the baseline and follow-up periods. However, test of randomization using original baseline sample of 516 shows the three groups to be similar. This decision has been motivated by the fact that analysis of treatment effects will only focus on vendors with both baseline and follow-up data. Thus, it is of little consequence if the original sample from baseline (516) was balanced but the sample that was actually used for the analyses of effects of business interventions was not.

Four categories of characteristics were analyzed; characteristics of vendors, characteristics of businesses, business practices and business results/outcomes. Whilst Tables 4.14 and 4.15 present the results for treatment 1 versus control and treatment 2 versus control respectively, 4.16 compares the two treatment groups. Absolute differences in the mean of treatment and control groups, the standard errors as well as the p-values from t-test of equality are also presented. Given that assignment to treatment and control groups was randomized, the expectation was that vendors in both groups will not be significantly different from each other.

With regards to characteristics of vendors, results show that vendors were very similar in all dimensions. Also, with the exception of firm size (total number of people involved in the business) where both treatment 1 and treatment 2 were both significantly (at 5%) larger than their respective control groups, all other business characteristics were similar. In addition, the percentage of vendors in treatment 2 who were engaged in the vending of *fufu* was slightly more than those in the control group (significant at 10% level). Similar results (insignificant differences) were found for business practices and business performance/outcomes. When the two treatment groups were compared (in Table 4.16), it was found that the baseline characteristics of these groups were similar.

It can therefore be inferred from the above similarities in the control and the two treatment groups that the randomization process was very successful and that any difference between them was purely a matter of chance. Again, any differences in treatment effects that would be found between these vendor categories (treatment 1, treatment 2 and control groups) are as a result of the interventions.

Table 4.14

: Verification of Randomization by Baseline Characteristics (Treatment 1 and Control)

Variables	Pooled Sample (268)		Treatment 1 Group (n=129)		Control Group (n=139)		(C) - (E) (G)	p-value for *t test*
	Mean (A)	(se)* (B)	Mean (C)	(se) * (D)	Mean (E)	(se) * (F)		
Characteristics of vendor								
Sex (% of female vendors)	92.91	(0.02)	93.02	(0.02)	92.81	(0.02)	0.21	0.68
Age of owner/manager (years)	39.63	(0.54)	40.45	(0.86)	38.90	(0.68)	1.55	0.15
Formal education (years)	5.23	(0.31)	5.33	(0.45)	5.17	(0.41)	0.16	0.79
Experience (years involved in street food vending)	8.68	(0.38)	9.34	(0.64)	8.11	(0.44)	1.23	0.11
Business characteristics								
City business is located (% of vendors located in Kumasi)	35.00	(0.03)	34.00	(0.04)	36.0	(0.04)	2.00	0.72
Total number of workforce	5.12	(0.25)	5.68	(0.24)	4.62	(0.44)	1.06	0.03**
Food type								
Fufu (% vending fufu)	17.54	(0.02)	17.00	(0.03)	19.00	(0.03)	2.00	0.46
Check-check (% vending check-check)	17.54	(0.02)	19.00	(0.04)	17.00	(0.03)	2.00	0.61
Waakye (% vending waakye)	37.31	(0.03)	40.00	(0.04)	33.50	(0.04)	6.50	0.17
Tuo zaafi (% vending tuo zaafi)	27.61	(0.03)	24.00	(0.04)	30.50	(0.04)	6.50	0.27
Business Practices								
Overall index for business practice (max = 3)	1.48	(0.05)	1.46	(0.67)	1.49	(0.06)	0.03	0.79
Practicing business planning (max = 1)	0.47	(0.02)	0.46	(0.03)	0.48	(0.03)	0.02	0.61
Practicing financial management (max = 1)	0.40	(0.02)	0.41	(0.02)	0.38	(0.02)	0.03	0.29
Practicing records management (max = 1)	0.26	(0.14)	0.27	(0.02)	0.25	(0.02)	0.02	0.69
Business Results/Outcomes								
Gross margin ratio (%)	18.74	(0.59)	18.61	(0.87)	18.79	(0.80)	0.18	0.88
Daily number of customers served	129	(6.80)	131	(10.15)	127	(9.11)	4.00	0.73
Average sales per person(GHC)	3.50	(0.15)	3.58	(0.22)	3.42	0.20	0.16	0.57

Source: Estimated from field data, 2013. ; **s.e = standard errors; (3) – (5) = absolute differences between the means of the treatment 1 and treatment 2*

Table 4.15

: Verification of Randomization by Baseline Characteristics (Treatment 2 and Control)

Variables	**Pooled Sample (272)**		**Treatment 2 Group (n=133)**		**Control Group (n=139)**		**(C) - (E) (G)**	**p-value for *t test***
	Mean (A)	**(se)* (B)**	**Mean (C)**	**(se) * (D)**	**Mean (E)**	**(se) * (F)**		
Characteristics of vendor								

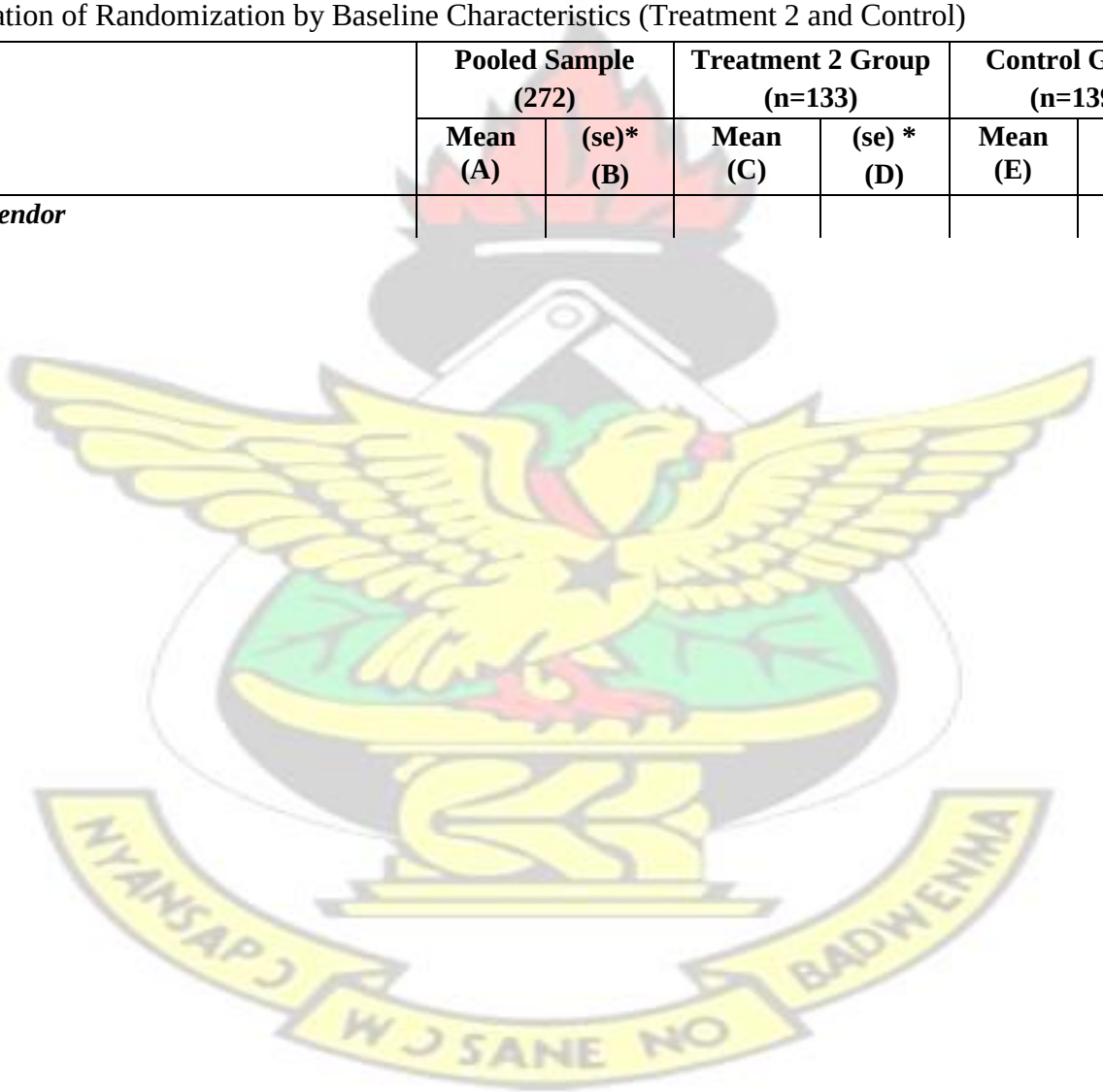

Table 4.16

Sex (% of female vendors)	91.00	(0.02)	91.00	(0.03)	92.00	(0.02)	1.00	0.67
Age of owner/manager (years)	38.83	(0.56)	38.88	(0.85)	38.78	(0.71)	0.10	0.93
Formal education (years)	5.96	(0.30)	6.44	(0.42)	5.48	(0.43)	0.96	0.12
Experience (years involved in street food vending)	8.29	(0.37)	8.22	(0.52)	8.36	(0.53)	0.14	0.85
Business characteristics								
City business is located (% of vendors located in Kumasi)	38.00	(0.03)	38.00	(0.04)	38.00	(0.04)	0.00	0.90
Total number of workforce	5.17	(0.26)	5.73	(0.46)	4.61	(0.23)	0.12	0.03**
Food type	17.65	(0.03)	21.58	(0.04)	13.53	(0.04)	8.05	0.28*
Fufu (% vending fufu)	19.85	(0.03)	17.27	(0.04)	22.56	(0.04)	5.29	0.36
Check-check (% vending check-check)	32.35	(0.03)	29.50	(0.04)	35.34	(0.04)	5.84	0.32
Waakye (% vending waakye)	30.15	(0.03)	31.65	(0.04)	28.57	(0.04)	3.08	0.74
Tuo zaafi (% vending tuo zaafi)								
Business Practices	1.41	(0.04)	1.37	(0.05)	1.45	(0.07)	0.08	0.33
Overall index for business practice (max = 3)	0.43	(0.02)	0.39	(0.03)	0.46	(0.03)	0.07	0.07*
Practicing business planning (max = 1)	0.36	(0.01)	0.35	(0.02)	0.36	(0.02)	0.01	0.62
Practicing financial management (max = 1)	0.29	(0.01)	0.29	(0.02)	0.28	(0.02)	0.01	0.60
Practicing records management (max = 1)								
Business Results/Outcomes	18.63	(0.78)	18.29	(1.31)	18.97	(0.83)	0.68	0.66
Gross margin ratio (%)	133	(6.80)	140	(9.25)	127	(9.31)	13.00	0.30
Daily number of customers served	3.43	(016)	3.49	(0.26)	3.37	(0.20)	0.12	0.73
Average sales per person(GHC)								

Source: Estimated from field data, 2013. ***;*** **s.e = standard errors; (3) – (5) = absolute differences between the means of the treatment 1 and treatment 2*

: Verification of Randomization by Baseline Characteristics (Treatment 2 and Treatment 1)

Variables	**Pooled Sample (262)**	**Treatment 2 (n=133)**	**Treatment 1 (n=129)**		

Table 4.17

	Mean (A)	(se)* (B)	Mean (C)	(se) * (D)	Mean (E)	(se) * (F)	(C) - (E) (G)	p-value for *t test*
Characteristics of vendor								
Sex (% of female vendors)		(0.02)	89.47	(0.03)	93.02	(0.02)	3.55	0.31
Age of owner/manager (years)	91.2	(0.59)	38.88	(0.85)	40.45	(0.86)	1.57	0.17
Formal education (years)	2	(0.31)	6.44	(0.42)	5.33	(0.45)	1.11	0.18
Experience (years involved in street food vending)	39.18	(0.37)	8.22	(0.52)	9.34	(0.64)	1.12	0.27
	6.04							
	8.49							
Business characteristics								
City business is located (% of vendors located in Kumasi)		(0.03)	36.09	(0.04)	29.46	(0.04)	6.63	0.25
		(0.31)	5.73	(0.46)	5.68	(0.24)	0.05	0.87
Total number of workforce	32.82							
Food type	5.48	(0.03)	13.53	(0.04)	13.18	(0.03)	0.35	0.90
Fufu (% vending fufu)		(0.03)	22.56	(0.04)	17.83	(0.04)	4.73	0.84
Check-check (% vending check-check)	13.36	(0.03)	35.34	(0.04)	45.74	(0.04)	10.4	0.18*
Waakye (% vending waakye)	20.23	(0.03)	28.57	(0.04)	23.26	(0.04)	5.31	0.19
Tuo zaafi (% vending tuo zaafi)	40.46							
	25.95							
Business Practices		(0.04)	1.37	(0.05)	1.46	(0.67)	0.09	0.90
Overall index for business practice (max = 3)		(0.02)	0.39	(0.03)	0.46	(0.03)	0.07	0.29
Practicing business planning (max = 1)	1.36	(0.01)	0.35	(0.02)	0.41	(0.02)	0.06	0.14
Practicing financial management (max = 1)	0.41	(0.02)	0.29	(0.02)	0.27	(0.02)	0.02	0.34
Practicing records management (max = 1)	0.37							
	0.35							
Business Results/Outcomes		(0.80)	18.29	(1.31)	18.61	(0.87)	0.32	0.92
Gross margin ratio (%)		(6.26)	140	(9.25)	131	(10.15)	9.00	0.22
Daily number of customers served	18.63	(0.17)	3.49	(0.26)	3.58	(0.22)	0.09	0.61
Average sales per person(GHC)	128							
	3.54							

Source: Estimated from field data, 2013. ; **s.e = standard errors; (3) – (5) = absolute differences between the means of the treatment 1 and treatment 2*

Table 4.109

CHAPTER FIVE

5.0 EMPIRICAL RESULTS

5.1 Introduction

This chapter presents results from econometric analyses. Section 5.2 looks at the effects of business constraints and other vendor/business characteristics on the growth of street food enterprises. Section 5.3 looks at factors that determine a vendor's decision to participate in business management training programme while section 5.4 presents results on determinants of the extent of participation for vendors who took up the training. Subsequent sections in this chapter look at the effects of training interventions on business practices and performance.

