Does household poverty affect the participation of women in enterprises? The case of Kenyan slum dwellers.

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List of Acronyms

AIDS   Acquired Immune Deficiency Syndrome

ATT   Average Treatment effect on the Treated

CIA   Conditional Independence Assumption

EPZ	Export Processing Zone
GEM	Global Entrepreneurship Monitor
GES	Global Entrepreneurship Summit
GOK	Government of Kenya
HIV	Human Immune Virus
IEA	Institute of Economic Affairs
IFC	International Finance Cooperation
ILO	International Labour Organization
IRIN	Integrated Regional Information Networks
KBM	Kernel Based Matching
KDHS	Kenya Demographic Health Survey
KHPC	Kenya Household Population Census
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics
LPM	Linear Probability Model
MF	Micro-Finance
MFI	Microfinance Institutions
MM	Mahalanobis Matching
MDG	Millennium Development Goal
MSE	Micro and Small enterprises
MSME	Micro Small and Medium Enterprises
NNM	Nearest Neighbor Matching
NGO	Non-Governmental Organization
PPP	Purchasing Power Parity
PSM	Propensity Score Matching

RM   Radius Matching

UDEC   University of Dar es Salaam Entrepreneurship Centre

UNICEF   United Nations International Children's Education Fund

UNIFEM   United Nations Development Fund for Women

WEF   Women's Enterprise Fund

Abstract

There are large numbers of poor women living in the informal settlements in Kenya despite of the low number of economic opportunities available for exploitation in those areas. Such women find themselves in a vicious cycle of poverty and sometimes intergenerational poverty sets in. Women are born in shanties by poor women, and due to lack of adequate education and economic opportunities, they end up in low being activities or start up small unprofitable enterprises. They thus remain poor and their children face the risk of remaining poor. The key research question that this study sought to answer was the extent to which household poverty affects the participation in enterprises by women living in informal settlements in urban Kenya. The study hypothesized that women living in poverty participate in entrepreneurship because of the need to improve their living conditions and find alternatives to unemployment. The broad objective of the study was to examine the extent which household poverty and other covariates affect the participation of Kenyan women slum dwellers in entrepreneurship. Based on the findings, the study suggested relevant policy recommendations for improving the plight of such women. Both quantitative and qualitative methods were used for analysis. The study was based on the Kenya Integrated Household Budget Survey (KIHBS) 2005/6 data, complemented by a case study survey of 30 women from Kibera slum, Nairobi, who were interviewed in July 2015. Qualitative and descriptive data analysis methods, a probit model of participation in enterprises and the Propensity Score Matching (PSM) method were used to derive the study findings. The findings of this study showed that women living in shanties were less likely to participate in entrepreneurship compared to their counterparts living in other forms of informal settlements (Manyattas and Swahilis). Furthermore, poverty was found to be a key barrier to the participation of women in entrepreneurship. Other barriers included marital status, presence of many children and culture. Household size, transfers and education were found to encourage participation in entrepreneurship. The results also show that differences in participation of men and women in could be due to the differences in age, education, poverty and marital status. The study offered several policy recommendations for enhancing the participation of women in enterprises. First, the study recommended fostering of equity and poverty eradication programmes, especially those targeting informal settlement dwellers. Second, there is need for policies targeting gender and vulnerable groups and the need to address gender bias and differentials in Kenya. Third, provision of functional training in finance, marketing, production and managerial skills among poor women entrepreneurs. Finally the study recommended provision of credit to poor women for both start-up and boosting of enterprises.

Key words: Poverty, entrepreneurship, women, informal settlements, small scale enterprises, Kenya

Relevance to Development Studies

Entrepreneurship is a source of economic and social development in most developing countries. Women are at the heart of development, yet they face a number of challenges hindering their participation in entrepreneurship. This study explores the notion of entrepreneurship among women living in the informal settlements and whether poverty acts as the main barrier. It's based on the premise that women living in informal settlements participate in entrepreneurship in order to escape poverty. This study draws policy recommendations on how governments and non-governmental institutions can work together to enhance participation of women in entrepreneurship and therefore improve the welfare of their households and contribute towards growth and development.

CHAPTER 1

INTRODUCTION

1.0   Background Information

Entrepreneurship has been defined as "the process of assembling necessary factors of production consisting of human, physical, and information resources and doing so in an efficient manner" while entrepreneurs are those who "put things together in particular ways and combine them with physical capital and ideas to create a new product or to produce an existing product" (Lazear, 2005). Entrepreneurship is a source of economic and social development in most developing countries.

Towards the beginning of the 19th century, women across the globe gained more prominent roles as entrepreneurs since the conception of female entrepreneurial studies inspired by feminist theories (Greer and Greene, (2003), Hurley, (1999)). Goldin (1994) published her book titled *Understanding the Gender Gap* almost at the same time which had a significant impact on the study of women's employment choices. Together with Nobel laureate Gary Becker (Becker, 1965) and Blau and Kahn, (2007), these authors have inspired many studies linking female entrepreneurship, allocation of resources and poverty (Minniti and Naude, 2010). By the end of the 19th century, the study of female entrepreneurship was properly established as an important field in the labour market development. The study has grown to be an important subject not only for the purpose of women empowerment but also for poverty eradication in developing countries across the globe (Kevane and Wydick, 2001). Horrell and Krishnan, (2007) explain that the concept of female entrepreneurship has rapidly grown especially in developing countries because females are perceived as the poorer and weak gender though they are the critical drivers of the informal sectors in these countries. This is further supported by Kevane and Wydick, (2001) who add that the rapid increase in women's participation in entrepreneurship is due to the complexities of entering the formal labour market in these developing countries.

In Kenya, entrepreneurship has developed gradually over the decades despite challenges in the economy. The 1999 National Micro and Small Enterprise Baseline Survey reported that there were approximately 612,848 women entrepreneurs which was about 48% of the total labour force in the country (Central Bureau of Statistics, 1999). These statistics further showed that women in Kenya are major actors in the informal economy. Although current sex-disaggregated data is not available, statistics from the government show that approximately 48% of the 1.3 million enterprises in Kenya were owned by women in 2006. In addition, 85% of the female-owned enterprises were in various divisions of the informal sector and generated about 30% to the national GDP of the country (Government of Kenya 2006). Thus such enterprises are a source of employment, economic growth, innovation and development (Elumba, 2008) and one of the ways in which women deal with their problem of unemployment in many developing African countries (Kepha, 2013). It is therefore important that women are included in the labour market since women contribute a great deal to the economic growth and development of a country.

1.1   Nature of the research problem

World Bank (1995) argues that poverty has a 'female face' in the developing countries. Furthermore, women in these marginalized areas are faced with covariate and idiosyncratic shocks due to poverty since they are unemployed and their environment demand for lots of goods and

services. Gender segregation in labor market is also a key problem. McCormick (2001) points out that this segregation is in such a way that women dominate the informal sector activities like hair dressing, tailoring and retail of second hand clothes while men dominate in the formal sector. Overall, this puts women in a more vulnerable position than their male counterparts, who dominate better earning informal sector and formal sector activities (Suda, 2002). Most previous studies (for instance ILO, (2009); Suda, (2010) & Kariuki, (2010) focus on the challenges that business owner's encounter regardless of their gender or social status. This makes it difficult to address the 'female face' issue. Very few studies have focused on women living in the informal settlements with a specific focus on whether poverty is a barrier or incentive for women's participation in enterprises. This study also investigates the effect of other social, cultural and economic barriers in the society constraining women's participation and performance in micro enterprises.

1.2   Why focus on the informal settlements?

The study focused on informal settlements because they are characterized by high rates of poverty in most developing countries. Yet, approximately, a quarter of the world's urban population live in informal settlements (UN-Habitat, 2013). World Bank (2008) suggests that informal settlements are one of the poorest areas in any given country due to over-urbanized and overburdened cities. Other characteristics of the slums include poor sanitation services, lack of proper housing and infrastructure, overpopulation/overcrowding, prevalence of diseases and poor living conditions.

Evidence from Kenya show that earnings by households living in informal settlements (from the informal sector activities) are very low, erratic and may not help households escape poverty (Gulyani et al., 2010). The people working in the informal sector are poor and sometimes referred to as the working poor (Manda et al., 2003). Most of their enterprises are small and have minimal survival chances and thus may not sustain the households. In particular, poor women living in informal settlements face a number of challenges which include lack of financial resources, education, employment, housing, health care and other related aspects leading to deprivation (Gina et al., 2006). These factors act as barriers to better quality of life and better living standards which make them worse off compared to the non-residents of informal settlements. They opt to start enterprises in an attempt to start escape poverty and create a better life for themselves and their families.

The United Nations Statistics Division shows that 43.4 % of Kenyans earn less than $1.25 (PPP) per day while national poverty rate is at 52%, with low adult literacy rate of 26.4%. The majority of the poor are identified as women and they constitute 50% in the rural areas and 46% in the urban sector (Institute of Economic Affairs (IEA), 2011). Female-headed households are also poorer than male-headed households. Though in Kenya, poverty is said to be mostly a rural phenomenon, informal urban settlements are characterized by high levels of poverty and vulnerability. In addition, between 60% and 80% of Kenya's urban population resides in slums (IRIN 2013) and as a result there are high levels of inequality, crime and negative implications for both the political, social and economic development of the country.

1.3   Why focus on women?

This study focused on women because of a number of issues that put women at a more vulnerable position compared to men. First, due to the gender-differentiated time use between men and

women. Abdourahman (2010) suggests that the gender-differentiated time use has been as a result of inability to access economic rights due to poverty. Women in most developing countries are "time poor" due to their dual roles in the household economy and the labour market, as mothers, housekeepers, wives and owners/managers. Such dual roles do not give women adequate time to plan and manage their businesses well, thus leading to dismal performance or even closure of women owner/managed enterprises. Spurling et al., (1994) show that women are indeed time poor and work about 13 hours per day which is significantly more than men who work about 8 hours, yet they earn less since most of these hours account for their roles at home.

Secondly, this study focused on women due to the feminization of poverty, a concept widely attributed to Diana Pearce (1978) who described it as "a global phenomenon" associated with three intuitive notions: first, that women are poorer than men; second, that the incidence of poverty among women is increasing relative to men over time; and third, that growing poverty among women is linked with the "feminization" of household headship'' (see also Chant, 2006). UNIFEM also describes feminization of poverty as the burden of poverty borne by women in developing countries as a result of low income, low education, and deprivation of capabilities, gender biases and stereotypes (Chant 2006). Overall studies show that there is a need to uplift the women living in the marginalized spaces of the community.

Thirdly, women entrepreneurs have potential to make an important contribution to economic growth in Kenya (Athanne, 2011) though their contribution is limited by a multitude of challenges they face in their enterprises (Bliss et al., 2003; Welter et al., 2003). The Common Wealth Secretariat (2002) argues that those women contribute to the creation of jobs in the business sector and they also foster the growth of various energy and capital resources in their communities.

Additionally, the World Bank (2001) refers to poverty as having a 'female face' in developing countries because the number of women affected by poverty is significantly more than that of men. Furthermore, the Gender Entrepreneurship Market (2004) affirms that women's entrepreneurship is one of the keys for unlocking the creative potential of African women though many of them are faced with challenges due to poverty. In Kenya, inequalities in accessing opportunities between men and women are growing each day. There are inequalities in accessing employment, assets, education, earnings as men strive to control the decision making process in the household (ILO, 2004). The gender biases and stereotypes against women is still an issue in most developing countries. However, with inadequate background knowledge about entrepreneurship or how to manage a business, women still strive to make ends meet and provide a better future for their family.

Singer (2006) asserted that the best remedy for poverty alleviation in the world is to establish more enterprises however big or small they might be. The participation of women is becoming more important each day because women are the major contributors to economic growth in most of the developing countries. He added that entrepreneurship is the driver of economic change through new ventures and knowledge. Statistics also show that in 2010, there were approximately 187 million women entrepreneurs in the world (Hussain et al., 2014). This shows that a significant percentage of women across the globe are entrepreneurs. This calls for a careful study on the plight of poor women with respect to participation in enterprises.

In general, women entrepreneurship is a current topic in Kenya following the just concluded Global Entrepreneurship Summit (GES) which was held in Kenya in July this year that prioritized women entrepreneurship in marginalized spaces in Africa and in the development agenda. As highlighted by the President of the United States of America, President Barack Obama, who was the co-host at the summit with Kenya's President, Uhuru Kenyatta: he emphasized that "…..Women are powerhouse entrepreneurs. Research shows that when women entrepreneurs succeed, they drive economic growth and invest more back into their families and communities. We're launching three women's entrepreneurial centers, one in Zambia, one opening later this year here in Nairobi and one in Mali…..." He added on that the US government was ready to network with 1,600 women entrepreneurs and help them grow their enterprises which shows international support and relevance to focus on the study (All Africa News, 2015).

1.4   Justification of the study

Research shows that poverty is associated with problems such as lack of access to resources, inadequate infrastructure, low education and financial constraints and so forth (Suda, 2010). Given the high rates of poverty in most developing countries, women opt to undertake enterprises as a way to reduce poverty in their households. With little or no education and limited access to funds, women opt to create their own employment by starting enterprises (Gemechis, 2007).

Furthermore, women's contribution to the economic growth of any country is vital, therefore it is crucial that the challenges that hinder them from participating in enterprises are addressed. Addressing these challenges will make an important contribution to economic growth and development. This study also adds to the database and literature on poverty and participation in enterprises by women living in the informal settlements in urban areas of Kenya. The study also draws important policy implications for improving the plight of poor slum women. To the best of my knowledge, no such study has been carried out in Kenya.

1.5   Research questions

The main question the research paper seeks to answer is: To what extent does household poverty affect the participation and performance of women in enterprises for slum dwellers and non-slum dwellers in Kenya?

Sub-questions include:

- How much does poverty affect the probability women's participation in enterprises?
- What influence do these challenges have on the success of women in enterprises in informal settlements?
- What policy options can boost participation of poor women in entrepreneurship?

