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Determinants of the Informal Sector Performance in the Semi-Arid Areas of Kenya: Evidence from Makueni District

WiGeo

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CONTENTS

Abstract

The general objective of this article was to investigate the factors that determine the performance of woodwork and metalwork enterprises in Makueni District. The results showed that working capital, licensing, competition and the level of education were statistically significant in determination of profits. Based on the findings, it is recommended that the government and other stakeholders should provide both financial and non-financial services at affordable rates to the small business operators and entrepreneurs. Loans inform of money or kind should be made available through relevant lending institutions to supplement the working capital. Seminars and conferences should be held to create awareness to the entrepreneurs of the various incentives and credit facilities provided by the government and other stakeholders. To reduce the level of competition, the government should allocate land to the entrepreneurs and structures put up at affordable rates.

1 Introduction

Following the International Labor Organization (ILO) employment mission report of 1972, the term *Informal sector* was adopted by policy makers to describe that portion of the urban economy that escapes enumeration in the government's official statistics. Note that the *informal* sector is defined using several operational definitions or criteria, which include legal status, income level, occupational status and firm size. The criteria used vary from one country (person) to another depending on the sector and activity being studied. Hence, it is hard to use one definition to apply to all cases. As a result, there is no single definition universally acceptable to all as technically competent to include all activities[1] in the sector. Amongst practitioners, that is, the actual people working in the sector, the term *Jua kali* is popularly used to describe the sector. *Jua kali* is a *Kiswahili* term, which means operating under the sun exposed to the elements. It refers to those activities conducted in open sites in which people work wholly exposed to harsh environmental hazards like heat from the sun, rain and dust. The term continues to be used up to now even for activities carried in

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[1] These activities include: tailoring, carpentry, black smithing, grocery, kiosks, meat and maize roasting, sale of wearing apparel and shoes, open air restaurants, repair of footwear, car repair, shoe-shining, hair- cutting and all sorts of petty trades.

permanent structures. Other names used for the informal sector are: Small-Scale Enterprises (SSEs), which include all firms with 50 workers and below, micro-enterprises which refers to enterprises with 10 workers and below, medium enterprises which refers to enterprises employing 50 – 99 workers and large enterprises, which refers to enterprises employing 100 and above workers. In the current study, the terms: Informal Sector, Small Scale Enterprise (SSE) and Micro and Small Enterprise (MSE) are used interchangeably to refer to the informal sector. In the same vein the terms business, enterprise, firm and establishment are used interchangeably to refer to an economic unit producing goods and services.

The informal sector concept broadly considered may consist of a wide range of activities including any economic unit engaged in the production of goods and services apart from formal ones. Sethuraman (1976) categorizes the informal activities in terms of manufacturing enterprises, construction, transport, trade and services. Each of these categories comprises a wide range of activities which exist both in the urban and rural areas. In Makueni District, the informal sector consists of activities such as carpentry, tailoring, metalworks, motor vehicle repairs, wiring and panel beating, handicrafts, masonry, dress making, gas welding, pottery, basketry, hairdressing, charcoal burning and black smith. In this study, only informal woodwork and metalwork enterprises in Makueni District in Kenya were considered. According to Ofafa (1999), metalwork like woodwork enterprises, consist of manufacturing informal enterprises which enable indigenous Kenyans to participate in manufacturing, and hence needs to be strengthened. The enterprises provide on-the-job training to many people in Kenya. In both enterprises, the type of machinery or equipment used is basic, as are the skills required and therefore, the activities are easy to start. Makueni is not agriculturally productive and since these activities are non-agricultural, can enable the area to be as productive as other areas in the country. For the purposes of this study, an informal woodwork enterprise was defined as any enterprise that manufactures and distributes furniture, wooden art work, storage and packaging materials (chests, crates, racks, shelves), and joinery materials in the construction industry (roofing, flooring, doors, and windows, pre-fabrications, etc.) with employment level of less than 10 workers. On the other hand, an informal metalwork enterprise was defined as any enterprise that undertakes simple engineering work mostly on sheet metal (containers, utensils, window frames, metal furniture, e.t.c.) with employment level of less than 10 workers.