5.2 Effects of business constraints on growth

Table 5.1 reports results of OLS regression to estimate whether identified constraints limit growth of street food enterprises. It shows the coefficients (β_i) and the standard errors of each of the three indicators of firm growth; percentage change in gross margin ratio, percentage change in number of customers served daily and percentage change in average sales per customer.

In terms of the effect of business constraints on growth of gross margin ratio and average daily sales per customer, the study's hypotheses on inadequate managerial skills and financial constraints were both confirmed. Street food vendors who reported experiencing constraints related to managerial inadequacies such as lack of skilled workers, lack of knowledge in business management and unreliable supply of raw materials experienced a reduction in growth rate (in terms of gross margin ratio) of about 6.8 and 6.6 percentage points respectively between the baseline and follow-up periods.

Table 5.1: OLS estimates of effects of business constraints on firm growth

Independent variables	Change in Gross Margin Ratio (%)		Change in number of customers served (%)		Change in daily sales per person (%)	
	Coefficient	**Standard Error**	**Coefficient**	**Standard Error**	**Coefficient**	**Standard Error**
Inadequate managerial skills	−6.75*	(3.77)	−6.05	(23.93)	−0.02	(0.52)
Financial constraints	−6.55**	(3.28)	−2.82	(20.86)	−0.20	(0.45)
Poor supply of utility services	3.85	(3.03)	12.94	19.28)	0.86**	(0.42)
Theft by employees	2.95	(3.15)	−4.57	(19.99)	−0.13	(0.43)
Complex customer relations	0.13	(3.45)	−14.50	(21.92)	0.06	(0.47)
High Competition	0.87	(3.29)	3.68	(20.87)	−0.40	(0.45)
Complex regulatory and banking procedure	−4.91	(3.43)	20.84	(21.78)	−0.81*	(0.47)
Education (years of formal education)	0.18	(0.35)	0.59	(2.20)	0.07	(0.05)
Location of business (Kumasi =1)	−0.05	(3.87)	−131.28***	(24.69)	−2.01***	(0.53)
Size (total workforce)	−0.15	(0.32)	−5.12**	(2.02)	0.11**	(0.04)
Experience (years involved in food vending)	−0.004	(0.24)	−0.35	(1.55)	0.007	(0.33)
Constant	21.92	6.08	−65.65*	38.62	0.67	0.83
Observations	263		263		263	
F (11, ….251)	1.10		5.76		2.57	
Prob > F	0.3617		0.0000		0.0042	
R^2	0.0460		0.2014		0.1013	
Adj R^2	0.0042		0.1664		0.0619	

Source: Estimated from field data, 2015. ; **p<0.1, **<0.05, ***<0.001*

This result is consistent with other studies that found lack of managerial capital as a critical constraint to performance and growth of SMEs. For instance, a study by Bruhn et al. (2012) among SMEs in Mexico found out that human capital had a first order effect on firm performance and that addressing this limitation positively impacted the sales and profit by 80% and 120% respectively. Similarly, Mano et al. (2011) found basic skills in business management to be critical to small entrepreneurs operating in an industrial cluster of Suame Magazine in Ghana.

With regards to effects of financial constraints on growth of firms, column 2 of Table 5.1 shows that reporting financial related constraints at baseline limited the growth of firms' gross margin ratio and average daily sales per customer by about 6.2 and 7.3 percentage points respectively during the follow-up period at a 10% significance level. Some earlier studies in Ghana have also found financial-related constraints as limiting the performance of micro, small and medium scale firms. For instance, Martey et al.

(2013) in their study of constraints to performance of small scale enterprises in the Accra-Ghana reported limited access to credit, high cost of borrowing and unstable input prices as critical factors militating against the performance of the sector. Other studies such as (AGI, 2012 and Abor and Biekpe, 2006) have both reported findings that corroborate the negative effect of financial constraints on frim performance in Ghana. These factors either individually or in concert with others affect operational and expansionary activities of the business. For instance, limited access to credit may affect the firm's ability to undertake long-term investment in the business, whereas high input price variability makes business planning, costing and pricing difficult. These in turn may affect the firm's ability to generate more sales as well as attract premium customers who will be willing to pay premium prices.

The study also found that vendors operating in Kumasi experienced a significant reduction in the growth of their customer base as well as the daily sales per person. Also, employing an additional person in the business decreases the daily number of customers served by about 5.1%.

5.3 Determinants of participation in business management training

Table 5.3 presents results of probit analysis to determine factors that affected an invited vendor's decision to honour the invitation by attending the course. The first column shows estimates from the pooled sample while columns 2 and 3 are the city-specific estimates. Results of the pooled sample column indicates that the more a vendor is educated the higher the probability of participation. Receiving an additional year of formal education increased the probability of attending by approximately 2 percentage points at 5% significance level.

This result is consistent with that of Bjorvatn and Tugodden (2010) who found that entrepreneurs (who were clients of microfinance institutions in Tanzania) with higher education had a higher probability to take up training offer and attend consistently. Similarly, (de Mel et al., 2012) in their study of the impact of management training on the performance of women in Sri Lanka found positive relationship between educational level of invitees and participation. On the other hand, Karlan et al. (2014) did not find education of manager/owner as a significant predictor of whether an invitee would take up training programme in the form of consulting services in their experimental study among micro and small tailors in Ghana. In the opinion of Bjorvatn and Tugodden (2010), weaker entrepreneurs are intimidated and discouraged from attending by their own perceived knowledge deficiencies.

Table 5.2: Probit estimates of factors determining participation in training

Dependent variables Participation; 1 = attended the training, 0 = otherwise	**Pooled (N=314)**	**Kumasi (N=112)**	**Tamale (N=202)**
	Marginal effects	**Marginal effects**	**Marginal effects**
Sex (Male = 1)	0.123	0.120	0.022
	(0.124)	(0.113)	(0.326)
Education (years)	0.015**	0.021*	0.014
	(0.007)	(0.012)	(0.009)
Involvement in other economic activity (Yes =1)	−0.338***	0.090	−0.413***
	(0.096)	(0.142)	(0.111)
Experience in street food vending (years)	0.007	0.003	0.014
	(0.005)	(0.008)	(0.007)
Number of 'trusted hands' in the business	0.039*	0.017	0.044
	(0.021)	(0.038)	(0.027)
Previous training experience (Yes = 1)	0.071	0.301***	−0.075
	(0.079)	(0.095)	(0.111)
Location (Kumasi = 1)	−0.357***	_	_
	(0.069)	_	_
Distance from business to training venue (km)	−0.014***	−0.025***	−0.011
	(0.005)	(0.007)	(0.007)
Business Management Practice Index (min = 0; max = 3)	0.062	0.023	0.080
	(0.049)	(0.068)	(0.063)
Daily Gross margin ratio (%)	0.006*	−0.001	0.011
	(0.003)	(0.0003)	(0.004)
Observations	314	112	202
Pseudo R2	0.1312	0.1701	0.1388
Wald chi2	49.36***	24.07***	31.08***
Log pseudo likelihood	−184.531	−56.349	−116.119

Source: Estimated from field data, 2014. ; *Robust standard errors in parenthesis; *p<0.1, ** p <0.05, *** p <0.001*

The study also found in discussions with invitees that the least educated vendors had lower appreciation of education and the potential benefits/importance of the training programme. As expressed by one *fufu* vendor in Kumasi: *"this is what I have been doing since I was a young girl. I took over from my mother and have actually been doing this for well over 20 years so I really do not see anything about operating a 'chop bar'*[5] *that I do not know".* Moreover, vendors with some level of formal education (especially up to senior secondary level) considered a course that offered a certificate from a University as a unique opportunity to add to their moderate academic

qualification.

The study also found vendors who were engaged in some other form of economic activity had street food vending as a secondary economic activity were about 34% and 41% significantly less probable to participate in training programme in the case of the pooled sample and Tamale respectively. Secondary economic engagements limit the time available to the vendor and increase his/her opportunity cost of participation.

The initial inclusion of firm size (measured by total workforce) in the probit model did not have any effect on participation. Although the study's decision to purposively sample only firms with at least two individuals (i.e. the owner/manager and an additional worker) with the expectation that attending the training will not stall business operations, businesses with larger workforce appeared to have a higher opportunity cost of attending the training. Qualitative information also suggests that larger workforce imposes extra requirement to strictly monitor and supervise employees' activities in order to ensure that

[5] Chop bar is a popular expression for a local restaurant that principally specialises in the sale of *fufu*, although other local dishes such as banku, rice balls may be added.

things are done according to expectation. In effect, it appears that the total workforce does not necessarily increase the probability of participation as we expected. Rather, the presence of a trusted person does. In view of these reasons, firm size was dropped and replaced with number of trusted hands available in the business.

Result on the involvement of a trusted hand (either in the form of an employee or a close relation) in the business indicates that the probability of attending the training programme in the pooled sample increased by 4% (at 1% significance level) with each additional person. The effect is however insignificant for the split samples (Kumasi and Tamale). The presence of these trusted employee or relation signifies the availability of a reliable supervisor who will operate the business and take over critical activities such as handling of finances in the absence of the owner and managing customer relations. In the words of a vendor: *"you can never trust these workers in your absence. But if you are fortunate to have one of your own, I mean a close family member around, it gives you the assurance that your money will be safe even if you are not around. Even in the worst case where your own relative 'takes your money' it is still in the family"*.

The results of the pooled sample also show that invited vendors form Kumasi were about 36% less likely to attend. A possible explanation is that whilst *check-check* vendors from Kumasi principally operate at night and therefore needed to prepare and setup between 4pm and 6pm, whilst those involved in the sale of *fufu* would be at the peak of their sales between 12noon and 2pm where the training took place. Inasmuch as the study tried to get the best time that would suit both group of vendors, most of these vendors still found the time not conducive.

Distance between vending premises and training centers had significant negative effects on vendors' participation in the training program. This negative effect is significant both for the pooled and Kumasi samples. Qualitative data gathered through post-training discussions with vendors shows that, the venues of the training coupled with the fact that invitation to the programme covered all sub-metros of the two cities made it practically difficult for some of those very far from the training venue to attend although the study tried to overcome this by providing shuttle services at a central location. Lastly, vendors with higher gross margin ratio (i.e. those able to retain more of their sales revenue as gross profit) had a higher probability to attend albeit by only approximately 1%in the pooled sample.

5.4 Reasons for non-participation in the training programme

In order to understand the reasons behind the high rate of non-participation the study conducted phone interviews with non-participants a week after the training. Results of these interviews are presented in Table 5.3.

Table 5.3: Vendors' reasons for not participating in training

Reasons for non-participation	**Pooled Sample**	**Kumasi**	**Tamale**
	Freq.	**Freq.**	**Freq.**

1. Difficulty in leaving business for workers	38 (22.0)[a]	15 (8.7)	23 (13.3)
2. Duration (number of days & hours per day) too much	52 (30.1)	28 (16.2)	24 (13.9)
3. Did not see the importance	11 (6.4)	3 (1.7)	8 (4.6)
4. Training venue too far and inconvenient for me	18 (10.4)	12 (6.9)	6 (3.5)
5. Family/personal issues problems (ill health, given birth, funeral, etc.)	17 (9.8)	10 (5.8)	7 (4.0)
6. Was out of business (temporary/permanently), had been evicted	6 (3.5)	4 (2.3)	2 (1.2)
7. Thought it would be for literates and the educated	31 (17.9)	7 (4.0)	24 (13.9)
Total	**173**	**79**	**94**

Source: Estimated from field data, 2014. ; [a] *Figures in parenthesis are percentages expressed relative to total number of non-participants (173).*

From Table 5.3, most of the non-participating vendors (52 representing 30.1%) were of the opinion that the number of days as well as the number of hours per day were too long for them to be absent from their businesses. For these vendors they were simply deterred by the duration. Other vendors (38) expressed interest in the course and considered it a reasonable investment worth the time of absence from their businesses.

However, they felt uncomfortable in leaving their businesses in the hands of their 'untrusted' workers. In the words of a food vendor in Kumasi *"I really wished I could attend the training but that will mean virtually not working for these four days because I do not see how I can leave my business in the hands of these workers. They may either misappropriate my finances or I might lose my customers if customers do not meet me at work for four consecutive days".*

Approximately 18% (31) of the non-participants felt discouraged by their level of literacy. Although we explicitly stated in the invitation letter that the training was going to be held

in local dialects (Twi in Kumasi and Dagbani in Tamale) as well as in an adult learning environment, some of the non-participating vendors thought a training programme organized by a University was meant for the literate and the educated. Seventeen (17) vendors were not able to attend the programme due to their engagement with other family/personal matters such as their responsibility of cooking family dinner, ill health, baby nursing, marriage and funerals during the time of the training. Interestingly, some vendors (11) declined the offer outright because they felt the course was of no importance to their business. To them they have been managing their businesses successfully for a long time and did not need any further training on how to manage their businesses. About 10.4% (18) of the vendors felt the training venue in both cities, especially Kumasi, were very far from their vending premises and very inconvenient for them to move to and from the central point where shuttle services were provided. Six (6) vendors were either permanently or temporary out of business and therefore felt training was not a priority.

5.6. Estimation of effects of business interventions

5.6.1 Estimation of effects of combined intervention of business management training and training on street vendors' organization (treatment 2) on business practices

As indicated in section 2.8.2.2 above, the first test of effectiveness of any business training is its ability to enhance knowledge and practices of trained individuals. In order words, whatever principles, practices and procedures that were taught during training programmes must first be adopted and practiced by the treatment group before any impact or effect on ultimate business performance measures such as gross margin ratio, number of customers and average sales per customer etc. could be realised. This section presents and discusses results on the effect of both treatments on the vendors' practices of standard business management principles as taught during the training programme.

Table 5.6.1.1 shows the descriptive statistics for the business practices indices between treatment 2 and control using follow up figures. It can be seen from the table that the effect of the training on with respect to record management and the overall business practice indices were significantly higher for vendors who received the combined intervention.