1.6   Research hypothesis and objectives

This study hypothesizes that the level of dissatisfaction in life (with reference to living conditions and other factors) can lead to a stronger propensity for women to participate in entrepreneurship. It also hypothesizes that entrepreneurship is the key to poverty reduction in informal settlements.

Further, the main objectives of this study include:

- To examine the extent to which poverty affects the participation of women in enterprises for slum dwellers and non-slum dwellers.
- To examine the influence of other factors that affect the participation of women in enterprises.
- Based on study findings, suggest policy recommendations for improving the participation of poor women in enterprises.

1.7 *Structure of the paper*

This research paper is divided into five chapters. The first chapter provides an introduction, which include the research problem, questions and objectives. The second chapter dwells into relevant literature. Chapter three presents the conceptual framework and methodology. Chapter four presents the findings of the study, while the last chapter concludes and offers policy recommendations.

CHAPTER 2

LITERATURE REVIEW

2.0   Introduction

This chapter reviews literature which is related to women's labour market decisions including participation in entrepreneurship. The review further looks at the factors that constrain women's participation in entrepreneurship. The literature review draws on studies from Kenya in comparison with other countries in Africa and across the globe.

2.1   Female participation in the labor market

Participation of women in entrepreneurship can be viewed as a labour allocation problem, especially in poor counties where labour is the only asset that workers possess. The number of women who participate in paid employment has increased in poor countries, but many labour markets remain sex segregated with women dominating in the informal sector employment (Minniti, 2010; Heintz, 2006; Silveira and Matosas, 2003; Xaba et al., 2002 and Abramo, 2003). Demographic and social factors including age, sex, education, marital status and wealth have led to gender differences in productivity endowments and labour supply. This has eventually led to the differences in the labor market participation, specifically lower female participation in the formal labour market (Appleton, 1990 and Minniti, 2010). Women who participate in the informal sector are more likely to also face unfavorable working conditions, gendered violence and health and safety risks (Ambert et al., 2007) while in most developing countries, majority of women's work is considered to be either at home or in the informal economy (World Bank 1995).

Lanot and Muller (1997) strongly affirm that the differences in labour market participation can be due to the nature of the labour market. They further point out that labour markets in developing countries are characterized by dualism and imperfections. Dualism in the informal sector is manifested by the existence of activities with low wages and low returns to education unlike the formal sector (Fields, 2009). In Kenya, statistics show that since independence, the informal labor market has rapidly grown by almost 59% (Republic of Kenya, 2002) and women dominate this sector. The sector is mainly comprised of jobs that do not require much technical skill and education. A good example is Kenya's Export Processing Zones (EPZ) with about 75% of the employees being women. These women have low levels of education, earn extremely low wages and their working conditions are not favorable (Republic of Kenya, 2002). Maglad (1998) adds on that women in Kenya enter the informal labour market due to the complexity of getting a job in the formal market. Other employment avenues that are dominated by women include rural agriculture, domestic work and self-employment in the urban areas. Ahluwalia, (2007) asserts that push factors in the society including poverty and unemployment have been a determining factor in the participation of entrepreneurship.

In the case of the woman slum-dweller, the easy way out of unemployment and poverty is through domestic work and self-employment. Studies done in the slums in most developing countries show that women engage in enterprises simply as a way of escaping poverty, given barriers to entry into

the formal labour market (Minniti et al., 2006). The Global Entrepreneurship Monitor (2004) shows that a large number of women become entrepreneurs in order to create their own jobs and wealth. In addition, it notes that entrepreneurship is seen as a 'savior' for poor women because it gives them a hope for the provision of their daily needs. Chamlee-Wright (1997) also states that entrepreneurship is like the key out of poverty for women living in poverty-stricken areas because they have less chances in the formal labor market. Women may also start enterprises out of the need to meet the necessities required at home by their children and family (Minniti 2010). All this is summarized by Berner et al., (2012) who affirm that this makes women survivalist entrepreneurs other than growth-oriented entrepreneurs since the enterprises are mechanisms to cope with volatility and vulnerability. With this in mind, this study concurs with the hypothesis of Ahluwalia (2007) who suggests that the level of dissatisfaction in life (this refers to the living condition and other underlying factors) can bring about a stronger propensity to participate in entrepreneurship.

2.2 Constraints facing women entrepreneurs in Kenya

2.2.1 Poverty

Poverty in most contexts is known to be associated with all sorts of deficiencies to the victims. Therefore, poverty acts as the main constraint to poor women's participation and performance in their enterprises. This view finds support in recent evidence from a study by Mutisya and Olweny (2014) which found that provision of finance, training programs and advisory services influences performance and participation of businesses owned by women in Kibera slum in Nairobi. Furthermore, the authors add that poverty is the major challenge to entrepreneurship among women because it brings outs other forms of vulnerabilities among women.

Mutisya and Olweny (2014) supports Thiga (2010), who deduced that women in Mathare slum in Kenya face numerous challenges as a result of poverty. These challenges include lack of suitable location or sales outlet, stiff competition, discrimination and gender bias, lack of marketing knowhow, seasonal nature of the business, lack of market information, inadequate infrastructure and technology, shortage of time (due to multiple tasks), shortage of raw materials and shortage of working capital (Thiga, 2010). This study incorporates such factors when analyzing participation of shanty women in entrepreneurship.

2.2.2 Financial constraints

The greatest challenge facing women entrepreneurs in Kenya is the access to start-up capital and finances due to the high requirements of collateral from microfinance institutions and banks. It is estimated that only 1% of poor women own property or any other form of collateral that can be used to secure finances (Athanne 2011, Common Wealth Secretariat 2002). Women find it cumbersome to obtain loans because they are required to show credit records (which they do not have), and they do not understand the requirements and process of getting loans (Kinyanjui, (2006). In a study conducted by women entrepreneurs in Kenya, Kinyanjui, (2006) reports that loans from microfinance institutions tend to be limited in amount, have very high interest rates and no grace period. These loans seldom meet the financial needs of the women since they also have social needs that have to be met (Women Entrepreneurs in Kenya, 2008). These findings are backed up by a number of authors including UDEC (2002), Chijoriga (2000), Hadiya (1998), Carter and Rosa (1998), Verheul and Thurik (2001) and Mutisya and Olweny (2014).

These findings also find support in another study from one of the provinces in Kenya, (Kepha, 2013). Kepha found that access to finance from financial institutions was the main barrier facing women who wanted to participate in enterprises. The problems were mostly related to lack of information on where to source the finance. As a result of scarcity of finance, the enterprises would not expand or meet the needs of the women since the profits attained would be minimal for the growth of small enterprises. These findings are similar to Stevenson and St-Onge (2005b) who asserted that access to finance by women entrepreneurs varies according to the phase of the enterprise, and that enterprises at the start-up phase are greatly affected by lack of finance. Women living in poverty, face a lot of challenges since they are already poor and so finding start-up capital is quite a hurdle for them (ILO, 2005).

McCormick and Pedersen, (1996) suggest that women living in the slum are often married with more than three dependents and rarely get financial assistance from the spouses. This means that they may not be able to register with any micro-finance institution or commercial banks for loans. The case is not different in other African countries. Viljoen et al., (2001) points out that the success of women entrepreneurs should be considered an important prerequisite for economic development in a country. In South Africa, the women entrepreneurs endure financial and human capital constraints which limit the growth of their enterprises. Viljoen et al., (2001) further show that collateral requirements for female entrepreneurs in Canada and South Africa are higher than for men, while the level of educated and skilled women was generally low in South Africa. These findings are corroborated by Amin (2010) who carried out a similar study in Burkina Faso, Cameroon, Cape Verde, Côte d'Ivoire, Madagascar and Mauritius.

2.2.3   Gender inequality and discrimination
Gender inequality and discrimination are also problems that women entrepreneurs face in Kenya. Women are more likely to be unemployed than their male counterparts and also have lower average income (Abramo and Valenzuela, 2006, Fernandez-Pacheco, 2003b and Silveira and Matosas, 2003). Other forms of inequality include the access to opportunities between men and women which eventually lead to the differences in education levels, employment, assets and earnings which are also present in the work environment in Kenya. Furthermore, men tend to control most of the decisions in the household, leaving women with less bargaining power and making it difficult for women to make any form of investments (ILO, 2004).

Women entrepreneurs often lack a supportive environment due to the entrenched cultural and traditional practices in the modern society (IFC/World Bank, 2006). In most settings, the entrepreneur role is usually characterized as a more "masculine" than "feminine" sector. In addition, society has defined entrepreneurs as risk takers, bold and aggressive which is a typical stereotype for men (Marlow, 2002). Furthermore, Bird & Brush, (2002) have shown evidence that these stereotypes have greatly discouraged women who have attempted to venture into entrepreneurship and other business related activities.

McCormick (2001) also noted that there is a huge barrier of gender segregation by sector in Kenya. Since women living in poverty are often at a more vulnerable position than men, women are left to dominate in sectors that do not require much background expertise. She established three main factors that lead to gender differences in enterprise performance which include level of education, dual roles in the home by women and the accumulation of savings. Most men are more educated

than women because people believe that a woman's place is in the house where she carries out household duties and these make them miss out on technical trainings among other things. Women are also expected to take care and nurture the home plus their kids which means they cannot manage to have a full time job. These two factors lead to the third factor of lower accumulation of savings. Since most women are not properly educated this means that they will get lower paying jobs or no job and thus their level of savings will be negligible. Outside the home, most women end up in low paying activities such as dressmaking, hairdressing, retail and trade, food and catering and other traditional women's role. Parker (1996) suggests that these jobs are known as the "gendered" or "feminized" sectors, which finds support in (World Bank, 2005), who argue that in most cases, poverty is gendered meaning such that one sex is poorer than the other due to discrimination and segregation.

Mwobobia (2012) complements the findings of McCormick (2001) by adding on that with the issues of time poverty among women due to their roles in the labour market and household, gender inequalities are still on the rise. Though Mwobobia (2012) and McCormick (2001) conducted their studies in Kenya, their results are similar to McClelland (2005) whose study was done in Singapore, Australia, New Zealand, Canada and Ireland. Other authors and feminists including Lund and Srinivas, (2000); Perrons, (2005); Boulde, (2006); Chant, (2006) and Gates, (2002) have argued that the continuing gendered inequalities have been worsened by women's unpaid reproductive and care work. Mwobobia (2012) also points that access to justice is another challenge that poor women face since they are vulnerable. Justice is necessary to make sure that the enterprises run smoothly and contracts and employment disputes are properly deal with. However, Mwobobia notes that with the complex and corrupt judicial process in Kenya, these women cannot find justice in simple matters including theft and gendered violence.

2.2.4   Education

Education is a key barrier to entrepreneurship, especially for the poor and for women. In the context of the women living in poverty particularly in the informal settlements in Kenya, the overall level of education attained is rather low. Thiga (2010) for instance asserts that most women entrepreneurs in Kenya have lower education levels that put them at a more disadvantaged position than men especially in the marginalized areas. Misango and Ongiti (2013) affirm that a good example is the Masai Market in Nairobi which mostly consists of women entrepreneurs who have little or no education but strive to make a living through selling African handmade jewelry and other artifacts to local and international tourists.

The overall education level of the girl child in Kenya is quite low. In the cultural rural setting, boys were given more opportunities to study than girls, which has made women today less educated and less equipped in skills than men (Commonwealth Secretariat, 2002). Namusonge (2006) reported that without education, women are not able to access training or other business related development services. He further argues that education is very important because it accounts for the basic knowledge of computing financial accounts, understanding the ready market and also making decisions to do with diversification of the business.

Other studies in urban poverty contexts in Europe, South East Asia and Australia also show that lack of education is a barrier for women entrepreneurs. The studies argued that women's enterprises do not grow or diversify since women are less educated (Aldrich, 1999; Minniti, 2010

and Yunus, 2007). Therefore the insufficient education and training is a hurdle for women's success in enterprises.

2.2.5 Technology

Technology is another challenge affecting women entrepreneurs in the informal settlements in Kenya. Thiga (2010) in her study in Mathare slum in Nairobi found that women living in that slum had limited exposure to technology and lacked technical know-how of the available technology. Finnegan et al., (2004) further add on that women owning enterprises which are labor intensive either make little or no use of available technology irrespective of whether it is information technology or production technology.

Studies done in Tanzania and other developing countries in Africa show similar concerns. The University of Dar-es Salaam Entrepreneurship Centre (UDEC) in 2002 reported that most of the women's enterprises in Tanzania were labour intensive and they were likely to miss out on opportunities when it comes to the use of new technology. This was attributed to the limited exposure and lack of knowledge to learn and use the various forms of technology. (UDEC, 2002) further noted that though different development agencies had come up with strategies to improve women's knowledge especially those working in food processes, technological challenges remained a key barrier.

2.2.6 Competition

Competition is also high among the enterprises in the slums in Kenya (Jaiyeba, 2010). There is because women mostly sell or produce the same goods or commodities, yet there is limited market for the produce. Only a few women may introduce a new commodity in an attempt to diversify their enterprise but because of the lack of marketing skills, they do not attain high profits to enhance diversification relative to their less poor counterparts (Jaiyeba, 2010, Misango and Ongiti 2013).

These findings are also similar to those of Singh et al., (2008) who carried out a study in about 48 towns in Ethiopia. The findings of Singh et al., (2008) show that competition is one of the main challenges faced by the informal sector enterprises which are owned by women living in poverty in those areas.

2.2.7 Culture

Culture is another factor that affects women's participation in entrepreneurship (Alsos et al., 2006; Orser et al., 2006; Ahluwalia, 2007). Hofstede, (1980) states that cultural differences are said to be brought about by national, social and religious backgrounds and also ethnic factors. Shapero and Sokol, (1982), Carree et al., (2001) and Audretsch et al., (2000) have also found similar results especially in developing countries where women are unemployed.