In an attempt to promote the performance of SSEs, the Kenya government has set up specialized institutions and programs to provide credit facilities, management and technical training, and business advisory services, among other services. In addition, there are multilateral and bilateral donor organizations (e.g. USAID, UNDP) with MSE development programmes operating in the country. However, despite the government's efforts to enhance the performance of the informal sector in Kenya, the sector has been characterized by new firm creation rather than increases in sizes, proliferation (businesses reproducing themselves), and a high level of 'churning' that is, new enterprises starting up and at the same time existing ones ceasing operations (Daniels *et al*, 1995). Republic of Kenya (1999b) found that between 1995 and 1999, 11,360 enterprises closed-down nationwide. This was reflected by the percentage growth in persons employed in the informal sector between 1995 and 1999. According to Republic of Kenya (1999a, 2000), the informal sector total percentage growth in the number of employees between 1995 and 1999 was increasing at a decreasing rate. For instance, the percentage growth of persons employed in 1995, 1996, 1997, 1998 and 1999 was 20, 15, 12, 11, and 10 percent respectively. This gives an impression that sustainability of profits in the informal sector is a problem.

In semi-arid areas of Kenya, for instance Makueni District, awareness campaigns that succeeded to make credit facilities available and accessible to some enterprises were carried out to promote establishment and performance of SSEs in 1995. However, the performance of the sector was poor as it recorded an annual growth rate of 3 per cent compared to 10 per cent during 1974 – 1979. The sector also generated an average earning of only Ksh. 1200 per month which is low compared to the minimum wage in Kenya of Ksh. 1700 per month for general labourers (Republic of Kenya, 1997b). No attempt has been made, so far, to investigate why woodwork and metalwork SSEs are characterized by poor performance in Makueni District in particular. Therefore, this study focused on the significance of the factors that determine the performance of woodwork and metalwork SSEs in semi-arid areas of Kenya, particularly Makueni District. The rest of the paper is organized as follows. Section 2 provides a brief description of the role of small scale enterprises in economic development while section 3 presents literature on small scale enterprises. Section 4 presents the analytical framework and data used in this paper while section 5 presents the empirical results. Finally, section 6 concludes the paper.

2 Role of SSEs in Economic Development

The informal sector plays an important role in income and employment generation, as well as poverty alleviation. In the labour market, the informal sector has emerged as a major source of employment. Available evidence shows that outside agriculture and the public sector, employment opportunities in the informal sector are more than those in the formal wage sector in industry and commerce. For instance, Republic of Kenya (1999a, 2000) estimates that the SSEs employed 3,738,800 people countrywide in 1999, compared to 2,240,500 people in 1995 (see Table 2.1).

Table 2.1: Persons Employed: Recorded Totals, 1995-1999 ('000's).

	1995	**1996**	**1997**	**1998**	**1999**
Modern Establishments- Urban & Rural areas: Wage[2] Employees:	1,557.0	1,618.8	1,647.4	1,664.9	1,673.6
Self Employed and Unpaid Family Workers:	61.1	63.2	64.1	64.8	65.1
Informal Sector[3]	2,240.5	2,643.8	2,986.9	3,353.5	3,738.8
TOTAL	3,858.6	4,325.8	4,698.4	5,083.2	5,477.5

Source: Republic of Kenya 1999a, 2000.

Parker and Torres (1993), revealed that Kenya had approximately 900,000 MSEs nationwide employing two million people or 16 per cent of the population of working age. According to Republic of Kenya (1999b), the number of MSEs increased between 1995 and 1999 to about 1.3 million employing approximately 2.4 million people. Informal sector employment was expected to grow at 6.5 per cent per annum until 2001, which is more than half as much the rate of growth in formal sector employment (Republic of Kenya, 1999c). Although the

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[2] Wage employees' figures include casual employees, part-time workers, directors and partners serving on a regular basic salary contract. Self-employed persons who do not receive regular wages are excluded. Employment figures for the informal sector, and small-scale agriculture and pastoralists activities are also excluded.

[3] The Central Bureau of Statistics (CBS) definition of the informal sector differs from the definition of MSE.

informal sector has a high labor absorption, it experiences a high turnover of businesses. For instance, Republic of Kenya (1999b) found that 11,360 enterprises closed down between 1995 and 1999 nationwide. This has been reflected by the percentage growth in persons employed in the informal sector between 1995 and 1999. The informal sector total number of employees has been increasing at a decreasing rate. For instance, the percentage growth of persons employed in 1995, 1996, 1997, 1998 and 1999 was 20, 15, 12, 11, and 10 per cent respectively.