Table 5.6.1.1: Descriptive characteristics of business practice indices: Treatment 2 versus Control

Indicator of business practice	Treatment 2	Control	p-value for t-test
Business planning index	0.43	0.45	0.10
Financial management index	0.52	0 .49	0.35
Record management index	0.33	0.15	0.00***
Overall business practice index	2.28	1.88	0.00***

Score for Business planning, financial management and record management are normalized indices ranging from 0 to 1 whilst overall business practice index ranges from 0 to 3 (sum of the three individual indices)

Table 5.6.1 shows results of intent to treat (ITT) analysis of the effects of treatment 2 (both business management and vendor association trainings) on practices. Column 1 shows the overall business practice index whilst columns 2-4 present results for individual business practice. The table shows that the combined intervention (business management and vendor association training) had statistically significant positive effect on the overall business practices index (37.5 percentage point increase which is significant at 1%). The study also found statistically significant increase in practices such as business planning and record management with 17.3 and 13.4 percentage point increases respectively. That

is, being assigned to receive the combined intervention significantly improved vendors' practices of planning and record management but not financial management. This implies that any changes in business performance would work through the ability of street food vendors to plan and analyse their business operations before production. These plans are also recorded in some form for ease of reference and analysis. The failure to find any significant effect on financial management may be explained by the fact that training actually might have helped vendors to stop certain practices which would have contributed to the score for this index. For instance, training may have made vendors better managers of their businesses and finances such that practices such as application and receipt of loan may be less necessary. However, because both activities contribute to the overall score for the financial management index treated vendors may even score low marks relative to control.

Table 5.6.1: Intention to Treat (ITT) estimates of effect of treatment 2 on business practices

Variable	**Overall Business Practice**	**Business Planning**	**Financial Management**	**Record Management**

Training***** Year	0.375***	0.173***	0.068	0.134***
	(0.114)	(0.062)	(0.042)	(0.044)
Training	−0.054	−0.084*	−0.032	0.060*
	(0.081)	(0.044)	(0.030)	(0.033)
Year (follow-up)	−0.001	−0.019	0.122***	−0.103***
	(0.080)	(0.043)	(0.029)	(0.031)
Education (years)	0.020***	0.006	0.003	0.012***
	(0.007)	(0.004)	(0.003)	(0.003)
Size (total workforce)	0.009	0.0003	0.006**	0.003
	(0.007)	(0.004)	(0.003)	(0.003)
Experience (years)	−0.003	−0.001	−0.001	−0.001
	(0.005)	(0.002)	(0.002)	(0.002)
Sex (Male = 1)	−0.008	0.025	−0.017	−0.015
	(0.104)	(0.056)	(0.038)	(0.045)
Location (Kumasi = 1)	0.011	−0.021	0.005	0.025
	(0.075)	(0.041)	(0.028)	(0.033)
Observations	272	272	272	272

Source: Estimated from field data, 2015. ***;*** *ITT estimates are results of difference-in-difference random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

Consistent with the expectation that the effect of business training works through graduating from the training programme, average treatment effect on the treated (ATET) estimates from instrumental variable analysis presented in Table 5.6.2 indicate that the effect of training on overall business practice increased by 40.6 percentage points whilst record management index increased by 39.5 percentage points. The relatively large effect on record management may be explained by the limited or low baseline score as far as record management is concerned. Only few vendors, both treatment and control, practiced some form of record management prior to the training. These results also corroborate previous studies by Mano et al. (2011) in an industrial cluster of Kumasi-Ghana, Berge et

al. (2011) among micro-finance clients in Tanzania, Gine and Mansuri (2014) in Pakistan and Karlan and Vildavia (2011) among microfinance clients in Peru. These other studies have found training to cause positive changes in the practices of trained individuals.

Qualitative evidence during post-training visit survey suggests that most vendors in this treatment group now consider themselves as micro-entrepreneurs who need not see their operations as a way of life. A typical response among vendors is captured by the operator of Alaska Fast Food: *"if not for this training we were ignorant of the work we are doing…"* Thus, training created a sense of awakening and consciousness among street food vendors of the need to approach their activities with a business attitude and mindset. Realising the need to run one's business based on sound managerial practices is an important step towards success as far as business management is concerned. Planning and record management also enable vendors to make informed operational decisions and choices regarding what to produce, how much to produce, when to produce and measures that will enhance business performance and growth.

Table

5.6.2: ATET estimates of treatment 2 on business practices

Variable	Overall Business Practice	Business Planning	Financial Manage-ment	Record Management
Training Participation (Instrumented)	0.406**	0.004	0.005	0.395***
	(0.173)	(0.097)	(0.066)	(0.070)
Year	0.053	0.063	0.153***	−0.162***
	(0.077)	(0.044)	(0.029)	(0.031)
Education (years)	0.021***	0.005	0.003	0.012***
	(0.007)	(0.004)	(0.003)	(0.003)
Size (total workforce)	0.009	0.0001	0.006**	0.003
	(0.006)	(0.004)	(0.002)	(0.003)
Experience (years)	−0.002	−0.0004	−0.001	−0.001
	(0.004)	(0.002)	(0.002)	(0.001)
Sex (Male = 1)	0.015	0.022	−0.019	0.010
	(0.101)	(0.057)	(0.038)	(0.041)
Location (Kumasi = 1)	0.004	−0.020	0.005	0.018
	(0.072)	(0.041)	(0.027)	(0.029)
Observations	272	272	272	272

Source: Estimated from field data, 2015. ; *Above estimates are results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

5.6.2 Testing Heterogeneity of Effects of Treatment 2 on Business Practices Literature suggests that the impact or effect of business training varies (in direction, significance and magnitude) for different participants. For instance, Berge et al. (2011) report that male entrepreneurs recorded higher impact in terms of implementation of some of the practices that were taught during their training programme to micro-finance clients in Tanzania. Heterogeneity in treatment effect on business practices has also been confirmed by Gine and Mansuri (2014), who found significant treatment effect among only male operated enterprises as far as business practices and operations are concerned.

In order to test whether the effects of the combined intervention (treatment 2) are heterogeneous or not, separate difference-in-difference and instrumental variable regressions were estimated for each of the stratification variables; education, firm size, city of business and food type. Results of these analyses are presented in Table 5.7.1 through to Table 5.7.9. Education variable is re-categorised into two; completing at least nine (9) years of formal education (*high education = 1*) and 0 = otherwise; sex (male = 1, female = 0); firm size (≥4 employees = 1, otherwise = 0); city (Kumasi = 1, otherwise = 0); experience (≥5 years = 1, otherwise = 0); and food type (separate regression run for four food types).

With reference to Table 5.7.1, the study found that vendors with nine or more years of formal education improved significantly in all business practice indices for both ITT and ATET estimates. Overall business practice index improved by 55.2% for vendors assigned to receive the combined intervention whilst participation (and graduating) improved this index by 85.9%. In terms of record management, ITT and ATET estimates are 21.9% (significant at 5%) and 23.9% (significant at 1%) respectively. Contrary to above findings in Table 5.6, where participation in the joint training did not significantly improve the planning and financial management practices of the general participants, vendors with higher education experienced significant improvements in both indices. These results suggest that business training is most beneficial to vendors with at least some level of formal education since appreciating its importance, comprehending and implementing contents of training require some level of literacy. For instance, recording and analyzing business transactions, preparation of budgets, and financial transactions

Table

with institutions all require some level of literacy regardless of how elementary training content has been designed to be.

Table

5.7.1: Effects of treatment 2 on business practices disaggregated by educational level of vendor

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*High education	0.552***	0.859***	0.189**	0.350***	0.148***	0.268***	0.219***	0.239**
	(0.141)	(0.257)	(0.076)	(0.146)	(0.052)	(0.099)	(0.057)	(0.104)
Training	0.073	0.235	−0.022	−0.079	−0.012	−0.043	0.106***	0.357***
	(0.060)	(0.193)	(0.032)	(0.110)	(0.022)	(0.075)	(0.026)	(0.080)
High education	0.007	0.031	0.020	0.018	−0.059**	−0.060**	0.042	0.073**
	(0.082)	(0.079)	(0.044)	(0.045)	(0.030)	(0.030)	(0.034)	(0.032)
Year (follow-up)	0104*	0.037	0.040	0.063	0.132***	0.145***	−0.068***	−0.169***
	(0.060)	(0.075)	(0.033)	(0.042)	(0.003)	(0.029)	(0.023)	(0.030)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *High education: >9 years of formal education; ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce),and city business is located.*

Table

Also, results from analysis of determinants of participation in business training presented in section 5.3 above show that illiterate and less educated vendors have less appreciation for education and are also discouraged from participating due to their own perceived knowledge deficiencies. It may therefore be important that future training programmes consider disaggregating trainees and customizing the content to achieve the needed impact.

Table 5.7.2 also shows that apart from the effect of the training on the record management practices of the treated, males and females were not significantly different in their ability to understand and implement practices that were covered during the training. This result, to an extent, is inconsistent with the findings of Berge et al. (2011) and Gine and Mansuri (2014). Whilst the former found male trainees to better implement 'hard' managerial decisions such as firing non-performing workers, Gine and Mansuri report significantly higher treatment effect on practices and operations of male operated enterprises. This relative homogeneity of treatment effects in this study may have both socio-cultural and economic justification within the street food sector. Whilst other studies such as Berge et al. (2011) and Gine and Mansuri (2014) that report no significant treatment effect for female operated enterprise attribute this to lack of control and limited working hours of women due to domestic responsibilities, majority of women in the sample of this study reported being in control of business decision making. In addition, although a greater percentage of the male vendors (almost all from Kumasi) are educated, there are equally educated women to match them and thereby neutralization or reducing any treatment effect which may be linked to gender-specific education. Moreover, this is a sector with about 91% female dominance hence

stratification of treatment effect by sex of vendor may not be significantly different.

Table

5.7.2: Effects of treatment 2 on business practices disaggregated by sex of vendor

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*Sex (Male = 1)	0.173	0.875	0.087	0.379	−0.037	−0.140	0.126	0.635**
	(0.193)	(0.742)	(0.104)	(0.419)	(0.071)	(0.286)	(0.083)	(0.306)
Training	0.113*	0.402**	−0.005	−0.012	0.054	0.027	0.112***	0.386***
	(0.061)	(0.177)	(0.033)	(0.100)	(0.022)	(0.068)	(0.026)	(0.073)
Sex	−0.100	−0.083	−0.033	−0.024	0.004	0.004	−0.072	−0.063
	(0.143)	(0.139)	(0.078)	(0.079)	(0.053)	(0.054)	(0.062)	(0.057)
Year (follow-up)	0.182***	0.032	0.065**	0.061	0.155***	0.149***	−0.037	−0.175***
	(0.058)	(0.076)	(0.031)	(0.043)	(0.021)	(0.029)	(0.022)	(0.031)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table

Stratifying treatment effects on vendor practices by location/city of business, the study found vendors from Kumasi to show statistically significant improvements in terms of record management and the overall business practice indices. The ITT and ATET estimates for record management are 17% and 55.2% whilst the overall business practice index are 22.1% and 71.4% for ITT and ATET respectively in Table 5.7.3. These results could be explained by the defining characteristics of treatment vendors operating in the two cities. Whereas a considerable number of vendors in Kumasi have some basic education and can therefore appreciate, understand and implement training content, same cannot be said about Tamale.

The study also found the effect of the intervention on the ability of relatively larger firms (at least 5 employees) to keep and management records as significant. Table 5.7.4 shows the ATET estimate of 23.9% for record management to be significant at 5% for firms with workforce of more than 5. Also, the overall business practice index is also significant albeit at 10%. This result is consistent with the study's expectation that firms with greater workforce can afford to assign at least an employee to recording and managing all transactions of the firm. There is therefore specialization that results in efficiency the performance of these activities.

In terms of experience, ITT estimates presented in Table 5.7.5 show vendors with five or more years working experience in street food vending showed significant improvement in all business practices indices except financial management where the effect was marginal and insignificant. However, ATET estimates only showed significant improvement in business planning index. Failure to find any significant effect on the overall index, as well as financial management and record management indices of the treated shows the difficulty with accepting change. This is especially so for informal sector players who over several years have cultivated individual attitudes, approach and

systems regarding their operations. It therefore makes it difficult for them to 'unlearn' their long-held-on-to practices and implement new standard business practices that were taught during the training programme.

Stratifying the sample based on type of food sold also showed significant heterogeneity in terms of treatment effect. Separate difference-in-difference and instrumental variable regression analyses were estimated for each of the indices of business practices. The effects of training intervention on overall business practice index and record management were significant for enterprises vending *check-check*. In Table 5.7.6, ITT and ATET estimates for overall business practice index were 85.3% and 119.4% respectively. This significant effect was driven by the ability of *check-check* vendors to significantly keep and manage records better with ITT and ATET estimates of 37.6% and 41.5% respectively. On the other hand, effect of intervention on business planning and financial management of *check-check* vendor was insignificant as shown by ATET estimates in Table 5.7.7 and Table 5.7.8. Also, ITT estimates from Table 5.7.8 and Table 5.7.9 show that the effect on financial management and record management was significant at 1% and 10% levels for operators of *fufu* enterprises.