Ahluwalia, (2007) further reports that even though cultures have labelled entrepreneurship differently, the decision to become self-employed through entrepreneurship is still on the rise especially with regards to women. In Kenya, studies done by Mungai et al., (2012), Mungai and Ogot (2010) and Kiriti et al., (2003) clearly show that cultural influences including ethnic and religious backgrounds in the society play a large role in women's propensities towards participating in entrepreneurship. This study uses different religious backgrounds as a proxy for measuring culture.

2.3   Summary of literature

In concluding this chapter, the above literature review is grounded in different approaches and contexts. It has focused on five main challenges that greatly affect the participation and performance of women in entrepreneurship. These challenges include financial constraints, gender inequality and discrimination, inadequate education, insufficient technology, completion and culture. The literature suggests that financial constraint is the most important barrier that affects women. Without the sufficient start-up capital and finances, it will be impossible to start the business, grow or even diversify it.

The literature reviewed elucidates a number of constraints/barriers to participation in entrepreneurship. Though some of the studies are based on women in informal settlements in Kenya, the studies concentrate on individual slums. To ensure that results can be generalized, this study used data from all informal urban settlements in Kenya to investigate the barriers to entrepreneurship. Furthermore, this study uses a more innovative approach (propensity score matching) than previous literature. The author is not aware of any other study that has employed this technique to investigate the factors influencing entrepreneurship. This study addresses this research gap.

CHAPTER 3

RESEARCH METHODOLOGY

3.0   Introduction

This chapter presents the methodology used to achieve the objectives of the study. The chapter presents the conceptual framework followed by the theoretical framework and empirical model. The chapter then presents data types and sources.

3.1   Conceptual Framework

Three types of small scale women entrepreneurs can be identified in Kenya; *Jua Kali* micro-enterprises, very small micro enterprises and small scale enterprises (Stevenson and St-Onge, 2005). The categorization depends on difference in demographic profiles, past business experience, basic needs, orientation towards growth and access to available resources.

The *Jua Kali* micro-enterprisers comprise of women who have informal businesses which are often not registered with the local city council, lack entrepreneurship skills and training, have only basic education, no access to finances and with limited access to markets. These are often referred to as the "low class" and they juggle between household responsibilities and marital duties therefore they cannot freely make decisions without thinking of their families.

The second category - very small women micro-enterprisers - entail those who have registered business and also are able to employ about 6 to 10 workers. Most women in this category have a minimum of secondary education, past business experience and a supportive spouse who might be part of the enterprise. Stevenson and St-Onge (2005) suggests that although they face financial constraints, such businesses are likely to grow into the international markets.

The last category are the small scale women entrepreneurs who mostly have attained university education, have a family background involved in business and good managerial experience in the corporate world. They are able to access finances due to the massive profits that they make. This category of women is known as the "elite entrepreneurs".

Stevenson and St-Onge (2005) affirm that each of these categories have their own specific needs and characteristics as shown in figure 1. They conclude that the two groups that greatly need targeted support are the ones at the middle and bottom segment, who they classify as the "missing middle" of women entrepreneurs.

- Need growth management and leadership training.
- Need more flexible and diverse loan products to meet working capital needs.
- Need information about technologies, international linkages, trade fairs, export practices.

Medium/large enterprisers (tiny number but going for growth)

-Collateral constraints limit bank financing option; MF too limiting.
-Want financial and management training focused on growth.
-Limited exposure to business ideas opportunities/information market and access.
-Would benefit from other opportunities to learn from other growth-oriented women entrepreneurs.

Small enterprisers (very small number; potential to grow)

Micro-enterprises (lots of them, but serious constraints to growth

- Low level of education.
- In need of business knowledge and skills.
- Limited capital resources; group-lending hinders ability to grow; most don't know how micro-credit operates; need lots of training
- Need market access and premises
- Problems moving to 'formal' status; difficulty with licensing/tax issues.
- Affected strongly by patriarchal structures (e.g., role of husbands).

Figure 1: The three segments of women entrepreneurs: Gaps and Needs
Adopted from Stevenson and St-Onge (2005)

3.2   Theoretical Framework

As discussed in the literature review section, the level of female participation in the labour market is affected by quite a number of factors including education, technology and finances. These factors affect labour demand and supply and lead to the differences in the allocation in the informal and formal sectors. This study will incorporate the labour market theory which is also similar to (Atieno, 2010).

The decision to participate or not to participate in enterprises can be viewed as a labour allocation problem. Labour market theory suggests that poor residents of developing countries rely on incomes from the work that they do on a daily basis. Labor markets do not only comprise of the

wage and salaried employment but also the people who are in self-employment, who mostly constitute the working poor (Fields, 2009).

Urban labour markets in developing countries are characterized by dualism with a large traditional informal sector and a formal sector. Fields, (2009) however argues that the informal sector in low income countries is also characterized by its own dualism, with some activities being preferred to formal sector jobs and vice versa. The urban informal sector comprises small family based firms, which are characterized by ease of entry, labour intensity, and are mostly unregulated by the state. The formal sector is comprised of large public and private enterprises which are closely regulated by the state as affirmed by Rosenzweig, (1988), Berhman, (1999) and Fields, (2009).

Furthermore, Fields (2009) argues that the informal sector could be characterized into two: a sector of last resort, where individuals/households enter because they cannot find alternative jobs in the formal sector; and as a sector of choice, where workers prefer this sector due to perceived package of benefits to be derived. Fields however notes that there could also exists informal sector dualism where some activities would be preferred to formal sector activities and others not. This study perceives participation in enterprises by shanty dwellers as an easy-entry sector of employment of last resort. Workers are assumed to enter to earn some cash in preference to earning nothing. Most of these workers lack the requisite skills to enter formal labour markets or the better rewarding segment of the informal sector.

Family based enterprises can be modeled using the consumption-production household models. Heterogeneity in the nature of products however makes it difficult to characterize the technology which enters into the production and consumption decisions of the household (Rosenzweig, 1988). For this reason, an alternative could be to look at participation in informal sector enterprises as a labour allocation problem and modify the household model accordingly.

In many low income countries, demand and supply for labour are determined within the family enterprise, where households integrate production and consumption decisions (Rosenzweig, 1988). Labour supply behavior can be explained using the neoclassical model of labor-leisure choice, which isolates the determinants of the decision to work and the number of hours worked (Borjas, 2013). To illustrate this model, assume that individual's/household's utility (U) is derived from consumption of goods (X^c) and leisure (l). Following Rosenzweig, (1988), the welfare function can be defined as:

$$U\left(X^c, l\right)$$ ……………………………………………………………… (1).

Maximization of utility is constrained by household's time and income. While the income from work depends on hours worked (h) and the market wage (w), a household may also receive other incomes *(V)* from say property. The household purchases consumption goods at price (p). The goods are produced using technology that combines labour and other production inputs such as capital or land (K). The total time available per worker must be allocated either to work (L) or to leisure (l) (Borjas, (2013) and Rosenzweig, (1988)). The income constraint can therefore be expressed as:

$$V + pF(L, K) - WL + Wh - PX^c$$ .... (2).

Which can further be expressed as:

$$V + \pi - Wh - pX^c = 0$$ .... (3).

Where π is the possible maximum profit. The household maximizes (1) subject to (3) by choosing the optimal amount of labour (L), hours of leisure (l) and consumption (X^c). The first order profit-maximizing condition for labour inputs in production is defined as:

$$pF_L = W$$ .... (4).

Letting N be the number of family workers and n the number of family members, the first-order condition for the allocation of family work time can be expressed as in (5) following Rosenzweig (1988).

$$U_l / U_c = W(N/n)$$ .... (5).

Supply of labour (in this case participation in entrepreneurship) can be derived from this first order condition.

In summary, based on the conceptual framework and literature review, there are a number of factors that affect participation of households in enterprises. These are summarized in figure 2 below. These factors can be divided into 3 categories namely; personal characteristics, economic environment and institutional environment determinants. The personal characteristics entail psychological factors like intuition and desire to accomplish plus non-psychological factors like alternatives to employment, age, education and opportunity costs. Economic environment determinants include those that make it possible for entrepreneurial activity to take place including financial availability, entry into the labour market and availability of the allocated resources. Institutional environment determinants include those that affect the society as a whole for example culture values i.e. religious backgrounds and gender bias. Others include political and social stability of a country and effective legal and property rights. These determinants have been affirmed by authors including Bygrave and Minniti, (1999, 2000), Sorensen and Chang (2006), Ghani et al., (2013), Carlson, (2003), Busenitz et al., (2007) and Cuervo (2005).
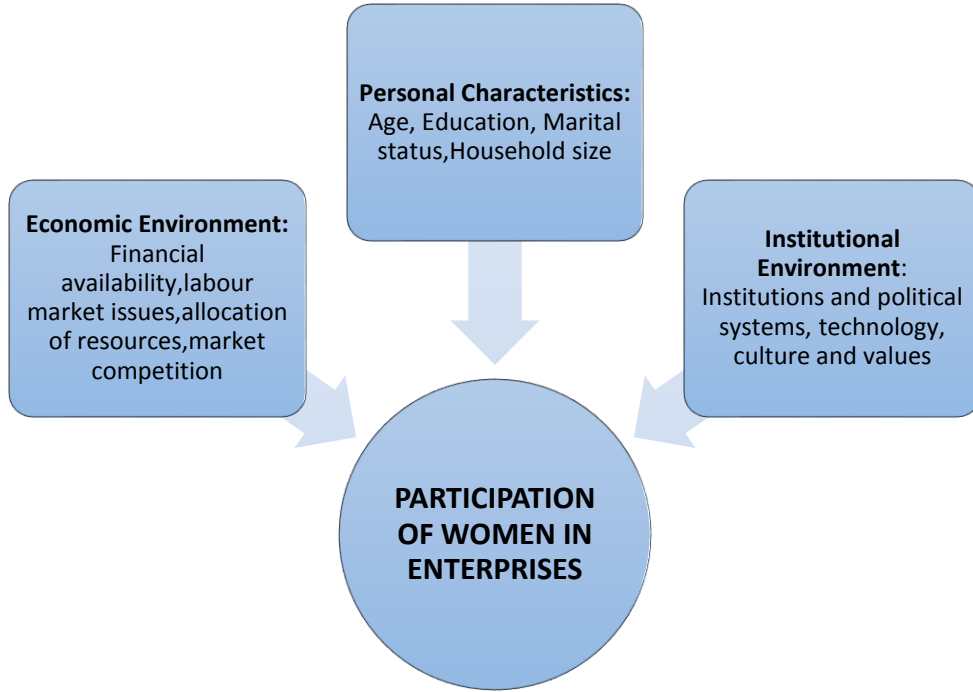
Figure 2: Determinants of performance in enterprises
Source: Author's construction

3.3   Empirical Model

3.3.1 Participation of women in enterprises: Probit model

Based on the above conceptual framework, this paper considers participation in enterprises as a labour supply decision. The household makes a decision whether to participate in an enterprise or to choose another form of employment. Participation in enterprises can be explained by a binary response model whose response probability can be presented as:

$$P(y = 1/x\ ) = p(y = 1/x_1, x_2, ..., x_k)$$ ……………………………………….. (6)

Where x is a vector of explanatory variables affecting participation in enterprises. In this study, this vector includes personal characteristics of the woman (age, marital status and education), household characteristics (such as household size, number of children), culture (captured by religion), household poverty status, and whether a household received transfers or not.

The model in (6) can be estimated using the Linear Probability Model (LPM). The LPM however makes a very strong assumption that the response probability $P(y = 1/x\ )$ is always linear in parameters. To avoid this pitfall, Wooldridge (2012) proposes the following class of binary response models:

$$P(y=1/x) = G(\beta_0 + x\beta) \equiv p(x)$$ ……………………………………….. (7)

Where G is a function with values ranging from zero and one for all the real numbers z and $x\beta = \beta_x x_1 + \ldots + \beta_k x_k$. The underlying latent variable of G that satisfies the classical linear model assumptions takes the following form:

$$y^* = \beta_0 + x\beta + e, \ y = 1\left[y^* > 0\right] \qquad (8)$$

Where e is a normally distributed random term, which is independent of x and has a mean equal to zero. Y is equal to 1 if the latent variable (y^*) is greater than zero, but equal to zero if y^* is less or equal to zero.