The informal sector uses less capital and less quality labor to produce a unit of output. The unit of capital invested in this sector therefore makes a relatively larger contribution to Gross Domestic Product (GDP) than the capital invested in other sectors (Mbuthia, 1998). This sector can therefore be seen to provide one of the solutions to Kenya's ailing economy. For example, Daniels *et. al* (1995*)* found that SSEs accounted for 12 to 14 per cent of Kenya's GDP. This increased between the year 1995 and 1999 to approximately 18.4 per cent (Republic of Kenya, 1999b). Daniels *et al* (1995), observed that this is in form of returns to the owner and unpaid workers in the enterprise.

The growth of the SSEs is seen as one of the measures to alleviate poverty through creation of income earning-opportunities. These income-earning opportunities raise the level of income of individuals in most semi-arid areas of the country such as Makueni District. Normally, an increase in the incomes of small-scale enterprises is an indicator of a healthy sector. According to Republic of Kenya (1999b), the average income of enterprises surveyed was about Kshs 6,000 per month, or 2.5 times higher than the minimum legal monthly wage for general labourers which in 1999 was Kshs 2,363. However, in Makueni District, the average earning in 1995 was about Kshs 1200 per month (Republic of Kenya, 1997b).

Small-scale enterprises produce simple goods and services. They cater primarily for the needs of relatively low-income urban and rural households and, create demand as well as supply. For example, according to Republic of Kenya (1992), 90 per cent of rural enterprise products are marketed directly to rural households. In an increasingly competitive and sophisticated environment, smaller firms are demonstrating flexibility and strength because they are innovative and embrace technology transfer, besides, providing significant opportunities for new ideas and skills to be tested and applied.

Smaller firms support industrialization policies that promote rural urban balance by contributing to increased participation of indigenous Kenyans in economic activities. Thus, informal enterprises are expected to increase industrialization of the rural areas and help correct imbalances of income distribution in many directions such as gender, location and sector. More so, SSEs encourage the use of local resources. That is, the sector generates goods and services that have a low foreign exchange content and as such, they are expected to reduce dependence on imported inputs. Hence, SSEs are relevant to government efforts aimed at saving foreign exchange and correcting distorted demand patterns. Thus, the sector helps in narrowing Balance of Payment deficit problem.

3 Literature on Small-Scale Enterprises (SSEs).

Republic of Kenya (1972) report on small business development noted that small businesses' performance in terms of job creation and expansion was adversely affected by a battery of legislation which regulates the operations and sets standards of business in Kenya. For example, business licensing and local authority by-laws. This is because the legislation's were

primarily designed for middle and large businesses. Furthermore, the report observed that, macro-economic variables such as devaluation of currency, inflation, taxation, and licensing adversely affected the operation of these enterprises. However, the report asserted that lack of legal knowledge on part of small businessmen and the unavailability of legal advice were not major obstacles to the performance of small businesses in terms of job creation and expansion. The report shows that government policies have a major role to play in determining the performance of Small-Scale Enterprises (SSEs), hence relevant to this study. However, only licensing was adopted as a variable in this study. Macro-economic variables such as inflation and devaluation of currency were omitted since this study used cross sectional data, which disqualify such variables, which are only used with time series data.

Kiriti (1987) studied the determinants of earnings in the urban mechanics informal sector. The study used a log linear model to estimate the earnings function, which was formulated as a function of age, level of education, training, family size and capital (value of tools). One of the findings was that the factors influencing earnings in the sector fall under three categories: that is, human capital variables, demographic variables and the value of tools. The results showed that institutional factors play a major role in influencing earnings. Training acquired by entrepreneurs was the most statistically significant variable in the determination of earnings in the urban informal sector. Harassment of informal sector entrepreneurs by government agents and city council security forces affected the enterprises negatively by lowering earnings. The study further found that education improves the communication skills of the entrepreneurs, thus it helps in capturing more customers and increasing their profits. This was consistent with Daniels *et al* (1995) and Republic of Kenya (1999b). Kiriti's study recommended that training program be provided to school leavers at subsidized charges by the government. In addition, the government should support entrepreneurs with stable sites for most of them currently operate under instability, mostly in open air spaces. Although the study was carried out in an urban setting which is different from a rural setting, it is relevant to this study since it analyses the determinants of earnings which is an indicator of performance. Therefore, this study borrowed all the variables used in Kiriti's study. This study however used profits as an indicator of performance. This is because profits determine the excess funds available for the entrepreneur to plough into the business unlike earnings which could be high yet profits could be zero if the costs are more than earnings.