Table 5.7.3

: Effects of treatment 2 on business practices disaggregated by city of business

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*City (Kumasi = 1)	0.221*	0.714**	0.059	0.188	−0.010	−0.033	0.170***	0.552***
	(0.119)	(0.355)	(0.064)	(0.205)	(0.044)	(0.140)	(0.051)	(0.140)
Training	0.048	0.145	−0.021	−0.064	0.005	0.017	0.063**	0.194**
	(0.073)	(0.212)	(0.040)	(0.122)	(0.027)	(0.083)	(0.031)	(0.083)
City	−0.086	−0.094	−0.046	−0.046	0.010	0.010	−0.051	−0.058*
	(0.093)	(0.085)	(0.050)	(0.049)	(0.034)	(0.034)	(0.039)	(0.033)
Year (follow-up)	0.181***	0.057	0.064**	0.064	0.155***	0.153***	−0.037*	−0.159***
	(0.058)	(0.075)	(0.031)	(0.043)	(0.021)	(0.030)	(0.022)	(0.030)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education).*

Table 5.7.4

: Effects of treatment 2 on business practices disaggregated by firm size

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*firm size (>5 workers)	0.171	0.370*	0.105	−0.058	0.001	0.007	0.076	0.239**
	(0.141)	(0.214)	(0.075)	(0.120)	(0.051)	(0.082)	(0.058)	(0.104)
Training	0.123**	0.082	−0.011	0.184	0.006	−0.0003	0.127***	0.357***
	(0.061)	(0.249)	(0.033)	(0.140)	(0.022)	(0.095)	(0.027)	(0.080)
Firm size (>5 workers)	0.118	0.064	0.028	0.067	0.054**	0.154***	0.034	0.073**
	(0.073)	(0.077)	(0.039)	(0.044)	(0.026)	(0.030)	(0.030)	(0.032)
Year (follow-up)	0.161***	0.158**	0.052	0.029	0.155***	0.056**	−0.046***	−0.169***
	(0.061)	(0.073)	(0.033)	(0.041)	(0.022)	(0.027)	(0.024)	(0.030)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *Small enterprise = greater than 5 workers and micro enterprise = less than 5orkers; ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), vendors' education (years of formal education), city business is located.*

Table 5.7.5

: Effects of treatment 2 on business practices disaggregated by vendor's experience

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*Experience (≥ 5 years)	0.289***	0.095	0.154***	−0.396	0.048	−0.119	0.094**	0.612***
	(0.109)	(0.480)	(0.059)	(0.273)	(0.040)	(0.184)	(0.043)	(0.201)
Training	0.015	0.399	−0.058	0.511**	−0.017	0.156	0.086***	−0.274
	(0.073)	(0.445)	(0.039)	(0.254)	(0.027)	(0.170)	(0.031)	(0.185)
Experience (≥ 5 years)	−0.048	0.055	0.007	0.069	−0.017	0.155***	−0.054	−0.167***
	(0.079)	(0.083)	(0.042)	(0.048)	(0.027)	(0.032)	(0.033)	(0.034)
Year (follow-up)	0.070	−0.033	0.005	−0.041	0.135***	−0.024	−0.071***	0.029
	(0.070)	(0.108)	(0.037)	(0.062)	(0.026)	(0.041)	(0.024)	(0.045)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

Covariates included in the analysis are sex of vendor, size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.

Table 5.7.6

: Effects of treatment 2 on overall business practices disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.228	0.204	0.853***	1.194***	−0.232*	−0.665***	−0.015	−0.232
	(0.173)	(0.283)	(0.134)	(0.234)	(0.125)	(0.241)	(0.144)	(0.245)
Training	0.120**	0.408**	0.011	0.067	0.176***	0.662***	0.136**	0.465**
	(0.061)	(0.194)	(0.059)	(0.202)	(0.062)	(0.220)	(0.061)	(0.206)
Food type	0.084	0.048	−0.061	−0.091	−0.038	0.038	0.107	0.122
	(0.091)	(0.078)	(0.079)	(0.078)	(0.081)	(0.070)	(0.080)	(0.074)
Year	0.170***	0.072	0.054	0.035	0.225***	0.057	0.195***	0.067
	(0.060)	(0.077)	(0.060)	(0.074)	(0.062)	(0.076)	(0.061)	(0.077)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.7.7

: Effects of treatment 2 on business planning disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.149	−0.015	0.304***	−0.133	−0.036	0.029	−0.033	0.028
	(0.094)	(0.110)	(0.074)	(0.117)	(0.068)	(0.125)	(0.078)	(0.116)
Training	−0.006	0.232	−0.042	0.496***	0.007	−0.069	0.007	−0.063
	(0.033)	(0.160)	(0.032)	(0.136)	(0.034)	(0.137)	(0.033)	(0.138)
Food type	0.046	0.060	−0.004	0.055	0.019	0.065	0.025	0.065
	(0.049)	(0.044)	(0.044)	(0.043)	(0.044)	(0.043)	(0.043)	(0.043)
Year	0.057*	0.018	0.020	−0.027	0.072**	0.027	0.072**	0.032
	(0.032)	(0.043)	(0.033)	(0.046)	(0.034)	(0.040)	(0.033)	(0.042)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.7.8

: Effects of treatment 2 on financial management disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.171***	−0.063	−0.033***	0.283	0.057	−0.114	−0.002	−0.002
	(0.050)	(0.107)	(0.063)	(0.090)	(0.046)	(0.091)	(0.053)	(0.094)
Training	−0.022	0.030	0.009	−0.076	0.014	0.054	0.002	0.002
	(0.022)	(0.074)	(0.022)	(0.078)	(0.022)	(0.084)	(0.022)	(0.079)
Food type	−0.012	0.039	0.047	−0.023	−0.029	−0.015	0.036	0.029
	(0.030)	(0.029)	(0.033)	(0.030)	(0.023)	(0.027)	(0.029)	(0.029)
Year	0.130***	0.152***	0.161***	0.149	0.166***	0.152***	0.159***	0.157***
	(0.022)	(0.029)	(0.022)	(0.029)	(0.023)	(0.029)	(0.023)	(0.029)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.7.9

: Effects of treatment 2 on record management disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.115*	0.034	0.376***	0.415***	−0.134***	−0.484***	0.029	−0.165*
	(0.070)	(0.114)	(0.053)	(0.094)	(0.050)	(0.095)	(0.058)	(0.099)
Training	0.117***	0.392***	0.076***	0.275***	0.153***	0.578***	0.125***	0.433***
	(0.026)	(0.079)	(0.025)	(0.082)	(0.027)	(0.087)	(0.026)	(0.084)
Food type	−0.006	0.014	−0.046	−0.042	−0.034	0.026	0.047	0.064**
	(0.038)	(0.031)	(0.033)	(0.031)	(0.034)	(0.028)	(0.034)	(0.030)
Year	−0.046**	−0.161***	−0.095***	−0.168***	−0.012	−0.158***	−0.036	−0.153***
	(0.023)	(0.031)	(0.022)	(0.030)	(0.024)	(0.030)	(0.024)	(0.031)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.7.10

5.6.3 Estimation of effects of combined intervention of business management training and training on street vendors' organization (treatment 2) on business performance

Even though the first causal link of treatment effect of business training is on the practices of vendors, the ultimate expected effect of business training is on business outcomes such as profit, sales, etc., (McKenzie and Woodruff, 2013). They added that an entrepreneurial decision to invest in an activity or intervention is only appropriate when that investment leads to increase in profit (ibid). It is thus possible to record significant positive treatment effects on the practices and still do not have that translating into business performance.

Table 5.8.1.1 shows the descriptive statistics for the business performance indicators used in the study between treatment 2 and control, using follow up figures. It can be seen from the table that except for gross margin ratio, where the effect of the training was higher for vendors who received the combined intervention, the effects of the intervention was statistically the same for the two groups.

Table 5.8.1.1: Descriptive characteristics of business performance indicators: Treatment 2 versus Control

Indicator of business performance	**Treatment 2**	**Control**	**p-value for t-test**
Daily gross margin ratio (%)	34.10	30.31	0.10*
Number of customers served daily	149	164	0.27
Average daily sales per person (GH¢)	2.85	2.95	0.70

Table 5.8.1 and Table 5.8.2 present results of ITT and ATET estimates of treatment effects on business outcomes or performance; gross margin ratio, number of customers served daily and average daily sales per customer. Although profit appears to be the most popularly used measure of firm performance, this study adopted gross margin ratio

instead in addition to number of customers served and average sales per customer (ratio of sales to number of customer served). Gross margin ratio computes the ratio of the firm's gross margin (sales less variable/operating costs) to its sales and measures the proportion of sales that is retained by the firm after all variable costs have been settled.

Results in column 1 of Table 5.8.1 suggest that training significantly (although marginally at 10%) increased the gross margin ratio of treatment firms by almost 4% (3.9%). However, this effect dissipates when the analysis is limited to the vendors who actually took up the training, as evident in ATET estimate in column 1 of Table 5.8.2. Although the effect of training on gross margin ratio is positive, it is insignificant. Moreover, the larger confidence interval in this case attenuates the statistical power of the results. These results are also typical of findings in literature that suggests that training only affect the knowledge and practices of firms but do not lead to significant improvement in business outcomes such as profits, sales, growth and firm survival (McKenzie and Woodruff, 2013).

The results are generally consistent with that of Bruhn et al. (2012) who found that treatment and control firms were not significantly different in terms of their postintervention profits and sales. Similarly, the results corroborate that of Karlan and Valdivia (2011) who found statistically weak evidence to suggest that business training improved performance of entrepreneurs as measured by sales, employment generation and profit margins. Several other studies such as Drexler et al. (2010), Martinez et al. (2013), De Mel at al. (2012) and Kessy and Temu (2010) have all found results to the effect that the effect of business management training on business outcome is either insignificant at all or marginally significant at best. It should however be pointed out that

the time range between intervention and measurement of impact may sometimes not be ideal for the right impact to be measured.

The study however did not find any significant effects of training on number of customers served and average sales per customer of treatment firms.

Table 5.8.1: ITT estimates of the effects of treatment 2 on the performance of the treated

Variable	**Gross Margin Ratio**	**Number of Customers**	**Average Sales per customer**
Training***** Year	3.929*	14.828	−0.214
	(2.212)	(16.624)	(0.404)
Training	0.205	−1.219	−0.025
	(1.875)	(12.347)	(0.301)
Year (follow-up)	11.714***	13.625	−0.473*
	(1.544)	(11.604)	(0.282)
Education (years)	−0.079	−0.647	0.043*
	(0.159)	(1.060)	(0.026)
Size (total workforce)	−0.566**	10.398***	0.109***
	(0.163)	(1.051)	(0.026)
Experience (years)	−0.029	0.852	0.025
	(0.117)	(0.721)	(0.018)
Sex	2.962	−18.492	−0.419
	(2.670)	(16.571)	(0.403)
Location (city)	0.287	29.784**	−0.269
	(1.923)	(11.907)	(0.290)
Observation	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

Table 5.8.2: ATET estimates of effects of treatment 2 on business performance

Variable	**Gross Margin Ratio**	**Number of Customers**	**Average Sales per customer**
Training Participation (Instrumented)	6.656	18.944	−0.405
	(4.698)	(28.658)	(0.699)
Year	11.523***	14.852	−0.449
	(1.843)	(12.244)	(0.299)
Education (years)	−0.065	−0.614	0.042
	(0.158)	(1.053)	(0.026)
Size (total workforce)	−0566***	10.388***	0.109***
	(0.162)	(1.049)	(0.026)
Experience (years)	−0.024	0.866	0.025
	(0.116)	(0.720)	(0.018)
Sex	3.400	−17.410	−0.445
	(2.652)	(16.578)	(0.404)
Location (city)	0.148	29.459**	0.260
	(1.896)	(11.841)	(0.289)
Observations	272	272	272

Source: Estimated from field data, 2015. ; *Above ATET estimates are results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

5.6.4 Testing Heterogeneity of treatment 2 on business performance

The fact that results from Gine and Mansuri (2014) and Berge et al. (2011) are heterogeneous bring to the fore the importance of considering the diversity among potential trainees or participants, in terms of cultural limitations when it comes to decision making, and extra demands/duties imposed by household. This will enable training

providers customise training to suit different groups and hence achieve the expected outcome.

From the above estimates in Table 5.8.1 and Table 5.8.2, it can be concluded that business training did not significantly improve performance of treated street food enterprises in the larger sample of treated enterprises. However, these effects may vary when the total sample is disaggregated by enterprise and vendor characteristics. This section explores this heterogeneity by stratifying the sample using the above criteria; education, size, experience, sex, location of business, type of food sold. The results are shown in Table 5.9.1 through to Table 5.9.8.

The study found in Table 5.9.1 that treatment vendors with high education performed significantly better in terms of gross margin ratio. Training increased the gross margin ratio of treatment firms by approximately 10%. However, effect of training on the number of customers served daily is negative and significant at 5% for vendors with high education whilst there was improvement in average sales per customer of treatment firms although the improvement is insignificant. These results (and specific estimate for sales) suggest that training did not lead to increase in sales or expansion of customer base, but instead made educated vendors more cost effective through reduction of 'waste'. A participating vendor stated that *"going through this training has really helped us to understand the fact that preparing large quantities of food doesn't really matter if you cannot efficiently manage that"*. This adds to the argument that returns to education is higher for the educated.

Table 5.9.1: Effects of treatment 2 on business performance disaggregated by educational level of vendor

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*High education	7.309**	10.365*	−50.832**	−101.376**	0.534	1.120
	(2.975)	(6.131)	(21.114)	(41.294)	(0.516)	(1.010)
Training	1.284	4.356	11.115	38.867	−0.153	−0.534
	(1.560)	(5.410)	(9.540)	(32.789)	(0.234)	(0.798)
High education	−4.880***	−4.327**	21.050*	23.092*	−0.030	−0.060
	(1.829)	(1.872)	(12.495)	(12.680)	(0.306)	(0.310)
Year (follow-up)	12.586***	11.404***	28.311***	17.324	−0.661***	−0.511*
	(1.177)	(1.801)	(8.789)	(12.029)	(0.215)	(0.294)
Observations	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), city business is located.*

In terms of firm size, experience of vendor and sex, the study did not find any significant differences in the effect of training on any of the measures of performance, i.e. gross margin ratio, number of customers and average sales per customer as shown in Table 5.9.2, Table 5.9.3 and Table 5.9.5 respectively. The failure to find any significant differences between the performance of male and female enterprises contradicts the findings of Berge et al. (2011) and Gine and Mansuri (2014) who found male operated trainees/enterprises to performance better than their female counterparts.

On the other hand, results of the study (presented in Table 5.9.4) also suggest that treated vendors operating in Kumasi performed significantly better compared to those from Tamale when performance is measured by average sales per customer. Average sales per customer of these vendors improved by approximately GH¢ 3.4, and this estimate is significant at 5% significance level. Also, in line with results on business practices above, treated firms operating *check-check* enterprises recorded significant improvement (15.9%) in profit margin whilst *waakye* firms performed significantly worse after training. Table 5.9.7 that although *waakye* and *tuo zaafi* vendors significantly performed better (112 and 91 respectively) in terms of customers served per day, average sales per customer for *fufu*, *waakye*, and *tuo zaafi* vendors are significantly lower. This suggests that expansion in customer base may not necessarily translate into higher sales revenue, hence reiterating the assertion that measuring performance using only the size of customers may be misleading if the amount of sales are not taken into consideration. From managerial perspective, it becomes important to device strategies to ensure that the firm is able to improve the average sales per customer and thereby increase the customer's lifetime value.