The probit model is a special case of equation (7) and can be derived from equation (8) when e has a standard normal distribution. The model takes the form:

$$G(z) = \phi(z) \equiv \int_{-\infty}^{2} \phi(v)dv \qquad (9)$$

Where $\phi(z)$ is the normal density?

$$\phi(z) = (2\pi)^{-1/2} \exp(-z^2/2) \qquad (10)$$

In this study, we investigate the effect of personal characteristics of the participant and household characteristics. The probit model of participation in enterprises can be specified as:

$$Y_i = \beta_0 + \beta_1 X + \beta_2 Z + \mu_i \qquad (11)$$

Where $Y_i = 1$ if women 'i' participated in enterprises, zero otherwise, X is a vector of individual characteristics of the woman (age, marital status and education), Z is a vector of household characteristics (household size, number of children, religion, household poverty status, and whether a household received transfers or not). The betas are parameters to be estimated and μ is a random term. A variant of equation (1) has the net income from enterprises as the dependent variable. The estimable model takes the following form:

$$Y_i = \beta_0 + \beta_1 \text{hhsize} + \beta_2 \text{age} + \beta_3 \text{married} + \beta_4 \text{widow} + \beta_5 \text{separated} + \beta_6 \text{catholic}$$
$$+ \beta_7 \text{protestant} + \beta_8 \text{muslim} + \beta_9 \text{primary} + \beta_{10} \text{postprimary} + \beta_{11} \text{poor} + \beta_{12} \text{transfer} + \mu_i \qquad \ldots (12)$$

Table 1: Definition and explanation of variables in probit model

Variable	Definition	Expected effect and literature source
Shanty	This variable represents whether a woman lives in a shanty or not. It takes the value of 1 if the woman lives in shanty and 0 if otherwise	Negative effect on participation (Mutisya and Olweny, 2014; Thiga, 2010, Suda, 2010)
Age	This is the age of each woman in years.	Positive effect (Appleton, 1990 and Minniti, 2010.
Household size	Household size is the number of people living in a particular household.	Indeterminate (Abdourahman, (2010, McCormick and Pedersen, (1996), McCormick (2001), (World Bank, 2005)
No. of kids aged 0-5 years	This is the number of kids who are 5 years and below in each household.	
No. of kids aged 6 - 15 years	This is the number of kids aged between 6 and 15 years in each household.	
Married	This is the marital status of a woman, and takes a value of 1 if she is married, otherwise equal to zero.	Marital status affects labour market participation including entrepreneurship. Indeterminate effect (Abdourahman, 2010; Appleton, 1990; McCormick and Pedersen, 1996; Minniti, 2010 Alsos et al., 2006; Carree et al., 2001; Mungai and Ogot, 2010).
Separate	This variable also represents the marital status of a woman and takes a value of 1 if she is separated or divorced, zero otherwise.	
Widow	This variable takes the value of 1 if woman is widowed, otherwise equal to zero.	
Catholic	This variable takes the value of 1 if a woman is catholic, zero otherwise. Religion is used as a proxy for culture in this study.	Culture and religion could encourage or discourage women's participation in enterprises.(Ahluwalia,2007; Commonwealth Secretariat, 2002; by Mungai et al., 2012, Mungai and Ogot; 2010 Kiriti et al., 2003)
Protestant	This variable takes a value of 1 if a woman is a protestant, zero otherwise.	
Muslim	This variable takes a value of 1 if a woman is a Muslim, zero otherwise.	
Primary	This variable represents the educational attainment of a woman. It takes a value of 1 if she attained primary education, zero otherwise	Low level of education is a barrier to entrepreneurship, especially for women (Thiga, 2010; Viljoen et al. 2001; Misango and Ongiti 2013; Namusonge 2006; Aldrich, 1999; Minniti, 2010 and Yunus, 2007).
Post primary	This variable represents the educational attainment of a woman. It takes a value of 1 if she attained more than primary education (secondary, university, vocational training etc.), zero otherwise.	
Transfer	This variable represents whether the woman received any form of transfers/remittances and it takes the value of 1 if she received transfers and 0 if otherwise.	This is a proxy for finance and is expected to reduce poverty (Athanne 2011; Kinyanjui, 2006; Kepha, 2013; Mutisya and Olweny 2014; Amin, 2010).
Poor	This variable represents the poor household. An urban household is poor if it falls below an absolute poverty line of Ksh. 2,913 per month per adult equivalent (Republic of Kenya, 2008). The variable takes the value of 1 if the woman is from a poor household and 0 otherwise.	Poor women engage in enterprises to escape from poverty (Mutisya and Olweny,2014;Thiga,2010;Ahluwalia, 2007; Mwobobia, 2012; McClelland, 2005)

3.3.2 *Participation of women in enterprises: Propensity score matching (PSM)*

In an attempt to ascertain the effect of household poverty on the participation of women living in informal settlements in enterprises, this study used the propensity score matching (PSM) approach. The propensity score is the probability of treatment assignment conditional on observed baseline covariates, (Rosenbaum and Rubin, (1983), (1985), Rampichini, et al., (2011) and Heinrich et al., (2010)). The PSM approach tries to capture the effects of different observed covariates X on participation in a single propensity core. Consequently, outcomes of participating and non-participating households with similar propensity scores are compared to obtain the effect of treatment. In this study, participating household are living in shanties while the non-participants are those that do not live in shanties.

Heinrich et al., (2010) asserts that the general idea behind matching is quite easy to understand. When there is no matching technique that is being used in a study, the units that will be treated (living in a shanties) and those that will not be treated (those not living in shanties) will have differences in both their treatment status and characteristics which will eventually affect the participation and outcome. Matching methods such as propensity score matching are therefore used to avoid the biases that may come up as a result of the absence of treatment by giving an estimate of the intervention's impact as the difference between participants. In other words, it is important to distinguish between women who live in shanties and those who do not as we investigate the participation of women in entrepreneurship and incomes from enterprises.

Various scholars and researchers have used the propensity matching technique. Examples include Galiani et al., (2005) study of the effect of water supply on child mortality; Moser (2005) on the impact of research and development subsidies and patent laws on innovation; Lechner (1999), Dehejia and Wahba (2002), and Smith & Todd (2005) on the impact of labor market and training programs on income; and, Jalan and Ravallion (2003) on antipoverty workfare programs.

Caliendo et al. (2005) show that the average treatment effect on the treated (ATT) is a parameter of interest that has received a lot of attention in impact evaluation studies. If we let $D_i = 1$ if a woman lives in a shanty and zero if otherwise, then whether she participates in entrepreneurship or not is defined as $Y_i D_i$ for each women i, where $i=1$ (for all possible women). The treatment effect for woman i measures the difference in the outcome indicator with and without treatment, and can be written as:

$$\tau_i = Y_i(1) - Y_i(0) \qquad\qquad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \text{(13)}$$

Following Caliendo, the ATT can be expressed as follows:

$$\tau_{\text{ATT}} = E(\tau|D=1) = E[Y(1)|D=1] - E[Y(0)|D=1] \qquad \dots\dots\dots\dots \text{(14)}$$

Estimating the ATT is not straightforward because only one of the potential outcomes is observed for each individual. Since the counterfactual mean for the treated sample (E [Y (0) |D=1]) is usually not observed so it is wise to choose a substitute for it so as to be able to estimate the ATT.

If the outcomes of the women from shanties and comparison group differ even in the absence of treatment, a problem of self-selection bias arises. The propensity score matching constructs a comparison group with women not living in shanties that are comparable to those living in shanties on the basis of observable characteristics. This provides the missing data on the counterfactual, thus a potential solution to the self-selection bias.

Rosenbaum and Rubin, (1983, 1985) show that there are a number of assumptions that must be satisfied for identification of the program effect and thus address the self-selection bias. Two critical assumptions for the treatment assignment to be strongly ignorable include:

a. Conditional independence assumption (CIA), (also known as unconfoundedness or selection on observables). This states that there is a set of observable covariates X, which are not affected by treatment, and if controlled for, the potential outcomes are independent of treatment assignment (Caliendo et al., (2005), Rampichini et al., (2011))

b. Common support (overlap condition). This states that for each value of X, there is a probability of being treated and untreated (Heinrich et al., 2010, Caliendo et al., 2005).

The PSM estimator is the mean difference in outcomes over the coming support, appropriately weighed by the propensity score distribution of participants (Caliendo et al., 2005). Once the propensity scores are estimated, there is need to select matching estimators which would show how the treated women would related with the untreated. Further, bootstrapping methods are applied in-order to reduce the bias and show the relationship between the variables.

3.4 The data

3.4.1 Data types and sources

The study utilized the Kenya Integrated Household Budget Survey (KIHBS) 2005/6 data which was collected by the Kenya National Bureau of Statistics and the Planning Unit of the Ministry of Planning and National Development. The data was collected for a period of one year starting from 16th May 2005 across 1,343 randomly selected clusters in all the counties in Kenya, and covered 482 urban and 861 rural clusters. A total of 13,430 households were interviewed. The survey collected information on different modules, including socio economic characteristics, household expenditures, household enterprises, and transfers among other issues of interest.

The research site for the survey is Kibera slum in Nairobi County. It has a population of about 1 million residents according to the Kenya Housing and Population Census, (2009) with 57% of the population constituting of women. Kibera slum is divided into 13 villages and this study was based in two of its villages namely *Toi* Market village and *Laini Saba* village which both have an overall population of about 150,000 dwellers (KHPC, 2009). A structured questionnaire and open ended questions were used to collect data from 30 women from Kibera slums. Interviews and discussions were carried out with the respondents to assess what were considered as major constraints for their enterprises.

3.4.2 Target Population

The target population for the KIHBS data was the entire Kenyan population. This study however narrowed down on women living in urban informal settlements. For the small survey, the target population comprised of women living in Kibera shanties in Kenya. A report done by Kenya Open

Data Survey in 2014 based on the Kenya Population Census (2009) showed that there are approximately 48,000 women in Kibera. The study only targeted women who had current small scale enterprises in the study area. The women operate under very unfavorable conditions of squalor and total absence of infrastructure.

3.4.3   Data analysis

The cross sectional (KIHBS) data was analyzed using Stata statistical package. For the small sample, the questionnaire the quantitative data was also analyzed using the Stata statistical package. Qualitative data from the interviews was analyzed using the thematic analysis method where patterns, trends and observations were recorded from the data. In addition, the researcher did a detailed narrative of the key findings from the interviews which included analysis of the characteristics of the women, main challenges that they faced and the nature of the enterprises.

3.4.4   Research design

The research design used both quantitative and qualitative techniques. The Kenya Integrated Household Budget Survey (KIHBS) was used as the main source of cross section data and the small sample size of 30 women to complement the main data set. Other sources include books, research dissertations, publications of Kenya National Bureau of Statistics (KNBS), journals, other documents on MSEs, and entrepreneurship related literature.

This research sought to provide an explanation on the relationship between poverty and entrepreneurship, based on women living in informal settlements in Kenya. Women living in these areas have a variety of small-scale enterprises, among them tailoring shops, restaurants, salons and trade despite the high rates of poverty and unemployment.

CHAPTER 4

RESULTS AND FINDINGS

4.0   Introduction

This section entails the results and findings of the primary data that was collected plus the cross-section data. Though only a small sample size of 30 women was used for the primary data, it was important to get a general overview of the women entrepreneurs living in the shanties in Kibera slum in Nairobi. A link between the two findings will be established later on in this section.

4.1   Analysis of primary data

4.1.1   Life in Kibera slum

Kibera slum is the largest in Africa with a growing population of about 2.5 million residents and it is divided into about 13 villages. The slum attracts the poor people mostly who have migrated from the rural parts of Kenya and unemployed graduates who lack decent housing. The area is densely populated with low literacy levels, poor drainage and housing, small enterprises of all types, overcrowding, prevalence of diseases like HIV/AIDS and malaria. There are no tarmacked or well-structured roads, just walking paths which are full of garbage, open sewage and human waste (KNBS 2010). This is quite similar to the findings of Mike Davis in his book *Planet of Slums*. Davis (2006) gives a vivid picture of the life in the various slums across the world. He states that, "….slums are horizontal spreads of unplanned squats and shantytowns, unsightly dumps of humans and waste, where child labour is the norm, child prostitution is commonplace, gangs and paramilitaries rule and there is no access to clean water or sanitation, let alone to education or democratic institutions…" The case is no different in the Kibera slum in Nairobi.

There are also approximately 600 toilets in Kibera which means that a single toilet serves around 1,300 people on a daily basis out of the 2.5 million residents. This has been a major source of concern because of the hygiene standards especially for babies under the age of five. The residents have to buy clean water from private vendors which is double the amount that non-slum dweller pays (Kibera Law Centre, 2015). Houses are mainly build using iron sheets and a typical household can have up to 10 people. The houses are closely build together in such a way that if one of them was on fire, the rest would also get burnt.

The population has a high number of children below the age of 10 because most of the women do not use any family planning methods. There are also high crime rates in the area and also gender-based violence. Women are often raped, beaten and sold into prostitution or slavery yet there is no action that is taken against these acts. Girls do not have a high chance of attending school most of them are married off at a young age and the rate of HIV/AIDS is 5 times higher in women than in men. The children mostly sniff a glue-like hallucinogenic solvent in order to reduce hunger pangs (UNICEF 2012).

A striking observation when one walks into the slum is the numerous number of small enterprises mostly owned by women. Consistent with the findings of Berner et al., (2012) these enterprises are not necessarily well built structures, most of them are built using wood or even papers. Commodities on sale include potion-packed commodities like detergents and sweets, vegetables and fruits, cereals, second-hand clothes and household utensils. Enterprises selling the same

commodity are mostly in one specific area with about 20 different enterprises selling the same commodity.

4.1.2 Characteristics of the respondents
The researcher sought to know the basic characteristics of the women which included age, marital status, number of children, number of people in the household, educational status and so forth.

4.1.2.1 Age
The respondents were aged between 23 and 55 years of age. Most of the women (39.3%) are in their 30's, 28.9% are in their 20s, 21.4% in their 40s while 10.7% of the women are in their 50s. The predominance of young women in the sample may be attributed by the fact that Nairobi has a high population of young people in the urban areas due to the high birth rates and rural to urban migration (KIBHS 2005).Many of the older women (50-59) reported that they had difficulties in performing some tasks due to age.

4.1.2.2 Marital Status
A majority of women in the sample (67.9%) were married, while 10% were widowed. The married women were asked if their spouses had jobs and whether they provided for them. Seventy four percent (74%) of the respondents reported that their spouses were working and providing for them, while the rest reported that their spouses were difficult and not very supportive. Most women however reported that their husbands did not have permanent jobs, and most of them worked in construction sites as casual laborers, where they would earn very little. The married women further explained that they felt that they were better off than the unmarried ones because they had a source of material help in terms of food, cereals and groceries. Thus married women view marriage as a source of financial support.

> *"....Us married women are lucky because we have someone to provide for us even if it little, the unmarried sometimes are forced into prostitution when the going becomes tough…"*
>
> *Teresa, 48*
>
> *"....When I have not made much in a day, I am not so worried because my husband will bring something small. For the unmarried women, they sometimes have to sleep hungry…."*
>
> *Margaret, 28*

Box 1: Respondents' excerpts on marriage

4.1.2.3 Education
The level of education is another key characteristic that was investigated as it is expected to influence participation in enterprises. The level of education was classified into 3 groups: primary education, secondary school education and vocational training/university education. Most of the women in the sample (68.9%) had secondary school education while 27.6% had primary school education. Only 1 woman out of 30 had university training. Further discussions with the respondents revealed that most of them were from very poor families and their parents were not able to pay for their tuition fee, forcing them to drop out of school.

Consequently, illiteracy and low levels of education are one of the main reasons that brought about ignorance about businesses opportunities, credit institutions and business management as affirmed by *Wanjiru*, 23 one of the respondents. She pointed out that she did not think about applying for any formal sector job because she had only attained primary school education and she did not pay much attention to the microfinance trainings that were once offered free of charge in the slum because she felt that she could not understand it given her poor education background. Other respondents pointed out that their low literacy levels led to difficulties in keeping records, accounting for money and sourcing credit loans from suppliers. This supports findings by McCormick (1996).

In addition, all the respondents from the sample had children except for only 2 women. On average, each woman had at least 3 children including the unmarried women. Regardless of the harsh conditions of the slums, most women stated the need to provide a better future for their children by enrolling their children in schools. This can be supported by various scholars like Chant, (2006) and Boserup, (1970) who have argued that due to the altruistic nature of women, they often go out of their way to provide for their children.

> *"....I have been poor all my life but I am working hard so that my 4 kids can have a better future, I do not want them to be poor like me…''*
>
> *Francisca, 41*
>
> *"...My 2 kids go to school though I never attended primary school, I am hoping that they will work hard and also provide for me before I die…"*
>
> *Hannah, 39*
>
> *"....I started this small business because I want my son to become a doctor. I only want the best for him…"*
>
> *Calista, 23*

Box 2: Respondents' excerpts on education

4.1.3   Nature of the enterprises

Majority of the women ventured into service- oriented businesses which included hair dressing, tailoring, selling of second-hand clothes, selling vegetables, cereals, fruits and retail shops. The women opted to engage in such enterprises because they required little or no educational background and also in an attempt to escape poverty. This supports findings by Thiga (2010). Furthermore, a huge percentage of the businesses had not been in existence for more than two years because of seasonal changes in returns, market and also household chores. The size of the enterprises owned by these women was determined by the start-up capital that they had. Most respondents reported that they had no help in running the enterprise from other family members.

Some respondents claimed that they had shuffled from one different enterprise to another because of frustration and losses from previous enterprises. *Mary Kioko* aged 40, explained that she had

tried all sorts of enterprises but she was still making losses and minimal profits because of lack of customers. It was evident that in certain areas of the slum, women had similar enterprises. For example, about 40% of the women were selling vegetables at the same point while about 20% others were selling fruits at another point. This would explain complaints about lack of customers due to competition for them.

4.1.4 Enterprise start-up

The main reason reported for starting the businesses was as a way of escaping poverty and a means of providing a better future for their families. Regardless of the minimal gains from the enterprises, the respondents affirmed that they were able to meet the basic survival needs like food, education and healthcare. The women explained that they did not see any capacity for growth of their businesses, it was basically for survival. Some further explained that they were tired of staying idle at home and needed to do something .This is in line with the findings of Berner et al., (2012) who suggest that women living in the slums are mostly survivalist entrepreneurs and not growth-oriented entrepreneurs. Factors that prove this include their low capital requirements, skills and technology plus part of a diversification strategy often run by idle labour with no background expertise (Jaiyeba, 2010).

This study also investigated the source of funds for starting the enterprises. The questionnaire had several options of where the women would get the finances to start the enterprise. These options included; own funds, credit from suppliers, moneylenders, microfinance institutions, banks, friends/relatives and women groups/merry go rounds. The results reveal that more than half of the respondents stated that they had their own funds from previous short-term employment and savings. A good number had obtained cash from women groups popularly known as *chama* in Kenya while one woman had received a credit advance from the suppliers. Most of the respondents complained about the complexity of getting a loan from a bank because they did not have the collateral required by banks.

4.1.5 Challenges faced

The respondents were not hesitant to explain the challenges that their enterprises faced. The challenges ranged from eviction threats, few customers, inadequate capital, inaccessible roads, losses, competition, perishable goods, thieves, harassment by law enforcement officers, inaccessible roads during rainy seasons and uncooperative husbands. The main challenge reported by most respondents were the lack of ready market/customers and also lack of inadequate start-up capital.

The respondents affirmed that if they had enough start-up capital and profits they would be able to expand or diversify their businesses. Their monthly gross income ranged from 0-25,000Kshs (0-200 euros) which after netting out costs is hardly enough to sustain them. They expressed the need for the government to soften the process of securing loans for those living in marginalized spaces. This supports findings by Kinyanjui (2006) who reported that some women entrepreneurs felt that it was difficult to obtain loans as they had to have no credit records and ready collateral. Most of their enterprises were not registered by the local city council because they found it expensive. They reported that they would always run away whenever the law enforcement officers came to inspect their enterprises. This points at vulnerability of women poor entrepreneurs in Kenyan shanties.

The case of *Esther,* aged 37, who is a single mother explains a number of challenges she faced. She has 3 children and had only been educated up to secondary school level after which she trained to become a secretary. Years later, she started to sell fruits because she was not able to secure a job. She then joined forces with her mother to start a weaving business after the previous one failed but this one too collapsed after one of her debtors refused to pay back a large amount of money that they owned her. It was unfortunate that she had no legal documents so she could not go to the authorities to report the matter. She went back to the rural areas hoping to secure a job there but she was not successful. Two years later, she came back to Nairobi and settled in Kibera slum with her children and opted to become a prostitute so that she can fend for her kids. After a while, she was infected with HIV/AIDS and had to seek constant medical care. Her mother gave her some money to get her through, before she registered at a local government dispensary for HIV/AIDS treatment and support. A few months down the line, she started selling vegetables and cereals in Laini Saba village in Kibera which is about half an hour walk from her shanty. During the rainy season, it is always difficult for her to transport her goods to her premise because of impassable roads due to poor drainage in the slum.

> *"…..If I had more money to startup my business, I would be better off because I would have more commodities to sell and even to diversify my business…"*
>
> *Julia, 36*
>
> *"…..Most of the women here sell the same goods, so we don't get customers so often because they can't buy from all of us…"*
>
> *Zipporah, 28*
>
> *"…..When it rains, the place is very muddy and the sewage overflows, so I can't set up my workstation and my vegetables are often submerged in the dirty water…"*
>
> *Jacklyn, 38*
>
> *"….I make about 1,000shs per month which is little and sometimes my husband comes and takes it away from me forcefully…there is nothing I can do about it…"*
>
> *Peninah, 27*

Box 3: Respondents' excerpts on challenges faced

The narrative above gives an example of some of the challenges that a typical slum women faces on a day to day basis. Some respondents pointed out that there was not enough time to manage their businesses because of their duties at home. They often opened the business for about 9 hours but their husbands would complain that they do not spend enough time at home. Their roles as wives, mothers, care-givers and business owners were quite demanding especially without adequate family support. The women would be forced to adopt survival or coping mechanisms through women groups and friends since they could not rely entirely on their husbands and family members for moral and financial support.

4.2   Analysis of cross-section data

This section presents the findings of the study based on the KIHBS data. The section include descriptive statistics, tests for multi-collinearity, probit model results and propensity matching score results.

4.2.1   Descriptive statistics

This study sort to understand the socio-economic characteristics of women living in informal settlements in Kenya. Table 2 below shows the results of the above mentioned characteristics. The data shows that 13.5% of all women living in informal settlements lived in shanties. The rest of the women lived in Swahilis (67%) and Manyattas (19.5%), According to the table below, the average or mean age of the women is 33years with an average household size of 6. It is evident from the table that majority of the women (66%) are married and 48% of them have primary education. 57.8% of the women reported having received transfers, while 55% of the women are poor[1]. 37% of the women were entrepreneurs and their average net earnings from their enterprises was about 3,750 Kshs (30 Euros) per month.

Table 2: Descriptive statistics of key variables

Variable	Mean	Std. Deviation	Min	Max
Shanty dweller	0.135	0.342	0.000	1.000
Household size	6.305	3.484	1.000	24.000
Age	33.094	13.377	18.000	99.000
No. of kids 5 years and below	1.189	1.100	0.000	5.000
No. of kids btwn 6 and 15 years	1.814	1.720	0.000	9.000
Married	0.663	0.473	0.000	1.000
Separate	0.067	0.250	0.000	1.000
Widow	0.095	0.293	0.000	1.000
Catholic	0.213	0.409	0.000	1.000
Protestant	0.344	0.475	0.000	1.000
Muslim	0.340	0.474	0.000	1.000
No education	0.300	0.458	0.300	0.457
Primary education	0.483	0.500	0.483	0.500
Post-primary education	0.217	0.412	0.217	0.412
Transfer	0.578	0.494	0.000	1.000
Poor	0.552	0.497	0.000	1.000
Entrepreneur	0.380	0.490	0.000	1.000
Entrepreneur Income (n= 1696)	3570.000	9131.000	-1867	166667
Sample size	5612.000			

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[1] The urban level poverty line is Kshs. 2,931 reported by the KNBS 2007.

4.2.2 Testing for differences in means of key sample characteristics

This study also sort to understand whether the poor and non-poor women in the sample differ in terms of characteristics and also whether characteristics of women who live in slums differ from those who live in other types of informal settlements. Tables 3 and 4 present the t-test result. The results comparing the poor and non-poor (table 4) show that there are significant differences in the means of all characteristics except for being separated and for having no education.

The results can further be interpreted that a positive difference suggests that mean of the characteristic of interest is lower for the poor than for the non-poor women and vice-versa. For instance, the results show that only 31% of poor women are likely to be entrepreneurs compared to 46% of their non-poor counterparts. The difference (15%) is statistically significant at all conventional levels of significance (t-value = 11.7658, p-value = 0.0000). For household size, the mean household size of poor women is 7, compared to a mean of 5 for the non-poor. The difference (-2) is statistically significant at all conventional levels of significance (t-value = -23.654, p-value = 0.0000). The results for other variables can be interpreted in a similar way.

Table 3: Testing for differences in characteristics for poor and non-poor groups

Variables	Poor	Non-poor	Difference	T-value	P-value
Entrepreneur	0.311	0.462	0.151	11.766	0.000
Household size	7.25	5.141	-2.11	-23.654	0.000
Age	34.791	31.002	-3.789	-10.658	0.000
Married	0.623	0.713	0.09	7.136	0.000
Separate	0.18	0.169	-0.011	-1.092	0.275
Widow	0.111	0.075	-0.037	-4.656	0.000
Catholic	0.184	0.248	0.063	5.744	0.000
Protestant	0.302	0.394	0.091	7.152	0.000
Muslim	0.415	0.248	-0.167	-13.258	0.000
No education	0.359	0.229	-0.131	-1.7305	0.000
Primary education	0.505	0.456	-0.049	-3.675	0.006
Post primary education	0.1359	0.315	0.1799	16.67	0.000
Transfer	0.507	0.666	0.159	12.163	0.000
Shanty	0.15	0.117	-0.033	-3.569	0.000
Entrepreneur Income	4467.34	2577.57	1889.78	4.2778	0.000
No. of kids 5 years and below	1.275	1.084	-0.191	-6.494	0.000
No. of kids btwn 6 and 15 years	2.263	1.261	-1.001	-22.656	0.000

The results also show that the poor face less favorable characteristics than their non-poor counterparts. All differences are statistically significant except for being separated. Specifically, the poor have lower levels of education, are less likely to receive transfers and have higher dependency burdens (larger household size and more children). These unfavorable characteristics probably make the poor less likely to be entrepreneurs, and also explain why they have lower net earnings from enterprises than the less poor. This study also attempted to establish whether the slum dwellers could be less likely participate in entrepreneurship than their non-slum counterparts due to perhaps differences in characteristics such as their lack of capital among other constraints.

The t-tests for differences in characteristics for shanty and non-shanty dwellers are presented in table 4. In the table, a positive difference suggests the mean of the characteristic of interest is lower for the shanty dwellers than for the non-shanty dwellers. For example, the results show that the mean household size of the shanty dwellers is 5 compared to the mean of 6 for the non-shanty dwellers. The difference in their means is 1 child which is statistically significant at all levels of significance since the t-value is 7.109 and the p-value is 0.000. It is important to note that the probability of being poor is much higher for women living in shanties than for those not living in shanties. Specifically, 61% of women living in shanties are poor compared to only 54% of non-shanty women. The difference is highly significant. The results also show that women living in shanties face less favorable characteristics including being marital status (all dummies) and post primary education. The differences for these variables are statistically significant.

Table 4: Testing for differences in characteristics for shanty and non-shanty dwellers

Variables	Shanty	Non-shanty	Difference	T-value	P-value
Entrepreneur	0.347	0.384	0.036	1.913	0.056
Household size	5.474	6.436	0.962	7.109	0.000
Age	33.146	33.086	-0.06	-0.115	0.908
Married	0.617	0.67	0.053	2.883	0.004
Separate	0.183	0.174	-0.009	-0.632	0.528
Widow	0.111	0.093	-0.018	-1.573	0.116
Catholic	0.237	0.209	-0.028	-1.746	0.081
Protestant	0.457	0.326	-0.131	-7.058	0.000
Muslim	0.13	0.373	0.242	13.227	0.000
No education	0.274	0.304	0.031	1.701	0.088
Primary education	0.564	0.471	-0.094	-4.817	0.000
Post primary education	0.162	0.225	0.063	3.939	0.001
Transfer	0.659	0.566	-0.093	-4.861	0.000
Poor	0.612	0.543	-0.069	-3.569	0.000
Entrepreneur Income	3647.16	2885.52	761.64	1.03	0.30
No. of kids 5 years and below	1.232	1.183	-0.049	-1.136	0.256
No. of kids btwn 6 and 15 years	1.589	1.849	0.26	3.877	0.000

The results further show that 34% of the shanty dwellers are entrepreneurs compared to 38% of the non-shanty dwellers. In addition, the difference is statistically significant at the 5% level. For the net enterprise income, the shanty dwellers have a mean of 2,886 Kshs which is approximately 25 Euros per month while the non-shanty dwellers have a mean of 3,647 Kshs which is approximately 31 Euros per month. The difference in their means is not statistically. Thus, though women living in shanties have a significantly lower likelihood of participating in entrepreneurship than women from other types of informal settlements, there is no major difference in earnings from entrepreneurship for the two groups of women. It is likely that the unfavorable characteristics discussed above limit participation of shanty women in entrepreneurship.