From the above estimates of treatment effects of the combined intervention on the performance of treated firms, it can be concluded that although training significantly improved the business practices, its effect on business performance indicators such as gross margin ratio, number of customers served, and average sales per customer is either marginally significant, insignificant or significantly negative.

Table 5.9.2

: Effects of treatment 2 on business performance disaggregated by firm size

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training* firm size (>5 workers)	−1.824	−6.862	6.571	−12.336	−0.338	−0.494
	(2.972)	(6.047)	(21.431)	(40.687)	(0.514)	(0.984)
Training	1.872	7.650	11.166	43.009	0.054	0.006
	(1.561)	(5.903)	(9.739)	(36.143)	(0.238)	(0.890)
Firm size (>5 workers)	− 5.255***	−4.686***	85.672***	89.079***	0.725***	0.741**
	(1.663)	(1.766)	(11.284)	(11.886)	(0.273)	(0.288)
Year (follow-up)	13.601***	11.525***	22.462	10.838	−0.497**	−0.487
	(1.184)	(1.845)	(9.012)	(12.509)	(0.214)	(0.301)
Observations	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *Small enterprise = greater than 5 workers and micro enterprise = less than 5orkers; ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), vendors' education (years of formal education), city business is located.*

Table 5.9.3

: Effects of treatment 2 on business performance disaggregated by vendor's experience

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	ATET	ITT	ATET	ITT	ATET
Training*Experience (≥ 5 years)	1.456	−6.118	21.091	42.887	−0.530	−1.396
	(2.195)	(11.941)	(15.998)	(73.468)	(0.386)	(1.803)
Training	1.517	11.503	−1.813	−13.101	0.109	0.782
	(1.773)	(13.345)	(11.342)	(80.153)	(0.277)	(1.971)
Experience (≥ 5 years)	−0 .875	0.632	9.542	8.061	0.565*	0.660
	(1.893)	(2.786)	(12.225)	(17.680)	(0.299)	(0.433)
Year (follow-up)	13.097***	11.395***	12.905	14.951	−0.387	−0.509
	(1.381)	(2.042)	(10.201)	(13.334)	(0.246)	(0.324)
Observations	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.9.4

: Effects of treatment 2 on business performance disaggregated by city of business

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	ATET	ITT	ATET	ITT	ATET
Training*City (Kumasi = 1)	1.574	5.160	−29.117	−93.196	1.063**	3.405**
	(3.132)	(9.914)	(18.869)	(59.906)	(0.457)	(1.479)
Training	1.548	4.774	17.038	52.948	−0.530*	−1.648
	(1.928)	(5.876)	(11.625)	(35.660)	(0.281)	(0.880)
City	−0.373	−0.559	43.210***	42.291***	−0.755**	−0.730**
	(2.402)	(2.316)	(14.664)	(14.312)	(0.355)	(0.353)
Year (follow-up)	13.620***	11.552***	20.728**	14.375	−0.573***	−0.431
	(1.118)	(1.825)	(8.340)	(12.103)	(0.203)	(0.300)
Observations	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education).*

Table 5.9.5

: Effects of treatment 2 on business performance disaggregated by sex of vendor

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	ATET	ITT	ATET	ITT	ATET
Training*Sex (Male = 1)	2.543	15.501	− 14.601	−55.693	−0.558	−2.196
	(4.928)	(18.380)	(30.790)	(120.369)	(0.742)	(3.015)
Training	1.864	4.9914	4.967	20.528	−0.053	−0.076
	(1.590)	(4.452)	(9.755)	(28.808)	(0.235)	(0.727)
Sex	1.659	1.225	2.259	−8.678	−0.237	−0.122
	(3.638)	(3.465)	(22.875)	(22.635)	(0.551)	(0.568)
Year (follow-up)	13.632***	11.809***	20.718**	15.819	−0.580***	−0.514*
	(1.118)	(1.801)	(8.346)	(12.132)	(0.203)	(0.298)
Observations	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.9.6

: Effects of treatment 2 on gross margin ratio disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.487	−1.880	11.613***	15.971***	−5.943**	−16.073***	0.902	−2.370
	(3.692)	(6.475)	(2.837)	(5.727)	(2.580)	(5.754)	(3.024)	(5.861)
Training	1.917	6.372	0.267	1.457	3.263**	12.768**	2.018	7.012
	(1.580)	(5.275)	(1.561)	(5.720)	(1.595)	(6.012)	(1.590)	(5.674)
Food type	−1.921	−1.207	2.011	1.557	−0.461	1.086	1.771	2.073
	(2.171)	(1.908)	(1.902)	(1.935)	(1.923)	(1.739)	(1.944)	(1.905)
Year	13.431***	11.607***	12.047***	11.649***	14.759***	11.637***	13.636***`	11.765***
	(1.176)	(1.853)	(1.179)	(1.803)	(1.224)	(1.778)	(1.204)	(1.814)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.9.7

: Effects of treatment 2 on number of customers served daily disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−72.515***	−126.773**	−20.225	−35.269	67.745***	112.945***	55.852***	91.077**
	(25.723)	* (44.675)	(20.634)	(38.427)	(18.159)	(38.445)	(21.312)	(39.309)
Training	14.234	44.991	12.427	28.267	−4.186	−16.300	−1.162*	−13.895
	(9.645)	(32.246)	(9.380)	(34.297)	(9.505)	(36.576)	(9.653)	(34.708)
Food type	23.667*	35.774***	−38.129**	−29.766	−59.705**	−61.318***	−4.121	−17.604
	(14.035)	(12.435)	(2.491)	(12.946)	(12.141)	(11.315)	(12.413)	(12.240)
Year	28.034***	15.503	21.428**	13.634	6.003	10.172	13.410	15.522
	(8.603)	(12.315)	(9.043)	(12.120)	(8.994)	(11.980)	(8.868)	(12.144)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.9.8

: Effects of treatment 2 on average sales per customer disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.612	1.044	−0.041	0.117	−1.232***	−2.004**	−1.099**	−1.649*
	(0.626)	(1.086)	(0.504)	(0.939)	(0.451)	(0.944)	(0.520)	(0.952)
Training	−0.120	−0.351	−0.182	−0.494	0.071	0.263	0.018	0.085
	(0.236)	(0.796)	(0.232)	(0.843)	(0.234)	(0.898)	(0.234)	(0.834)
Food type	0.612*	0.299	0.633**	0.545	0.693**	0.707**	0.582*	0.628
	(0.343)	(0.305)	(0.308)	(0.316)	(0.300)	(0.294)	(0.302)	(0.295)
Year	0.573***	−0.491	−0.532**	0.399	0.317	−0.389	0.385*	−0.402
	(0.209)	(0.300)	(0.220)	(0.296)	(0.223)	(0.294)	(0.217)	(0.294)
Observations	272	272	272	272	272	272	272	272

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are the results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendors' education (years of formal education), city business is located.*

Table 5.9.151

5.6.5 Estimation of effects of only business management training (Treatment 1) on business practices

Table 5.10.1.1 shows the descriptive statistics for the business practices indices between treatment 1 and control using follow up figures. It can be seen from the table that the effect of only business management training on the practices of treatment 1 and control vendors were statistically the same.

Table 5.10.1.1: Descriptive characteristics of business practice indices: Treatment 1 versus Control

Indicator of business practice	**Treatment 1**	**Control**	**p-value for t-test**
Business planning index	0.43	0.45	0.66
Financial management index	0.46	0.49	0.24
Record management index	0.18	0.15	0.47
Overall business practice index	1.91	1.87	0.74

Score for Business planning, financial management and record management are normalized indices ranging from 0 to 1 whilst overall business practice index ranges from 0 to 3 (sum of the three individual indices)

Table 5.10.1 and Table 5.10.2 present results of difference-in-differences and instrumental variable regression analyses to estimate the intent to treat (ITT) and average treatment effect on the treated (ATET) estimates of the effect of treatment 1 (only business management training) on the practices of treatment firms.

Table

5.10.1: Intention to Treat (ITT) estimates of effect treatment 1 on business practices

Variable	**Overall Business Practice**	**Business Planning**	**Financial Management**	**Record Management**
Training***** Year	−0.114	−0.029	−0.089**	0.003
	(0.114)	(0.062)	(0.043)	(0.043)
Training	0.078	0.004	0.055*	0.019
	(0.081)	(0.044)	(0.031)	(0.032)
Year (follow-up)	−0.002	−0.019	0.121	−0.104***
	(0.079)	(0.043)	(0.030)	(0.030)
Education (years)	0.011*	0.006	−0.001	0.007***
	(0.007)	(0.004)	(0.003)	(0.003)
Size (total workforce)	0.010	0.005	0.003	0.001
	(0.008)	(0.004)	(0.003)	(0.003)
Experience (years)	−0.003	−0.001	−0.001	−0.0001
	(0.004)	(0.002)	(0.002)	(0.002)
Sex (male=1)	0.029	−0.012	0.038	0.002
	(0.118)	(0.064)	(0.045)	(0.047)
Location (Kumasi=1)	−0.024	0.014	0.018	−0.029
	(0.075)	(0.041)	(0.029)	(0.030)
Observation	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

Both ITT and ATET estimates suggest that apart from ITT estimate for financial management where there was a significant negative effect (8.9 percentage points at 5% significance level), business management training did not have significant effect on any

of the individual business practice indices as well as the overall business practice index. These results sharply contradict available literature on the subject matter. As previously stated above, a characteristic finding on the effect of business management training on businesses is that knowledge base and practices of participating firms are improved although the effect on business outcome measures like sales, profit and growth is weak or totally absent. For instance, Mano et al. (2011), in an industrial cluster of KumasiGhana, Sonobe et al. (2011) in Hatay, Vietnam, Berge et al. (2011) in Tanzania, Martinez et al. (2013) in Chile and Karlan and Vildavia (2011) among microfinance clients in Peru have concluded from their respective studies that practices of participating business improved after training participation. Even some of these studies (Sonobe et al., 2011 with 90 treatment and 70 control; Karlan and Vildavia with 138 treatment and 101 control, 2011; Mano et al., 2011 with 47 treatment and 66 control) have sample sizes smaller than that of the current study whilst the duration of training in others studies such as Berge et al. (2011) and Karlan and Vildavia (2011) have course length comparable or shorter than the 16 hours used for this study. Thus, the failure to find significant treatment effect can neither be attributed to lack of statistical power resulting from small sample size nor lack of course intensity resulting from limited contact hours during the training.

Table

5.10.2: ATET estimates of effects of treatment 1 on business practices

Variable	Overall Business Practice	Business Planning	Financial Manage-ment	Record Management
Training Participation (Instrumented)	0.108	−0.053	0.053	0.106
	(0.290)	(0.159)	(0.066)	(0.117)
Year	−0.080	−0.023	0.068**	−0.123***
	(0.082)	(0.044)	(0.029)	(0.032)
Education (years)	0 .011*	0.006	−0.001	0.007***
	(0.007)	(0.004)	(0.003)	(0.003)
Size (total workforce)	0.010	0.005	0.004	0.001
	(0.008)	(0.004)	(0.002)	(0.003)
Experience (years)	−0.003	−0.001	−0.002	−0.0002
	(0.004)	(0.002)	(0.002)	(0.002)
Sex	0.034	−0.009	0.043	−0.0001
	(0.117)	(0.064)	(0.038)	(0.047)
Location (city)	−0.015	−0.020	0.023	−0.019
	(0.083)	(0.046)	(0.027)	(0.033)
Observations	268	268	268	268

Source: Estimated from field data, 2015. ; *Above estimates are results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

5.6.6 Testing Heterogeneity of only business management training (Treatment 1) on business practices

In view of the above inconsistency between the findings of this study and those reported in literature, the study disaggregated the sample by stratifying along the above-listed vendor and business characteristics to determine whether the lack of significant treatment

effects on business practices differ across these characteristics. Results of these tests of heterogeneity are presents in Tables 5.11.1 to Table 5.11.9.