4.2.3 Testing for multicollinearity

Before estimating the probit model, this study examined the pair-wise correlation matrix of the explanatory variables in the model. This test is important because it's can show whether there is a linear relationship among two or more independent variables (Greene, 2003). The ideal or perfect multicollinearity is when the correlation between the two independent variables is equal to 1 or - 1. The results of the multicollinearity test (table 1 in the appendix) show that there is no serious multicollinearity between the variables of interest.

4.2.4 Probit Model Results

To investigate the effect of poverty on the decision by women to participate in entrepreneurship, this study estimated a probit model specified in the previous chapter. The estimated marginal effects as (Table 5) show that persons living in the shanties and poor persons are less likely to participate in enterprises. Specifically, a woman living in a shanty is 4.7% times less likely to participate in entrepreneurship than a woman who lives in other forms of informal sector settlements. A poor woman is 17.3% less likely to participate in entrepreneurship than a non-poor woman, all other factors held constant.

Other factors that have positive significant effects include household size, transfers and education. A woman from a household that received transfers is 5% more likely to participate in entrepreneurship than their counterparts from households not receiving transfers, '*ceteris paribus*'. Relative to no education, primary and post primary education increases the likelihood of participating in entrepreneurship by about 9%. Age of the woman, marital status (married, separate and widowhood relative to being single women), and number of children aged 6 to 15 years have negative significant effects on participation in entrepreneurship. Relative to other religious believes being catholic, protestant or Muslim significantly reduces the likelihood of women engaging in entrepreneurship, with Muslim women being much less likely to participate than all other women.

Table 5: Marginal Effects after Probit

Variable	Marginal Effects	Robust Std. Err.	P>z
Household size	0.030	0.003	0.000
Age	-0.001	0.001	0.015
Transfer*	0.052	0.014	0.000
Married*	-0.103	0.028	0.000

Separate*	-0.040	0.030	0.189
Widow*	-0.037	0.034	0.276
Primary education*	0.085	0.014	0.000
Post primary education*	0.088	0.048	0.062
Catholic*	-0.073	0.024	0.003
Protes~t*	-0.040	0.023	0.082
Shanty*	-0.047	0.019	0.017
Muslim*	-0.133	0.023	0.000
No. of kids 5years and below	0.006	0.007	0.368
No. of kids btwn 5 and 16 years	-0.037	0.006	0.000
Poor*	-0.173	0.014	0.000
No. of Observations	5522		
Wald chi2(15)	413.00		
Pseudo R2	0.0569		
Log pseudo likelihood	-3452.55		

4.2.5   Propensity Score Matching Results

The t-test and probit results presented above suggest that women living in shanties are less likely to engage in entrepreneurship than women living in other types of informal settlements. The results further show that poor women are less likely to be entrepreneurs than the non-poor women. The t-test results suggest that this could be due to differences in characteristics of the two respective groups. It is therefore important to control for differences in these characteristics by trying to match the respective groups of women before assessing which group is more likely to participate in entrepreneurship.

To do so, this paper uses the propensity score matching method (PSM) to compare women living in the informal settlements with other women with similar observable characteristics. There are four main different algorithms that could be applied which include the Nearest Neighbor Matching (NNM), Kernel-based Matching (KBM), Radius Matching (RM) and the Mahalanobis Matching (MM) method. The matching techniques should give similar results but there are certain differences in terms of the biases obtained and the efficiency with each matching method (Caliendo and Kopeinig, 2005).

This study incorporated all the four algorithms but settled for the Kernel-based Matching (KBM) method specifically using the *epan* type of Kernel. This method uses weighted average of all individuals in the control group in order to obtain the counterfactual outcomes and it is also favorable for the sample size plus the number of treated and control observations. The KBM method was preferred because compared to the other matching techniques, it yielded the most robust results with the lowest possible biases. The nearest neighbor match method was however used to generate graphs. Caliendo and Kopeinig (2009) point out that the main advantage of using KBM is that there is lower variance since most of the information is used.

For the selected matching method, *pstest* was carried out. This test calculates measures of the covariate balancing of the variables before and after matching. The *pstest* in this case is a t-test on the hypothesis that the mean value of each variable is the same for the women living in shanties and those not living in shanties (Spermann, 2009). If the value of p is greater than 0.1 then the null hypothesis can't be rejected at the 10% significance level. The *pstest* helps to calculate a bias before and after matching for each variable. The bias is the difference between the mean values of the treatment group and the non-treatment group divided by the square root of the average sample variance in the treated group.

In this paper, the Psmatch is employed to answer three questions:
  (i)   Are women in slums more likely to be entrepreneurs?
  (ii)   Are net enterprise incomes generated by women in shanties more than for women living in other forms of informal settlements?
  (iii)   Do men and women living in the shanties differ in their economic activities?

4.2.5.1   Are women in shanties more likely to be entrepreneurs than women living in other informal enterprises?

The *psmatch* results with entrepreneurship as outcome and shanty as treatment variable are presented in table 6. The difference is ATT for the control and treated groups is negative and significant, and suggests that living in a shanty reduces the probability of participating in entrepreneurship by 0.039 on average. Thus women living in Manyattas and Swahilis are more likely to be entrepreneurs than their counterparts living in shanties.

Table 6: Psmatch results for participation in entrepreneurship

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Entrepreneur	Unmatched	0.352	0.382	-0.030	0.019	-1.6
	ATT	0.352	0.390	-0.039	0.019	-1.98

The *pstest* results are presented in table 7. The results suggest that the two groups are quite similar after matching. The bias (the dissimilarity between the two groups) in our case is quite small. Conventionally, the bias should be less than 5%. The results show that the largest bias is from being married (-6.2) followed by being poor (5.9), but none of these biases is significant. Furthermore, the difference between the mean of the treated and the mean of the control variables do not show significant differences. Thus the matching has generated a control group (women not living in shanties) which is very similar to the treatment group (women living in shanties). This is illustrated in Figure 3 which clearly shows that two groups are much more similar after than before matching.

Table 7: Pstest results for participation in entrepreneurship

Variable	Mean of Treated	Mean of Control	% Bias	T test	p>t
Household size	5.491	5.495	-0.1	-0.03	0.975
Age	33.200	32.871	2.4	0.45	0.651

|					
No. of kids 5years and below	1.234	1.228	0.6	0.12	0.903
No. of kids btwn 5 and 16 years	1.598	1.587	0.7	0.15	0.881
Married	0.625	0.654	-6.2	-1.18	0.237
Separate	0.906	0.778	4.8	0.89	0.374
Widow	0.112	0.102	3.2	0.61	0.543
Catholic	0.237	0.253	-4	-0.74	0.459
Protestant	0.457	0.460	-0.7	-0.13	0.898
Muslim	0.130	0.127	0.9	0.21	0.831
Primary education	0.571	0.551	4	0.78	0.443
Post primary education	0.360	0.314	2.8	0.49	0.623
Transfer	0.660	0.659	0.3	0.06	0.955
Poor	0.607	0.578	5.9	1.14	0.253
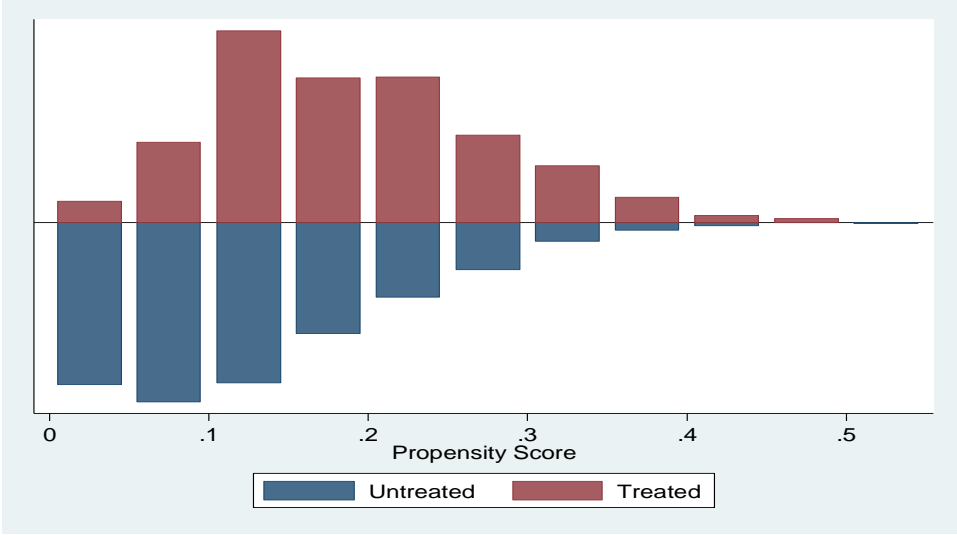
Figure 2: Propensity score histogram
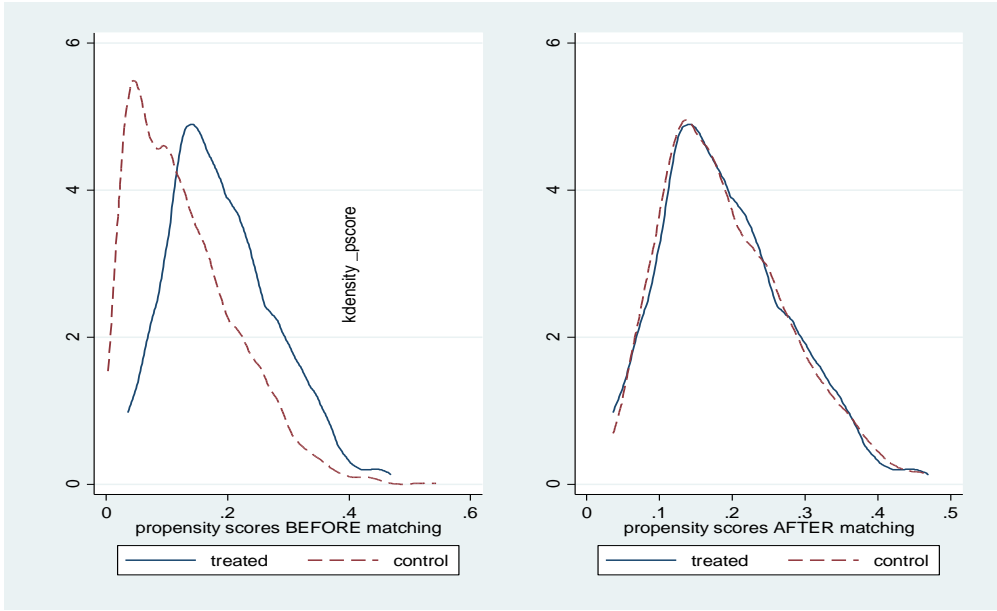*Source: Author's construction*

Figure 3: Distribution of propensity scores
Source: Author's construction

To verify that there was proper matching between the treated and untreated groups, the study investigated whether the common support assumption was satisfied Baker (2000). This is illustrated by a propensity score histogram (Figure 2) which shows that there is close overlap between the treated and untreated groups (bars are skewed on the opposite sides) and that the common support was achieved. Figure 3 shows the distribution of the propensity score and it can be seen that the treated and untreated become more similar after matching.

In addition, the bootstrapping technique was carried out in order to test the statistical significance of the treatment effects and standard errors. Bootstrapping is important because it shows the sampling errors in the estimates generated, it is useful for estimating standard errors, more-so where analytical estimates may be biased or unavailable. This method has widely been used because it re-estimates the results that have been achieved including the estimation of the propensity scores and common supported as affirmed by Caliendo and Kopeinig et al., (2009). The results of the bootstrap are presented in table 8 below. It can be noted that there results are not significant, suggesting that the standard errors may be unbiased even without bootstrapping.

Table 8: Results for first bootstrap

	Observed	Bootstrap		Normal-based	
	Coef.	Std. Err.	P>z	[95% Conf. Interval]	
_bs_1	0.003	0.044	0.951	-.0829 .0882	
Number of observations = 5522					
Replications= 50					

4.2.5.2 *Are net enterprise incomes generated by women in shanties more than of other women?*

This study also investigated whether earnings from enterprises were higher for women in shanties than for other women. The outcome variable in this case is the net income from entrepreneurship and the treated variable is shanty. The results (table 9) show that a difference in the ATT for the control and treated groups is positive and insignificant, and suggests that living in a shanty increases net incomes by 2,131kshs compared to their counterparts living in Swahilis and Manyattas. Furthermore, the results show that 10 households/women are dropped off after matching because they were completely dissimilar and therefore had no matching or did not fall anywhere in the intersection between the two samples (treated and untreated).

Pstest (Table 10) show that the biases in this model are much bigger compared to those of the previous model but none of them are statistically significant. It is noted that the largest biases are for the women who received transfers (12.1) and those who are separated (10.3). There are no much differences between the mean of the treated and the control. The bootstrap results are presented in the Table 11. The results yield insignificant coefficients, suggesting that the standard errors were unbiased even before bootstrapping since p-value is 0.525. In addition, it was necessary to create a k-density graph to show the distribution of the propensity scores. Figure 5 shows that the treated and untreated become more similar after matching. Figure 4 shows the households/women who were dropped (off-support) but there is a close overlap between the treated and untreated groups meaning that the common support was achieved.

Table 9: Psmatch results for net earnings from enterprises

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Net earnings	Unmatched	17313	21958	-4645	4449	-1.04
	ATT	18107	15976	2131	3440	0.62

Table 10: Pstest results for net earnings from enterprises

Variable	Mean of Treated	Mean of Control	%bias	t test	p>t
Household size	5.981	5.799	5.1	0.51	0.609
Age	30.323	30.404	-0.6	-0.06	0.954
No. of kids 5years and below	1.236	1.225	1	0.09	0.931
No. of kids btwn 5 and 16 years	1.621	1.519	6.7	0.66	0.508
Married	0.472	0.523	-10.4	-0.91	0.365
Separate	0.317	0.273	10.3	0.86	0.388
Widow	0.075	0.078	-1.1	-0.11	0.910
Catholic	0.168	0.167	0.2	0.02	0.982
Protestant	0.497	0.489	1.6	0.14	0.890
Muslim	0.025	0.049	-7	-1.18	0.240
Primary education	0.615	0.607	1.6	0.15	0.884

Post primary education	0.043	0.052	-4.1	-0.36	0.721
Transfer	0.677	0.619	12.1	1.08	0.281
Poor	0.559	0.569	-2.1	-0.19	0.848

Table 11: Bootstrapping results for net earnings from enterprise model

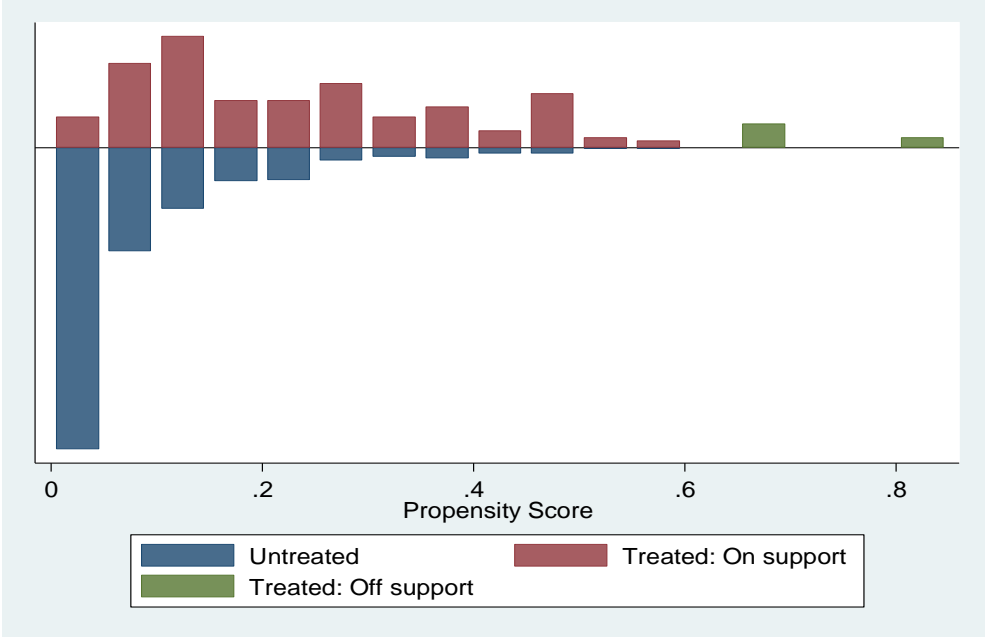|	Observed	Bootstrap		Normal-based	
	Coef.	Std. Err.	P>z	[95% Conf. Interval]	
_bs_1	-3883.099	6105.968	0.525	-15850.580 8084.379	
Number of observations= 1664					
Replications= 50					

Figure 4: Propensity Score Histogram for enterprise model
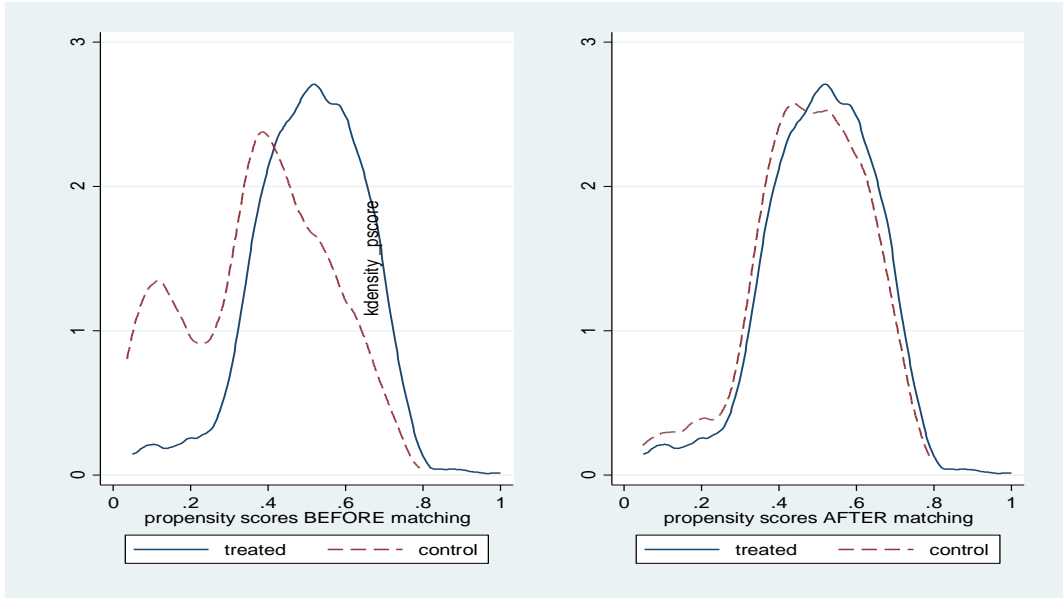*Source: Author's construction*

Figure 5: Distribution of propensity scores for enterprise model
Source: Author's construction

4.5.2.3 *Do men and women living in the informal settlements differ in their economic activities? Outcome variables is entrepreneurship, treated variable is gender*

The PSM results with the outcome variable as entrepreneurship and treatment variable as gender are presented in the table below. The difference in the ATT for the control and treated groups is negative and significant because it is greater than 2. The results suggest that men living in informal settlements are less likely to be entrepreneurs than their women counterparts. Compared to women, the probability of a man participating in entrepreneurship is lower by 0.039 on average. Thus men and women living in informal settlements differ in terms of their economic activities.

Table 12: Psmatch results for gender model

Variable	Sample	Treated	Controls	Difference	S.E.	T-stat
Entrepreneur	Unmatched	0.358	0.386	-0.028	0.013	-2.11
	ATT	0.358	0.397	-0.039	0.015	-2.61

The pstest results for this model are presented in table 13 below. The variables with the largest biases include age and married which are 9.9 and 8.9 respectively. Biases for poor, kids less than 5 years, age and married are statistically significant and thus contribute most to differences in the two groups. The bootstrap results (table 14) suggest that the standard errors that could be unbiased even without bootstrapping as the results are insignificant since the p-value is 0.119. Consequently, a k-density graph was created to show the distribution of the propensity scores. The figure 7 below shows that the treated and untreated become more similar after matching while figure 6 shows the propensity score histogram showing that the common support was achieved.

Table 13: Pstest results for gender model

Variable	Mean of Treated	Mean of Control	%bias	t test	p>t
Household size	5.652	5.634	0.5	0.19	0.852
Poor	1.497	1.524	-5.3	-1.89	0.058
Transfer	0.585	0.590	-1	-0.34	0.731
No education	0.248	0.230	3.9	1.47	0.141
Primary education	0.485	0.486	0	-0.01	0.992
Post primary education	0.266	0.284	-4.2	-1.42	0.154
Catholic	0.214	0.217	-0.8	-0.28	0.776
Protestant	0.342	0.352	-2	-0.70	0.485
Muslim	0.294	0.284	2	0.74	0.458
No. of kids 5 years and below	1.470	1.429	2.4	0.93	0.351
No. of kids btwn 5 and 16 years	0.886	0.837	4.6	1.74	0.082
Age	34.797	33.443	9.9	3.56	0.00
Married	0.652	0.609	8.9	3.18	0.001
Separate	0.019	0.014	2	1.27	0.205
Widow	0.012	0.015	-1.3	-1.02	0.306

Table 14: Bootstrapping results for gender model

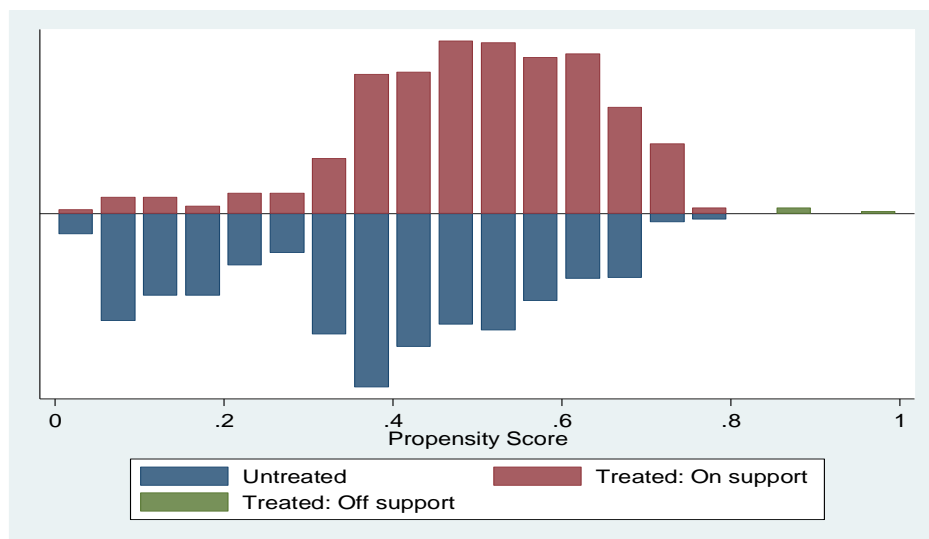|	Observed	Bootstrap		Normal-based	
	Coef.	Std. Err.	P>z	[95% Conf. Interval]	
_bs_1	-0.038	0.024	0.119	-.0857229	.0097134
Number of observations = 5457					
Replications = 50					

Figure 6: Propensity Score Histogram for gender model
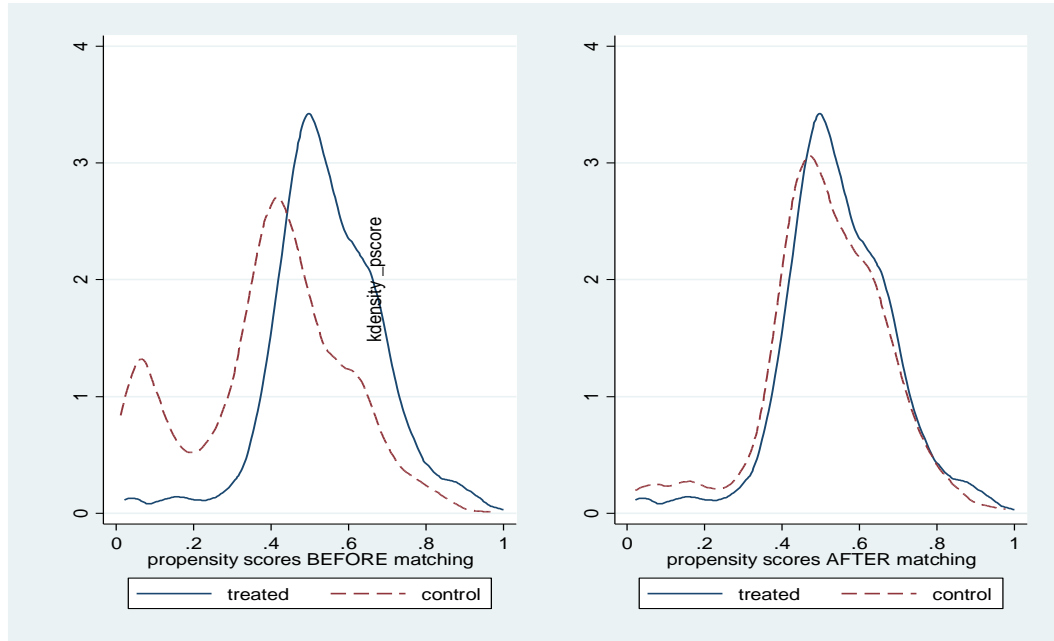*Source: Author's construction*

Figure 7: Distribution of propensity scores for gender model
Source: Author's construction

In summary, this chapter presented the results of both qualitative and quantitative data analysis. The findings of the small survey show that women entrepreneurs face a lot of challenges including poverty, large household sizes, low education and lack of finance among others. Such factors present barriers to labour market participation. Financial constraints, inadequate technology and competition were other barriers hindering participation in entrepreneurship. The findings are consistent with results in the literature (see for instance Thiga, 2010; Gulyani et al., 2010; Jaiyeba, 2010, Finnegan et al., 2004).

In addition, the cross-section data analysis also proved that women living in shanties are less likely to be entrepreneurs compared to their counterparts living in the Swahilis and Manyattas. This could be due to the fact that the shanties have higher poverty and vulnerability rates than Swahilis and Manyattas since they are located in the urban areas. Using key variables such as education, marital status, age and religion (similar to Minniti, (2010)), the PSM results show that there is a difference in the participation in economic activities between men and women residing in the informal settlements. This was further supported by the survey data findings which suggest that this might be due to the time differentiated use between men and women and also the low levels of education among women. Furthermore, in comparison with men, women have to juggle between their roles at home as caregivers, mothers and wives plus their role in the labor market as entrepreneurs (Carter, 2000 and Marlow, 2002).