5.11.1

Table : Effects of treatment 1 on business practices disaggregated by educational level of vendor

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*High education	0.002	0.131	0.109	0.597	−0.038	−0.236	−0.054	−0.225
	(0.147)	(0.257)	(0.079)	(0.504)	(0.032)	(0.352)	(0.057)	(0.365)
Training	0.023	0.109	−0.025	−0.107	0.019	0.081	0.029	0.131
	(0.060)	(0.916)	(0.032)	(0.149)	(0.023)	(0.104)	(0.024)	(0.112)
High education	0.057	0.053	0.048	0.041	−0.038	−0.036	0.050	0.051
	(0.085)	(0.091)	(0.046)	(0.050)	(0.032)	(0.035)	(0.033)	(0.036)
Year (follow-up)	−0.054	−0.079	−0.043	−0.019	0.085***	0.067**	−0.096***	−0.125***
	(0.059)	(0.081)	(0.032)	(0.045)	(0.022)	(0.031)	(0.022)	(0.032)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), city business is located.*

Table 5.11.2

: Effects of treatment 1 on business practices disaggregated by city of business

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*City (Kumasi = 1)	0.061	2.328	0.072	1.516	−0.013	0.032	0.126	0.786
	(0.121)	(3.685)	(0.065)	(2.076)	(0.046)	(1.409)	(0.083)	(1.482)
Training	0.0003	0.001	−0.035	−0.123	0.014	0.051	0.112***	0.070
	(0.070)	(0.245)	(0.038)	(0.138)	(0.027)	(0.094)	(0.026)	(0.098)
City	−0.053	−0.047	−0.046	−0.041	0.023	0.023	−0.072	−0.030
	(0.092)	(0.086)	(0.050)	(0.049)	(0.035)	(0.033)	(0.062)	(0.035)
Year (follow-up)	−0.058	−0.075	−0.033	−0.020	0.078***	0.068**	−0.037	−0.122***
	(0.057)	(0.079)	(0.031)	(0.045)	(0.022)	(0.030)	(0.022)	(0.031)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education).*

5.11.3

Table : Effects of treatment 1 on business practices disaggregated by sex of vendor

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*Sex (Male = 1)	0.161	2.575	0.020	0.281	0.072	1.074	0.073	1.260
	(0.224)	(3.232)	(0.122)	(1.767)	(0.085)	(1.239)	(0.091)	(1.290)
Training	0 .012	0.067	−0.011	−0.055	0.004	0.031	0.018	0.088
	(0 .059)	(0.287)	(0.032)	(0.157)	(0.022)	(0.110)	(0.024)	(0.115)
Sex	−0.037	−0.026	−0.025	−0.016	0.024	0.017	−0.039	−0.028
	(0.142)	(0.143)	(0.077)	(0.078)	(0.054)	(0.055)	(0.057)	(0.057)
Year (follow-up)	−0.055	0.077	0.033	−0.019	0.079***	0.068**	−0.101***	−0.124***
	(0.057)	(0.081)	(0.031)	(0.045)	(0.022)	(0.031)	(0.021)	(0.032)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.11.4

: Effects of treatment 1 on business practices disaggregated by size of firm

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*firm size (>5 workers)	−0.203	−0.621	0.006	0.018	−0.127	−0.346**	−0.083	−0.298*
	(0.140)	(0.394)	(0.076)	(0.216)	(0.053)	(0.153)	(0.055)	(0.157)
Training	0.055	0.310	−0.007	−0.042	0.029	0.162	0.033*	0.188
	(0.060)	(0.358)	(0.033)	(0.196)	(0.023)	(0.139)	(0.024)	(0.145)
Firm size (>5 workers)	0.195***	0.219***	0.079**	0.083**	0.062**	0.069**	0.055*	0.068**
	(0.071)	(0.076)	(0.039)	(0.042)	(0.027)	(0.029)	(0.029)	(0.030)
Year (follow-up)	−0.020	−0.074	−0.028	−0.024	0.096***	0.068**	−0.087***	−0.117***
	(0.061)	(0.081)	(0.032)	(0.044)	(0.022)	(0.031)	(0.023)	(0.032)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), vendor's education (years of formal education), city business is located.*

5.11.5

Table 5.11.6

: Effects of treatment 1 on business practices disaggregated by experience of vendor

Variable	Overall Business Practice		Business Planning		Financial Management		Record Management	
	ITT	ATET	ITT	ATET	ITT	ATET	ITT	ATET
Training*Experience (≥ 5 years)	−0.117	−1.404	−0.071	−0.468	−0.058	−0.693	−0.058	−0.270
	(0.107)	(1.392)	(0.058)	(0.753)	(0.041)	(0.170)	(0.041)	(0.562)
Training	0.071	1.371	0.020	0.369	0.035	0.678	0.035	0.347
	(0.074)	(1.479)	(0.040)	(0.800)	(0.028)	(0.184)	(0.028)	(0.599)
Experience (≥ 5 years)	0.030	0.117	0.034	0.053	0.023	0.066	0.023	−0.001
	(0.082)	(0.141)	(0.045)	(0.077)	(0.031)	(0.041)	(0.031)	(0.056)
Year (follow-up)	−0.014	−0.094	−0.008	−0.029	0.099***	0.060*	0.099***	−0.123***
	(0.072)	(0.092)	(0.039)	(0.049)	(0.027)	(0.032)	(0.027)	(0.036)
Observations	268	268	268	268	268	268	268	268

*ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.11.7

: Effects of treatment 1 on overall business practice index disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−0.267*	1.442	0.227	0.832	−0.250**	−0.915**	−0.094	−0.304
	(0.158)	(0.928)	(0.146)	(0.557)	(0.114)	(0.450)	(0.160)	(0.394)
Training	0.050	0.228	−0.015	−0.029	0.083	0.607	0.037	0.240
	(0.060)	(0.280)	(0.059)	(0.286)	(0.062)	(0.461)	(0.061)	(0.378)
Food type	0.036	0.027	0.065	0.041	−0.026	0.056	0.051	0.069
	(0.092)	(0.080)	(0.065)	(0.086)	(0.081)	(0.078)	(0.080)	(0.083)
Year	−0.031	0.080	−0.078	−0.073	0.003	−0.073	−0.045	−0.083
	(0.059)	(0.081)	(0.080)	(0.082)	(0.063)	(0.079)	(0.060)	(0.081)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.11.8

: Effects of treatment 1 on business planning disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−0.054	−0.355	0.097	0.352	−0.140**	−0.407*	−0.065	−0.105
	(0.086)	(0.510)	(0.080)	(0.306)	(0.062)	(0.247)	(0.087)	(0.216)
Training	−0.006	−0.030	−0.025	−0.100	0.024	0.174	0.002	0.011
	(0.032)	(0.154)	(0.032)	(0.157)	(0.034)	(0.252)	(0.033)	(0.207)
Food type	−0.010	−0.015	0.015	0.003	−0.009	0.023	0.043	0.043
	(0.050)	(0.044)	(0.044)	(0.047)	(0.044)	(0.043)	(0.043)	(0.046)
Year	−0.029	−0.023	−0.043	−0.023	0.001	−0.021	−0.024	−0.025
	(0.032)	(0.044)	(0.033)	(0.045)	(0.034)	(0.044)	(0.032)	(0.044)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.11.9

: Effects of treatment 1 on financial management disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−0.154**	−0.837**	0.013	0.052	−0.060	−0.232	−0.052	−0.130
	(0.060)	(0.359)	(0.056)	(0.210)	(0.043)	(0.170)	(0.061)	(0.151)
Training	0.028	0.126	0.003	0.012	0.023	0.168	0.015	0.082
	(0.023)	(0.108)	(0.023)	(0.108)	(0.024)	(0.174)	(0.023)	(0.145)
Food type	0.036	0.043	0.054*	0.054	0.013	0.017	0.005	0.004
	(0.036)	(0.031)	(0.031)	(0.032)	(0.031)	(0.030)	(0.030)	(0.032)
Year	0.094***	0.068**	0.082***	0.079**	0.093***	0.072**	0.083***	0.069**
	(0.022)	(0.031)	(0.023)	(0.031)	(0.024)	(0.030)	(0.023)	(0.031)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.11.10

: Effects of treatment 1 on record management disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−0.059	−0.250	0.118**	0.432	−0.048	−0.280***	0.025	−0.069
	(0.061)	(0.357)	(0.056)	(0.215)	(0.044)	(0.180)	(0.062)	(0.157)
Training	0.028	0.131	0.006	0.057	0.036	0.266	0.020	0.146
	(0.024)	(0.115)	(0.024)	(0.116)	(0.025)	(0.187)	(0.025)	(0.154)
Food type	0.014	0.001	−0.004	−0.018	−0.034	0.014	0.004	0.023
	(0.037)	(0.032)	(0.032)	(0.034)	(0.032)	(0.031)	(0.032)	(0.033)
Year	−0.096***	−0.124***	−0.116***	−0.128***	−0.091***	−0.123***	−0.103***	−0.125***
	(0.022)	(0.032)	(0.023)	(0.032)	(0.024)	(0.030)	(0.023)	(0.032)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.11.11

According to Table 5.11.1, Table 5.11.2, Table 5.11.3, and Table 5.11.5, ITT and ATET estimates suggest that stratifying vendors by educational background, location of business, sex of vendor, and experience of vendor all gave estimates that are statistically not significant, thus confirming the effects on the overall study sample. The results however suggest that firms with total workforce of more than 5 were 34.6% and 29.8% less likely to implement standard financial and record management practices respectively. In the same light, vendors operating *waakye* enterprises performed significantly worse in terms of overall business practice index, business planning and record management with ATET estimates suggesting a decline of 91.5%, 40.7% and 28% respectively. Similarly, operators of *fufu* enterprises had ceased certain financial management related practices that were being practices at baseline. The only instance of significant positive effect is found with record management practices of *check-check* operating enterprises where a 11.8% improvement (based on ITT estimates) dissipates when the analysis is limited to only participating vendors (an insignificant ATET of 43.2%).

Comparing results on the effects of only business management training with those of the combined intervention implies that the study fails to reject the hypothesis that the effects of the combined training in business management and vendors' organization on business practices and performance of street food enterprises are significantly higher than effects of only business management training.

This suggests that training for operators of less educated informal sector such as that of street food vending, may just not suffice in producing the expected changes in knowledge and practices. The study in 5.14 explored the mechanisms through which these differences occurred.

5.6.7 Estimation of Effects of only business management training (Treatment 1) on Business Performance

Following the determination of treatment effect of treatment 1(only business management training) on practices of treatment firms and the subsequent test of heterogeneity of treatment effects, the study estimated the effects on business performance; gross margin ratio, number of customers served and average sales per customer. Results of these analyses are presented in Table 5.12.1 and Table 5.12.2.

Table 5.12.1.1: Descriptive characteristics of business performance indicators: Treatment 1 versus Control

Indicator of business performance	**Treatment 1**	**Control**	**p-value for ttest**
Daily gross margin ratio (%)	31.25	30.31	0.71
Number of customers served daily	145	148	0.81
Average daily sales per person (GH¢)	2.95	2.63	0.22

Table 5.12.1.1 on the other hand shows the descriptive statistics for the business performance indicators used in the study between treatment 2 and control, using follow up figures. It can be seen from the table that the effects of only business management intervention were statistically insignificant and the same for the two groups.

Consistent with the estimated treatment effects of only business management on business practices, the study found no significant effects on any of the three measures of business performance/outcomes. These findings contradict results reported by Berge et al. (2011) who rather found that business training significantly increased the profits of male entrepreneurs by about 20-30% and those of Bruhn et al. (2012) where business consulting resulted in 80% and 120% increase in sales and profits respectively. On the other hand, the findings of this study are typical of what have been reported in the

literature on the effect of training on business outcomes/performance. For instance, (Fairlie et al., 2012; de Mel et al., 2012 and Karlan and Valdivia, 2011) all did not find any significant differences between the performance/outcomes of treatment and control firms.

Table 5.12.1: Intention to Treat (ITT) estimates of treatment 1 on business performance

Variable	**Gross Margin Ratio**	**Number of Customers**	**Average Sales per customer**
Training***** Year	0.419	11.313	−0.506
	(2.030)	(16.941)	(0.368)
Training	0.765	−10.489	0.118
	(2.120)	(12.060) 13.738	(0.277)
Year (follow-up)	11.717***	(11.818)	−0.473**
	(1.413)	0.610	(0.257)
Education (years)	−0.266*	(0.991)	0.048**
	(0.160)	11.009***	(0.023)
Size (total workforce)	−0.559***	(1.161)	0.070**
	(0.201)	−0.145	(0.027)
Experience (years)	−0.113	(0.668)	0.028*
	(0.136)	4.555	(0.016)
Sex	3.795	(17.643)	−0.030
	(3.416)	17.310	(0.422)
Location (city)	−0.460	(11.298)	−0.624**
	(2.278)		(0.270)
Observation	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

5.12.2: ATET estimates of effects of treatment 1 on business performance

Variable	Gross Margin Ratio	Number of Customers	Average Sales per customer
Training Participation (Instrumented)	4.720	−24.524	−0.697
	(9.056)	(44.491)	(1.053)
Year	11.028***	24.170*	−0.579**
	(2.149)	(12.401)	(0.283)
Education (years)	−0.243	0.546	0.045*
	(0.166)	(1.009)	(0.023)
Size (total workforce)	−0.501**	10.954***	0.072***
	(0.201)	(1.175)	(0.027)
Experience (years)	−0.134	−0.098	0.029*
	(0.131)	(0.684)	(0.016)
Sex	3.376	4.359	0.026
	(3.300)	(17.888)	(0.418)
Location (city)	−0.011	14.971	−0.701**
	(2.403)	(12.693)	(0.297)
Observations	268	268	268

Source: Estimated from field data, 2015. ; *Above ATET estimates are results of instrumental variable random effect regressions. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

5.6.8 Testing for Heterogeneity of effects of only business management training (Treatment 1) on performance

Testing for heterogeneity of treatment effects found that treated firms with higher education have statistically significant increase in their unit sales of GH¢ 5.6. However, these vendors, experienced significant decline in the daily number of customers served as shown in Table 5.13.1. This implies that training enabled treated vendors with higher

Table

education to charge premium prices without necessarily expanding the customer base of the business. Also, ITT estimates in Table 5.13.2 indicate that being assigned to treatment group has the probability of significantly causing a decline in the daily number of customers served by 41 for firms with a total force of greater than 5. In addition, it was found that treated vendors operating *waakye* enterprises experienced a significant increase in daily customers served (an increase of 251 customers which is significant at 1%) without necessarily translating into higher average sales per customer. In fact, treated vendors operating *waakye* enterprises experienced a significant decline of GH¢ 3.8 in average sales per customer. This suggests that training might have enabled vendors to attract new customers, perhaps due to better customer relation skills.

However, these customers may be 'low income' ones hence the failure to experience a positive effect in unit sales.

Generally, analyses of the effects of only business management training (excluding the module on formation and management of street food vendor organizations) suggest that training neither significantly enhance the practices nor performance of treated firms.

Thus, the study's hypothesis that business management training alone has significant positive effects on practices and performance of street food vending enterprises is rejected.

This contradicts results from the joint intervention (both business management training plus a module on the formation and management of street food vendor organizations). The next section explores factors that account for these significant differences by estimating how the two treatments affected collective action parameters such as

membership of street vendor organization, membership commitment and the level of cooperation of street vendors.

Table 5.13.1

: Effects of treatment 1 on business performance disaggregated by educational level of vendor

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*High education	−2.802	5.223	−49.560**	−314.665**	1.003**	5.642*
	(3.084)	(8.563)	(21.824)	(145.376)	(0.494)	(3.251)
Training	1.222	−14.255	1.723	2.762	−0.260	−1.126
	(1.900)	(21.504)	(8.961)	(44.447)	(0.217)	(1.012)
High education	−2.883	−2.608	6.471	11.397	−0.257	0.174
	(1.938)	(2.192)	(12.587)	(14.542)	(0.291)	(0.326)
Year (follow-up)	12.239***	11.170***	25.424***	24.676*	−0.844***	−0.599**
	(1.066)	(2.133)	(8.759)	(24.676)	(0.190)	(0.289)
Observations	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), city business is located.*

Table 5.13.2

: Effects of treatment 1 on business performance disaggregated by size of firm

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training* firm size (>5 workers)	−2.150	−8.239	−41.459*	−111.272	0.060	0.326
	(2.901)	(10.244)	(21.223)	(60.618)	(0.473)	(1.386)
Training	0.877	6.465	6.627	38.322	0.101	−0.667
	(1.890)	(11.315)	(9.265)	(55.067)	(0.220)	(1.314)
Firm size (>5 workers)	− 2.436	−1.953	86.843***	90.367***	0.306	0.315
	(1.772)	(1.908)	(10.939)	(11.661)	(0.252)	(0.267)
Year (follow-up)	12.114***	11.127***	24.982***	18.248	−0.727	−0.604**
	(1.087)	(2.149)	(8.896)	(12.465)	(0.193)	(0.283)
Observations	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), vendor's education (years of formal education), city business is located.*

Table 5.13.3

: Effects of treatment 1 on business performance disaggregated by experience of vendor

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Experience (≥ 5 years)	1.717	0.043	0.483	93.965	−0.424	−1.823
	(1.999)	(45.290)	(15.995)	(214.818)	(0.350)	(5.124)
Training	0.252	4.842	−5.076	−109.492	0.061	1.010
	(2.055)	(48.891)	(11.030)	(228.636)	(0.259)	(5.471)
Experience (≥ 5 years)	2.299	2.663	−1.574	−10.266	0.531*	0.555
	(2.189)	(4.142)	(12.361)	(21.653)	(0.292)	(0.509)
Year (follow-up)	10.912***	10.645***	19.030*	25.107*	−0.557**	−0.611*
	(1.298)	(2.458)	(10.668)	(13.791)	(0.232)	(0.316)
Observations	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.13.4

: Effects of treatment 1 on business performance disaggregated by city of business

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*City (Kumasi = 1)	−1.631	−9.386	−26.859	−851.630	0.518	8.776
	(3.933)	(119.155)	(18.040)	(678.645)	(0.437)	(13.783)
Training	1.535	5.277	4.343	15.189	−0.313	−1.101
	(2.299)	(7.874)	(10.531)	(45.079)	(0.255)	(0.916)
City	0.283	0.132	29.285**	27.131*	−0.860**	−0.822**
	(2.889)	(2.636)	(13.807)	(15.706)	(0.332)	(0.321)
Year (follow-up)	11.920***	10.959***	19.320**	22.454*	−0.721***	−0.563**
	(1.012)	(2.104)	(8.452)	(13.537)	(0.184)	(0.281)
Observations	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education).*

Table 5.13.5

: Effects of treatment 1 on business performance disaggregated by sex of vendor

Variable	Gross Margin Ratio		Number of Customers		Average Sales per customer	
	ITT	ATET	ITT	ATET	ITT	ATET
Training*Sex (Male = 1)	−0.539	24.580	31.020	403.821	−0.203	−2.988
	(6.613)	(90.005)	(33.885)	(495.870)	(0.815)	(11.470)
Training	1.048	2.215	−8.206	−33.545	−0.077	−0.529
	(1.911)	(7.897)	(8.907)	(44.105)	(0.216)	(1.018)
Sex	3.770	2.302	−0.430	−5.072	−0.189	0.120
	(4.190)	(3.741)	(21.459)	(21.944)	(0.516)	(0.502)
Year (follow-up)	11.910***	11.563***	19.618**	24.892**	−0.722***	−0.603**
	(1.015)	(2.013)	(8.426)	(12.491)	(0.185)	(0.281)
Observations	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.13.6

: Effects of treatment 1 on gross margin ratio disaggregated by type of food

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−5.507*	−29.138	0.684	2.096	0.858	−3.896	0.670	−4.400
	(3.261)	(19.440)	(2.964)	(12.300)	(2.273)	(13.249)	(3.299)	(11.530)
Training	1.618	7.298	0.701	3.675	1.012	7.797	1.044	6.972
	(1.902)	(9.131)	(1.901)	(8.919)	(1.927)	(14.611)	(1.930)	(12.398)
Food type	1.265	0.759	1.881	1.751	−2.411	0.869	1.644	2.543
	(2.390)	(2.165)	(2.045)	(2.131)	(2.082)	(2.393)	(2.141)	(2.508)
Year	12.487***	10.969***	12.000***	11.326***	11.660***	10.807***	11.894***`	10.922***
	(1.074)	(2.161)	(1.100)	(2.079)	(1.165)	(1.916)	(1.071)	(2.159)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.13.7

: Effects of treatment 1 on number of customers served daily disaggregated by type of food

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	−87.950***	−514.648***	4.294	30.686	76.489***	251.830***	32.905	98.012
	(23.241)	(146.562)	(21.636)	(82.430)	(16.662)	(70.114)	(23.763)	(61.182)
Training	5.542	20.798	0.817	−16.081	−19.309**	−140.643	−7.866	−64.721
	(9.069)	(44.271)	(8.818)	(42.473)	(9.234)	(72.099)	(9.125)	(59.212)
Food type	22.053	27.878**	−42.942***	−40.135***	−36.119***	−48.995***	0.413	−10.120
	(13.733)	(12.677)	(12.032)	(12.739)	(11.914)	(12.194)	(11.970)	(12.948)
Year	28.523***	24.651*	14.846*	17.893	0.389	17.259	16.179*	25.651**
	(8.584)	(12.730)	(8.929)	(12.086)	(9.239)	(12.217)	(8.812)	(12.456)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. **;** *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.13.8

: Effects of treatment 1 on daily average sales per customer disaggregated by food type

Variable	Fufu		Check-check		Waakye		Tuo Zaafi	
	ITT	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**	**ITT**	**ATET**
Training*Food type	0.659	3.600	0.187	0.293	−1.408***	−3.804**	−1.153**	−2.234
	(0.528)	(3.163)	(0.489)	(1.887)	(0.376)	(1.643)	(0.536)	(1.414)
Training	0.151	−0.609	−0.247	−0.802	0.168	1.251	0.050	0.634
	(0.218)	(1.043)	(0.213)	(1.040)	(0.223)	(1.717)	(0.219)	(1.393)
Food type	0.706**	0.167	0.825***	0.682**	0.306	0.701**	0.648**	0.827***
	(0.323)	(0.288)	(0.282)	(0.298)	(0.282)	(0.286)	(0.281)	(0.301)
Year	0.736***	−0.641**	0.666***	−0.504*	−0.367	−0.513*	−0.571***	0.657**
	(0.190)	(0.284)	(0.196)	(0.280)	(0.204)	(0.275)	(0.192)	(0.282)
Observations	268	268	268	268	268	268	268	268

Source: Estimated from field data, 2015. ; *ITT estimates are results of difference-in-difference random effect regressions whilst ATET estimates are results of instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively. Covariates included in the analysis are sex of vendor, experience (number of years a vendor has been in street food business), size of firm (measured by total workforce), vendor's education (years of formal education), city business is located.*

Table 5.13.9

5.7. Explaining differences between the effects of treatment 1 and treatment 2 From the foregone analyses and discussions, it can be seen that there exist a significant difference between the effects of only business management training (treatment 1) and business management training with additional module on formation and management of street food vendor organizations (treatment 2). To understand this, the study explores how treatment vendors in the two treatment groups exhibited characteristics of collective action and how that affected understanding of course content as well as implementation of standard business management practices that were taught during

training.

Three indicators were used as measures of collective action. First, street food vendors' membership of street food vendor organization and how it changed between baseline and follow-up periods. Secondly, the study measures the extent of commitment of vendors who are members of street food vendor organizations. Membership commitment, in turn, is measured by frequency of meeting attendance/participation in group's activities and punctuality in the payment of dues and other financial obligations. Lastly, the extent of cooperation of street food vendors was estimated by determining whether they share business related information (such as cost and revenue) with other food vendors, and the extent and frequency of cooperation with other vendors to pursue mutually beneficial courses of action.

Tables 5.14 and 5.15 present descriptive statistics of the indicators of collective action described in the preceding paragraph for treatment 1 versus control and treatment 2 versus control respectively. The results from Table 5.14 show that with the exception of

cooperation index, no significant difference was found for treatment 1 between the baseline and follow-up periods.

Table 5.14: Descriptive statistics of membership of association, membership commitment and cooperation of vendors (treatment 1 and control)

Variable	Baseline period			Follow-up period		
	T1[a]	C[b]	(TI – C)[c]	T1[a]	C[b]	(TI – C)[c]
Association Membership (Member of an association = 1; otherwise = 0)	16*	15*	1	12*	9*	3
Commitment Index = (a + b)/2	0.50	0.47	0.03	0.37	0.36	0.01
a. Payment of membership dues (a)	0.61	0.75	0.14	0.46	0.67	0.21
1. Don't pay at all = 0 2. Pays 25% of my obligations = 0.25 3. Pays 50% of my obligations = 0.50 4. Pays 75% of my obligations = 0.75 5. Pays 100% of my obligations = 1.00						
b. Attendance of association meetings (b)	0.70	0.79	0.09	0.58	0.72	0.14
1. I don't attend at all = 0 2. I attend 1 out of every 4 meetings (25%) = 0.25 3. I attend 2 out of every 4 meetings (50%) = 0.50 4. I attend 3 out of every 4 meetings (75%) = 0.75 5. I attend 4 out of every 4 meetings (100%) = 1.00						
Cooperation index (c + d+ e)/3	0.28	0.24	0.04	0.36	0.28	0.08**
c. Relationship with other street (food) vendors (c)	0.40	0.35	0.03	0.57	0.46	0.09
0. Bad (I do not have any working relationship with other vendors) 1. Good (I have a good working relationship with other vendors)						
d. Frequency of cooperation with other street (food) vendors (d)	0.22	0.19	0.04	0.35	0.26	0.11
1. Accidental (but not purposeful) = 0.25 2. Rarely (but purposeful) = 0.50 3. Often = 0.75 4. Very often = 1.00						
e. Sharing/disclosure of business information (e.g. cost, revenue, credit) (e)	0.22	0.17	0.04	0.15	0.12	0.03
0. No, I do not share or disclose such business information with other vendors 1. Yes, I do share or disclose such business information with other vendors						

Source: Estimated from field data, 2015. ; [a]= mean score of treatment group 1; b = mean score of control group; c = absolute difference between mean score of treatment 1 and control groups; * = number of vendors belonging to associations.

Table 5.15: Descriptive statistics of membership of association, membership commitment and cooperation of vendors (treatment 2 and control)

Variable	Baseline period			Follow-up period		
	T2[d]	**C[e]**	**(T2 –C)[c]**	**T2[d]**	**C[e]**	**(T2 –C)[f]**
Association Membership (Member of an association = 1; otherwise = 0)	14*	12*	2	30*	8*	22
Commitment Index = (a + b)/2	0.41	0.51	0.10	0.80	0.39	0.41***
f. Payment of membership dues (a)	0.50	0.62	0.12	0.90	0.41	0.49***
6. Don't pay at all = 0 7. Pays 25% of my obligations = 0.25 8. Pays 50% of my obligations = 0.50 9. Pays 75% of my obligations = 0.75 10. Pays 100% of my obligations = 1.00						
g. Attendance of association meetings (b)	0.36	0.40	0.04	0.68	0.25	0.43***
6. I don't attend at all = 0 7. I attend 1 out of every 4 meetings (25%) = 0.25 8. I attend 2 out of every 4 meetings (50%) = 0.50 9. I attend 3 out of every 4 meetings (75%) = 0.75 10. I attend 4 out of every 4 meetings (100%) = 1.00						
Cooperation index (c + d+ e)/3	0.26	0.21	0.05	0.41	0.30	0.11***
h. Relationship with other street (food) vendors (c)	0.89	0.87	0.02	0.76	0.71	0.05
2. Bad (I do not have any working relationship with other vendors) 3. Good (I have a good working relationship with other vendors)						
i. Frequency of cooperation with other street (food) vendors (d)	0.55	0.52	0.03	0.59	0.54	0.05

5. Accidental (but not purposeful) = 0.25 6. Rarely (but purposeful) = 0.50 7. Often = 0.75 8. Very often = 1.00						
j. Sharing/disclosure of business information (e.g. cost, revenue, credit) (e)	0.17	0.28	0.11	0.15	0.13	0.02
2. No, I do not share or disclose such business information with other vendors 3. Yes, I do share or disclose such business information with other vendors						

Source: Estimated from field data, 2015. ; [d] = mean score of treatment group 2; [e] = mean score of control group; [f] = absolute difference between mean score of treatment 2 and control groups; * = number of vendors belonging to associations

On the other hand, Table 5.15 shows that vendors receiving the combined intervention of business management and vendor associations training experienced significant relative improvements in all three main measures of collective action between baseline and follow-up periods.

Table 5.16 presents results (ATET estimates) of instrumental variable regression for these three measures of collective action. In terms of vendors' membership of street food vendor organization, receiving treatment 2 (i.e. combined intervention) significantly increases membership by 28.7% at 1% significance level relative to an insignificant 10.6% increase for those who did not receive the module on vendor association. A key feature of the additional association module was the sensitization of participants on what these organizations are, the potential benefit of being a member, the procedure one has to follow to become a member. The results therefore suggest that the extra module was successful in creating the needed awareness on the need to collectively act with other vendors to achieve a mutually beneficial goal. Whereas membership of street food vendors' organizations dropped from 16 to 12 for treatment 1treatment 2 experienced an increase of 16. In Kumasi for instance, some beneficiaries of the combined intervention formed a new street food vendor organization after the

training.

Columns 2 and 5 of Table 5.16 show the effect of training on the extent of membership commitment for vendors under treatment 1 and treatment 2 respectively. The study found that receiving business management training with the extra module on formation and management of street food vendor organization significantly increased the commitment level of members by 31%.