Another observation is that households that participate in entrepreneurship are better off than the ones that do not participate in entrepreneurship. Though the net incomes may not be much, the respondents affirmed that the incomes are able to smoothen the harsh realities that they face each

day. This was supported by the primary data findings where the respondents reported that the households that do not participate in entrepreneurship often lack the basic needs and would borrow from neighbors. A link between the primary and cross-section data analysis, has be established through the similarities in the findings. For instance, the findings indicate that the key challenges to entrepreneurship include poverty, marital status, education, finances, and technology.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.0   Summary and conclusion

This study set out to examine the extent to which poverty affects the participation of women in enterprises for both slum dwellers and non-slum dwellers. Its motivation was drawn by the need to stress on the importance of women entrepreneurs in the development process given high poverty rates in these areas. The high rates of poverty in the slums is the main problem since women are more vulnerable compared to men. This is also in light with the literature reviewed that affirms that poverty is said to have a 'female face' in most developing countries and that women's entrepreneurship leads to economic development (World Bank, (2005), GEM, (2004)).

This study used of Kenya Integrated Household Budget Survey (KIHBS) 2005/6 data. A small survey of 30 women operating small enterprises in Kibera slum, Nairobi was also carried out in order to get a general overview of the challenges faced by women entrepreneurs operating from Kenyan shanties. The study combined both qualitative and quantitative methods of data analysis. Qualitative methods were used to analyze the primary data. A probit model was estimated to investigate the factors influencing the decision by a woman to participate in entrepreneurship. The Propensity Score Matching (PSM) method was used to assess whether women living in shanties are more likely to participate in entrepreneurship than their counterparts not living in shanties. The PSM was also employed to answer test whether the net enterprise incomes generated by women in shanties was more than for women living in other informal settlements and whether men and women differed in their economic activities.

The findings from the analysis of primary data are that: First, households that participated in entrepreneurship were better off than the ones that did not. Second, financial constraints were a challenge for women entrepreneurs. Third, the low level of education was a major challenge to participation in the labour market and in entrepreneurship. These findings are consistent with those of Gulyani et al., (2010), Thiga (2010) and Mwobobia (2012). From these findings and field observations, one can deduce that due to their altruistic nature, women tend to do whatever it takes to make sure that their dependents have a better future. With little or no education and complex entry into the labour market, poor women opt to engage in enterprises no matter how small keeping in mind that there are other alternatives to entrepreneurship which include prostitution and drug trafficking.

T-test results suggest significant differences in almost all sample characteristics for poor vs. non-poor women and also show that the poor women face less favorable characteristics relative to the non-poor. The same is observed for women living in shanties compared to their counterparts who do not live in shanties. Poor women and women living in shanties are also less likely to be entrepreneurs than their respective counterparts. Probit model results show that a woman living in a shanty is 4.7% times less likely to participate in entrepreneurship than a woman who lives in other forms of informal sector settlements. A poor woman is 17.3% less likely to participate in entrepreneurship than a non-poor woman, all other factors held constant. Household size, transfers and education also increase the likelihood of participating in entrepreneurship. Age, marital status, presence of many children and culture reduce the likelihood of participating in entrepreneurship.

The PSM results show that shanty women are less likely to engage in enterprises than women living in other forms of informal settlements (Manyattas and Swahilis). The results further show that differences in participation of men and women in economic activities could be due to the differences in age, education, poverty and marital status. The propensity score matching results further suggest that women living in shanties and their counterparts not living in shanties become more similar after matching, while the assumption of common support is satisfied.

5.1   Policy Recommendations

Drawing from the above findings, several policy recommendations for enhancing the participation of women in enterprises can be deduced.

This study found that poor women are less likely to participate in entrepreneurship than their non-poor counterparts. This calls for fostering of equity and poverty eradication /reduction which should be one of the key mandates of the GOK. With the rapid growth rates of poverty, the GOK should re-strategize since it has not been able to meet its Millennium Development Goal (MDG) of poverty reduction. Poverty can only be reduced if there is equal distribution of opportunities and resources in a country. The government should support measures to strengthen women's individual and collective ownership, access and use of resources. This will ensure that the poor women in society are given equal chances especially in the entry into the labour market (Atieno, 2010 and Minniti, 2010).

The study also found that women are less likely to participate in entrepreneurship than men. This points at policies targeting gender and vulnerable groups and the need to address gender bias and differentials in Kenya. The pivotal place of women in the society should be emphasized so as to see women more than just care givers in the household economy by promoting the social and economic empowerment of women. Also, the development of gender-sensitive social protection measures including cash and asset transfers will ensure that women entrepreneurs succeed. Policy-makers, development practitioners/agencies, Non-Governmental Organizations (NGO's), parastatals and stake-holders should also assist the GOK with dealing with gender inequality and bias.

Another key finding is that education is a major barrier to women's participation in entrepreneurship. Kenya's economic blue-print for economic growth dubbed Vision 2030, was established on three pillars namely; economic, social and political. Under the social pillar, the main goal is to build a cohesive society with focus on key sectors including education and training, gender, youth and vulnerable groups, and equity and poverty eradication. With regards to Kenya's Vision 2030, this study recommends the need to increase the level of education and training among women which will solve the low rates of education among them. This can be done through functional literacy training programmes in areas such as finance, marketing, production and managerial skills especially for the marginalized groups in the society. This would enhance the knowledge and practical skills of the shanty woman and increase her chances of participating in entrepreneurship. The government of Kenya, non-governmental organizations and community based organizations should facilitate such training.

Financial constraints are also found to be a key barrier that women entrepreneurs face in Kenya. The GOK came up with the Women's Enterprise Fund (WEF) in 2007 with the aim of ensuring that hurdles women face in venturing in enterprises are dealt with including providing loans to women using Microfinance institutions (MFIs) and the Ministry of Gender, Children and Social Development (Government of Kenya, (2009), WEF, (2010)). However, this project is failing due

to the high cost of loan administration, corruption, limited scope of coverage and managerial woes (Kiraka et al., 2013). This study recommends that the GOK should reform the WEF to ensure that it offers subsidized loans and quality service delivery to women entrepreneurs in Kenya. In addition, other microfinance and financial institutions should provide financing arrangements that are favorable to women living in the informal settlements or poor women in general. This can be done by smoothening the process of acquiring loans and other collateral requirements.

5.2   *Limitation of the Study*

There were two main limitations of this study. First, the KIHBS 2005/6 dataset was the only main source of secondary data available. Hence, recreating and merging the KIHBS dataset in order to come up with a customized dataset was cumbersome. This dataset doesn't include information concerning the relation between the current residence and place of birth. There may be inaccuracy of the data since there have been major changes in Kenya's economy from the time the data was collected. Second, when conducting the interviews some of the respondents were hostile while others opted not to disclose some information. Though the ideal sampling frame would be bigger, time and financial constraints would not allow the researcher to carry out a larger survey. The purposive sample size of 30 women was a case study as it was too small to represent the 48,000 women living in the shanty.

5.3   *Areas of further research*

Based on the findings of this study, two areas of further research are recommended. First, the study focused only on the women living in the informal settlements of Kenya specifically in the shanties. The KIHBS 2005/6 data shows that there are two other types of informal settlements - Swahilis and Manyattas. Future research could extend to all types of informal urban settlements. The second area of further research would be to use a different type of statistical matching method to investigate why men and women are different in terms of entrepreneurship. Third, further studies can use the Oaxaca-Blinder decomposition to investigate the presence of labour market bias across specific groups, namely dwellers in informal vs. informal settlements; women and men, poor and non-poor. Finally, future studies may want to gather more comprehensive qualitative data to validate quantitative analysis. This was beyond the scope of this research paper given time and space.

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APPENDIX

Appendix 1: Questionnaire

I am conducting a research on the effect of household poverty on the participation of women in enterprises as a fulfillment of the requirements for obtaining a Master degree in development studies at the Institute of Social Studies, The Hague Netherlands. Your assistance in filling out this questionnaire will be highly appreciated and will be used for statistics purposes only. All your responses will remain confidential. Kindly tick on the appropriate answers.

1. How old are you?
   - 20-24
   - 25-29
   - 30-32

2. What is your marital status?
   - Single
   - Married
   - Widowed
   - Divorced

3. If married, does your spouse work? Does he provide food for you?
   - Yes
   - No

4. How many children do you have?
   - 1
   - 2
   - 4
   - 0
   - More than 4

b) If yes, do they go to school?
   - Yes
   - No

c) If no, why?

5. What is your level of education?
   - No Education

   - Primary School (complete or not)

   - Secondary School (complete or not)

   - Vocational Training

   - University training (complete or not)

6. Do you have a job?
   - Yes
   - No

a) If yes, describe what kind of job.

b) If no, kindly explain why.

       7. Do you have an enterprise?
- Yes
- No

       8. How many people are in your household?
- 1
- 2
- 3
- 4
- More than 4

       9. What is your main enterprise or business?

       10. If you have a business, where did you get money to start your enterprise?
- Own funds
- Credit from suppliers
- Moneylenders
- Microfinance institutions
- Banks
- Friends or relatives
- Women groups/Merry go rounds
- Other sources (specify)

       11. In the last year, did you apply for any loans for this business or activity?
- Yes
- No

a) If no, what was the main reason why you did not apply for any loan for this business or activity?
- No need for a loan

- Application procedures are complex

- Interest rates are too high

- Did not have required collateral

- Did not think it would be obtained because I am not registered

- Other (spontaneous)

b) If yes, what was the source?

       12. Is your enterprise currently registered with the local city council?
- Yes
- No

       13. What is your main source of income?

14. Do you have more than one business activity?
- ○ Yes
- ○ No

a) If yes, list all your business activities

b) If no, explain why

15. How many owners does this business or activity have?

16. Approximately how much do you make in a month?

17. What are the main challenges that your enterprise faces?

Appendix 2: Example 1 of enterprise
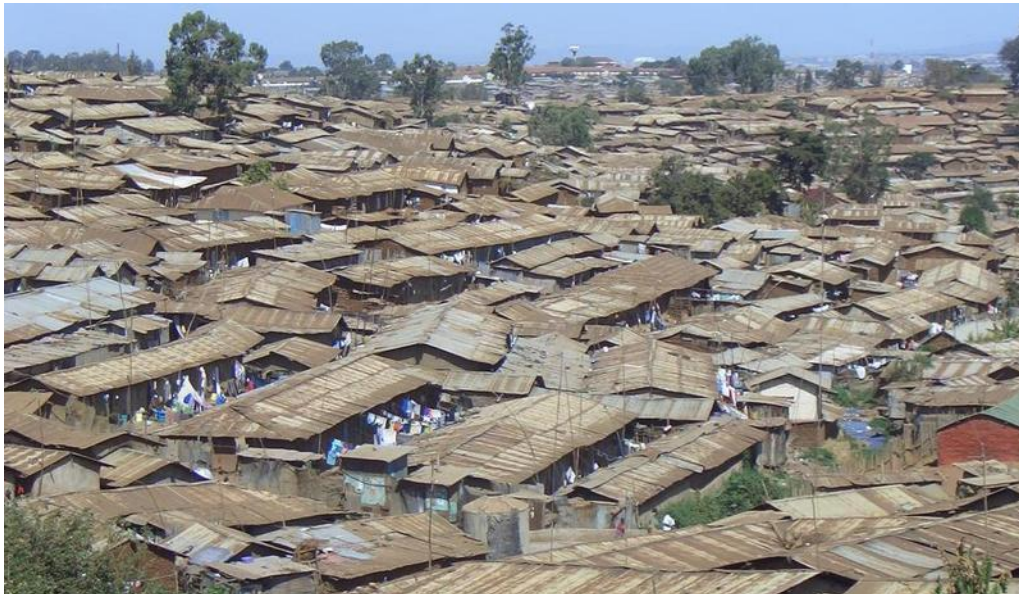

Source: Viewed on 19th August 2015 from:
http://safarijunkie.com/culture/a-day-in-kibera-slum-in-nairobi/

Appendix 3: Example 2 of enterprise

Source: Viewed on 19th August 2015 from
http://www.pri.org/stories/2013-11-13/african-slum-lacked-cash-so-people-made-their-own

Appendix 4: Overview of Kibera slum

Source: Viewed on 19th August 2015 from:
http://safarijunkie.com/culture/a-day-in-kibera-slum-in-nairobi/

Appendix 5: Shanties in Kibera slum

Source: Viewed on 19th August 2015 from:
http://safarijunkie.com/culture/a-day-in-kibera-slum-in-nairobi/

Appendix 6: Table 1: Correlation Matrix of all variables

Variable	Hhsize	Age	Transfer	Married	Separate	Widow	Educ_prim	Educ_postprim	Catholic	Protes~t	Treated	Muslim	Kid_05	Kid_615	Poor
Hhsize	1.000														
Age	0.161	1.000													
Transfer	-0.110	-0.100	1.000												
Married	-0.168	-0.111	-0.090	1.000											
Separate	0.054	0.033	0.078	-0.376	1.000										
Widow	0.114	0.505	-0.021	-0.454	-0.087	1.000									
Educ_prim	0.029	-0.020	0.038	-0.023	0.018	0.005	1.000								
Educ_postprim	-0.004	-0.024	0.048	-0.020	-0.007	-0.020	-0.146	1.000							
Catholic	-0.158	-0.093	0.113	0.041	-0.053	-0.046	0.000	-0.004	1.000						
Protestant	-0.193	-0.112	0.166	0.046	-0.049	-0.071	0.038	0.016	-0.376	1.000					
Treated	-0.095	0.002	0.065	-0.039	0.035	0.021	0.064	0.050	0.024	0.095	1.000				
Muslim	0.342	0.211	-0.301	-0.071	0.071	0.107	-0.058	-0.051	-0.373	-0.519	-0.175	1.000			
kid_05	0.369	-0.137	-0.020	0.167	-0.067	-0.054	-0.073	-0.008	-0.001	-0.059	0.015	0.037	1.000		
kid_615	0.748	0.207	-0.114	-0.113	0.078	0.158	0.072	-0.041	-0.130	-0.162	-0.052	0.307	0.147	1.000	
Poor	0.301	0.141	-0.160	-0.095	0.084	0.062	0.049	-0.036	-0.077	-0.096	0.048	0.176	0.086	0.290	1.000

Source: Author's construction