Table 5.16: ATET estimates of effects of training on vendors' association membership, commitment of members and cooperation

	Treatment 1			**Treatment 2**		
	Association Membership	**Membership Commitment**	**Extent of Cooperation**	**Association Membership**	**Membership Commitment**	**Extent of Cooperation**
Training Participation (Instrumented)	0.106	0.019	0.196	**0.287*** **	**0.310** **	**0.216** **
	(0.145)	(1.479)	(0.161)	(0.089)	(0.127)	(0.088)
Year	−0.060	−0.061	0.019	−0.043	0.062	0.047
	(0.038)	(0.241)	(0.041)	(0.037)	(0.107)	(0.036)
Education (years)	0.005*	−0.002	0.007*	0.004	0.007	0.005*
	(0.003)	(0.009)	(0.003)	(0.003)	(0.007)	(0.003)
Size (total workforce)	0.009**	0.004	0.004	0.001*	−0.006	−0.001
	(0.004)	(0.018)	(0.004)	(0.003)	(0.005)	(0.003)
Experience (years)	0.0002	−0.0004	0.002	0.001	0.004	0.003
	(0.002)	(0.025)	(0.003)	(0.002)	(0.004)	(0.002)
Sex	−0.006	0.181	0.100	0.049	−0.033	0.200***
	(0.058)	(0.220)	(0.045)	(0.050)	(0.070)	(0.049)
Location (city)	0.013	0.052	−0.179***	0.070*	−0.084	−0.091***
	(0.041)	(0.138)	(0.045)	(0.036)	(0.070)	(0.035)
Observations	268	44	268	272	58	272

Source: Estimated from field data, 2015. ; *Above are ATET estimates from instrumental variable analysis. Standard errors are in parenthesis; *, **, *** represent 10%, 5% and 1% significant levels respectively.*

Treatment 1 however, had effect is marginally and insignificant effect on membership commitment. These vendors were more punctual when it comes to attendance of meeting and payment of dues and fulfilment of other financial obligations. A vendors' decision to discharge his/her membership responsibility requires an understanding of the need to do so. Since this was a critical component of the module on association, the results suggest that the module was effective in equipping participating vendors with this understanding. Specifically, part of meeting time was dedicated to revising some of the topics that were covered during the training. During these sessions, better informed vendors or leaders of the organization take time to explain to other members who may not have understood and hence could not implement standard business management practices that were taught and recommended during the training. Occasionally, these organizations invite Business Advisory Consultants from NBSSI or other resource persons to conduct refresher training for them.

Columns 3 and 6 of Table 5.16 also present result of analyses of the extent of vendors' cooperation with other street food vendors. Receiving training on vendors association' significantly increased the level of cooperation with other vendors by 21.6%. Qualitative evidence suggests that the extent of information sharing among treated vendors of treatment 2 is higher than either those of treatment 1 or control. An interesting observation is the fact that treated vendors receiving the extra module were more willing to share business information, even critical information such as cost, revenue, profit and successful business recipe. There are also instances where these vendors have acted collectively to negotiate with municipal authorities and regulators of the sector.

The above results give an indication that although membership of street food vendor organization may not directly affect their implementation of standard business

management practices, they offered committed and cooperating members the platform and the opportunity for either further discussions among vendors on the training content or refresher training from external resource persons at virtually no fees. This affords 'laggards' the extra time (beyond the duration of the training intervention) needed to fully comprehend course content. Inasmuch as the interventions and the learning environment were designed to facilitate free and open group discussions and understanding, it is still possible for some participants to either shy away from seeking clarifications during the course or feel intimidated by the mere presence of others. All these may hinder understanding and hence implementation of recommended practices. Thus, the platform provided by these organizations also allows for peer tuition in the form of revision and discussions on implementation challenges.

CHAPTER SIX

6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary and Conclusions

The importance of the street food sector as a major source of income, employment and food makes it imperative that measures are put in place to ensure its sustainability as a means of livelihood for millions of people. The study analysed constraints that limit growth of street food enterprises in Ghana and how business management training can help address these constraints through improvements in business practices and performance. The study was premised on the need to identify business constraints and assess the effects of constraint-addressing interventions on growth of businesses in the street food sector. This will help improve the sector's performance and make it serve its role as a viable engine/tool for economic growth in Ghana.

Identifying the most critical constraints will facilitate policy makers to make informed decisions regarding where and how limited resources allocated to the sector should be targeted. Also, understanding the determinants of take-up/participation in training will inform the design and implementation of training interventions for the informal sector. This in turn will ensure that the expected participation, understanding and implementation are realised and hopefully, desired outcomes/results of such interventions achieved. In addition, analyses of effects of business management intervention provides policy information on the effectiveness of interventions and whether it is worth the resources spent in providing such interventions.

Descriptive analyses show that the street food sector is dominated by women (90.9%) who are between 31 and 60 years (76.4%). Most of these vendors have little or no formal education. As much as 36.6% of them have never had any formal education although a

few ones have post-secondary education. With respect to vending experience, majority (65.5%) have been operating street food enterprises for less than 10 years whilst 77% of sampled enterprises have five or less people constituting the workforce.

6.1.1 Summary of findings regarding constraints to growth of street food enterprises in Ghana

Analysis of business constraints based on vendors' self-reported perceived constraints to business growth found high cost of production, lack of access to credit, input price variability, inadequate knowledge in business management, and limited access to electricity power as five top constraints in the pooled sample. These rankings were similar across the two study areas and the type of food sold.

Grouping the 23 identified potential constraints based on the degree of commonality resulted in 7 different factors with inadequate managerial skills and financial constraints ranking first and second most critical constraints respectively.

Results of Ordinary Least Squares estimations of the effects of constraints on business growth found inadequate managerial skills and financial constraints to negatively affect the gross margin ratio between the baseline and follow-up periods. In addition, vendors who reported complex regulatory and banking procedure as a constraint experience a decrease in the rate of growth of their businesses with respect to average daily sales per person.

Based on the self-reported constraints to growth of street food enterprises in Ghana and econometric analysis of constraints to growth, the study concluded that policy

interventions aimed at improving the street food sector should aim at addressing managerial constraints or financial constraints or both.

6.1.2 Determinants of participation and extent of participation in business management training

The study found significant positive relationship between vendors' formal educational background and the probability of participation. Vendors with fewer years of formal education place little value on education and are usually demotivated from participating in training due to their perceived knowledge deficiencies.

Vendors in the pooled sample and vendors in Tamale who were engaged in some other form of economic activity aside street food vending or had street food vending as secondary business were less likely to participate in business training. For such vendors, training participation will decrease the amount of time at their disposal and hence increase their opportunity cost of participation.

Size of firm did not have any significant positive effect on the probability of participation as was expected. Instead, the presence of a trusted person positively encouraged participation in training programme since that trusted hand serves as an assurance of financial security even when the owner/manager is not at post.

In addition, firms operating in Kumasi were 36% less likely to take up training invitation compared to their counterparts in Tamale.

The study also found out that the longer the distance between the vendor's business premise and the training center the less likely they are to participate. The longer travel

distance acts as disincentive to vendors. Lastly, vendors with higher gross margin ratio were more likely to attend the training programme.

6.1.3 Effects of training programme on business practices and performance

The combined intervention of business management training and street food vendors' organization training had statistically significant positive effect on the overall business practices, business planning and record management of street food vendors in Ghana. Average treatment effect on the treated (ATET) estimates show that the effect of training on overall business practice increased by 40.6 percentage points whilst record management index increased by 39.5%.

Effects of training interventions were also found to be heterogeneous across vendor and business characteristics such as formal education, the type of food sold and the location of the business. Vendors with nine or more years of formal education improved significantly in all areas following their participation in the training programme offered. Overall business practice index improved for vendors assigned to receive the combined intervention.

The ATET estimates for overall business practice index and record management were found to be significant for relatively larger firms (workforce of greater than 5) and those located in Kumasi compared to their counterparts in Tamale. In addition, the effects of training intervention on overall business practice index were largely dependent on the type of food vended. The effect on record management was significant for *check-check* vendors whereas effect on both record management and financial management was

statistically significant for *fufu* vendors.

In terms of the effects of training intervention on business performance, results of the study suggest that training marginally improved the gross margin ratio of street food vendors.

The study found out that the effects of the combined intervention of business management training and training on street foods vendor organization on business performance do not vary with firm size, experience of vendor and sex of vendor. On the other hand, the study found treatment vendors with high education to perform significantly better in terms of gross margin ratio. However, effect of training on the number of customers served daily was negative and significant at 5% for vendors with high education.

Treated vendors operating in Kumasi performed significantly better compared to those from Tamale in terms of average sales per person. Also, treated firms operating *checkcheck* enterprises recorded significant improvement in gross margin ratio whilst *waakye* firms performed significantly worse after training.

Both ITT and ATET estimates suggest that apart from financial management, where there was a significant negative effect business management training alone did not have significant effect on any of the individual business practices indices as well as overall business practice index. With respect to effect of training on business performance, the study found no significant effect of business management training alone on street food enterprises for the pooled sample.

However, testing for heterogeneity of treatment effects showed that treated vendors with higher education have statistically significant increase in their average sales per person per day.

In explaining the differences between business management training alone and the combined intervention of business management training and street food organization training, the study found the latter to be more effective than business management training alone. The combined training (treatment 2) impacted positively on association membership, commitment level of street food vendors in associations and their level of cooperation with other vendors in the industry. Thus, although organizational membership, members' commitment to vendor associations and cooperation with other vendors may not directly affect the implementation of standard business management practices, they offer an important platform and an opportunity for collaboration and future strategic alliances for joint benefit.

Overall, the study concludes that though business management training can address some of the critical constraints impeding the growth of street food enterprises in Ghana, training alone cannot comprehensively deal with all the constraints in the street food sector to engender sustainable business performance and growth.

6.2 Recommendations

6.2.1 Addressing constraints to growth and management of food vending outlets Based on the key findings of the study, the following recommendations are made:

i. Policy measures aimed at promoting growth and development of street food sector of Ghana should target administering interventions that address either the problem of inadequate managerial skills or financial related constraints or both. Specific interventions may include period training business management, group formation and management as well as training on requirements for credit acquisition.

ii. In order to deal with problems of high cost of production and input price variability, vendors should be encouraged to consider bulk procurement of raw materials that are less perishable. Other measures to deal with these problems may include entering into agreements with trusted suppliers so that payment of items may be procured on credit or price negotiated to control the level of variability.

6.2.2 Recommendations for design and delivery of future business management trainings

Several recommendations aimed at improving the success of future training interventions are made.

i. Firstly, training programmes for informal sector managers/owners, especially for female dominated sectors like street food vending, should be spread over several days whilst training time for each day is reduced to a maximum of two hours. A reduction in the hours a vendor has to be absent from her/his workplace will likely increase participation. Moreover, this will also help reduce the number of topics that need to be covered in a day and afford trainees the opportunity to assimilate each day's content before adding extra topics.

ii. Secondly, the training venue should be strategically located in a central and easily accessible place. Preferably, training should take place within the natural environment of trainees. This will reduce the difficulty and the time a trainee has to spend in either moving from home or business premises to training venue. iii. Moreover, it is important that training programmes aimed at MSEs in the informal sector be tailored to suit the sector's specific needs. These needs should, in turn,

be the results of empirical needs assessment that employs a multi-stakeholder approach. This, the study believes will encourage participation and interest, understanding and take-up of training content.

6.2.3 Formation and management of effective food vendor organizations

The study also emphasises the need to assist food vendors to either strengthen the existing vendor associations or form new vendor associations. The vendor associations can be used as point of contact during invitation of food vendors to future training programmes. In addition, having effective and well-functioning street food vendors' association will serve as a cost effective entry point for city regulators and other

institutions.

In addition, the association will serve as a platform for peer mentoring, peer tuition and peer regulation. Also, operating effective vendor organizations will enhance the chances of vendors to secure credit facilities due to the social collateral provided by the group. The study also recommends that training interventions organized for informal sector players with little or no formal education should not be a one-off event. Rather, there should be arrangement for refresher or follow-up training programmes over time.

6.2.4 Impact of training interventions on practices and performance

The study recommends that interventions involving business management training and vendor association training should be offered jointly if maximum impact of the

interventions is to be realised.

6.2.5 Further Research

i. Future research should focus on studying a relatively homogenous group of street food vendors (for example, vendors dealing with one type of food) over a relatively long period (about 2 years) to be able to conclusively determine the effect of business management training on practices and performance of street food enterprises. Within this time, there should be multiple follow-ups conducted at different points after intervention in order to trace the trajectory of impact.

ii. Further research on evaluation of effects of business management training should increase the sample size in order to increase the statistical power of results and also reduce the effect of respondent attrition on the final impact estimates.

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APPENDIX

Components of Business Practice Indices

Business Practice	Components of Business Practice Indices	Score
Business Planning	1. I plan my business operations or activities (*what shows?)*	
	2. How often do you plan your business operations or activities? *(tick the most appropriate)*	
	3. I put down my plans in writing (*kindly provide evidence of written plans or planning process*)	
Sub-score		
Financial Management	1. I factor in my costs of operations, the value I am delivering or the price of my competitors in setting the selling price of my produce (*explain how these things are done*)	
	2. I prepare budget for my business operations (*kindly show me sample of your budget)*	
	3. How often do you prepare business budget?	
	4. I am able to know when I will need borrowed money and when I would have excess money (*how are able to know?*)	
	5. I am able to trace the source of my cash deficit and surplus (*how are able to know?*)	
	6. I am able to know what to do to avoid cash deficit (*how are able to know?*)	
	7. I have an account with a bank or a financial institution BUT NOT in the name of the business *(request for details)*	
	8. I have a bank account in the name of the business *(request for details)*	
	9. How often do you save?	
	10. I have applied for a loan before (either from a commercial bank or a microfinance institution) *(evidence to show)*	
	11. I have received loan from a financial institution before *(from where and what evidence have you got to show this?)*	
Sub-score		
	1. I keep written business records (*kindly provide evidence to that effect*)	
	2. I have a book for keeping the records of my business operations (*kindly let me have a look at your record book*)	
	3. I record daily sales and purchases made by the business (*check through the record book to verify*)	
	4. I able to use records to see how much cash the business has on hand at any point in time (*how do you do that?)*	
	5. I am able to use the records to know which product or activities are bring more or less money *how do you do that?)*	
	6. I have records of all those who owe me as well as those I owe *check through the record book to verify*	

	7. I am able to use business records to know how much of each raw material or input is left in stock at each point in time.	
Sub-score		
Grand score