McCormick (1988) in a study on small enterprises in Nairobi noted that both growth rate and composition of output (performance indicators) were affected by demand for small-scale manufactured goods. The results indicated that SSEs faced problems of lack of capital erratic supplies and uncertain demand. The recommendations were that for the performance of the SSEs to be enhanced, that is, improving both the growth rate and composition of output, SSEs be assisted to overcome these problems. The government and various donor agencies through setting up specialized institutions and programmes to offer credit facilities and provide market for the informal sector products have already done this. The sector has however not performed as expected. Therefore, this study looked into the determinants of performance of metalwork and woodwork enterprises in Makueni District.

Onyango (1990) in a study on growth and performance of SSEs in small urban centres analysed the relative importance of different variables in determining income as an indicator of performance. The study used a linear model to estimate the income function, which was formulated as a function of credit, land acreage, maintenance of business records, type of business, and education. On estimating the model, the results indicated that performance of SSEs was affected by lack of institutional credit facilities, management skills and competition coming from formal multinational and national companies. Education level was found to be

insignificant. Further, total land acreage owned showed not to affect the performance of enterprises implying that shifting of resources between SSEs and agriculture is of no significant value. However, the study noted that agriculture significantly affects growth, that is, establishment of SSEs since it is the major source of initial capital for the majority of the enterprises. This was consistent with Ng'ethe and Wahome (1987). Onyango's study is very relevant to the present study and almost all the variables will be considered for analysis. However, total land acreage owned by the entrepreneur were omitted since the present study was carried out in an area where agriculture is not promising. The study used income as a performance indicator, which does not determine the firm's ability to bear the costs of finance, labour, raw materials, equipment technology and infrastructure. This study captured this through the use of profit as a performance indicator, which takes into consideration the firm's revenue and costs.

Oketch (1991) in a study on micro-enterprise credit, employment, incomes and output found that the average monthly sale's performance increased by 97 per cent generally but at a lower rate, six months after SSEs were given credit. However, enterprises in trade ranked low in sales' performance and also in many other indicators of growth. The study attributed this to the stiff competition in the sub-sector caused by the entrance of a large number of entrepreneurs, since one could enter the sector with low education and technical skills. The monthly incomes for all the sectors rose when credit was extended. Further, the study found that micro-small enterprises especially in the urban areas are bankable demonstrated by their high repayment rates of 81 per cent of loans extended to them as compared to the repayment rate of 59 per cent in the rural areas. The MSEs were also increasing the value of assets held. The credit also increased the direct value added, incomes and employment in the enterprises due to a bigger proportion of loan being used for working capital in almost all the enterprises studied. The study agrees with Kibas (1995) that the biggest limitation to most MSEs is working capital. The recommendations were that entrepreneurs, who are in the informal sector as their only means of survival, should be given more credit facilities because the incomes generated by such enterprises are too low to allow any wealth accumulation, or acquisition of any skills. The entrepreneurs should be helped to enter more profitable economic activities or at least acquire more rewarding jobs in the informal sector by improving their technical knowledge. The study further noted that although many institutions give credit to the MSEs, most of the institutions are not aware of the relative size of loan or the type of loan to give to different entrepreneurs in different branches of the sector. The study advocates that more studies be done to determine the relative size of credit needed to increase incomes by set margins. This gives useful policy information on who to give credit and how much to give. The study considered the effect of credit only on Small-Scale Enterprises (SSEs) performance. This study included variables such as government regulations, business and entrepreneur characteristics omitted in the study.

Ondiege and Aleke-Dondo (1991) in a study on the informal sector assistance policies in Kenya, found that the average value of selected performance measures such as monthly savings and sales, number of full-time workers, and current capital value of business for the firms that had pre-business start training were higher than those without training. The chow test carried out showed that the difference between those with the pre-business start training and those without was statistically significant. The study found that business expansions were realized from incomes generated from the business. The study however noted that the countries institutional framework, which could prevent the poor entrepreneurial energies from blossoming, affected the expansion of private sector firms in the informal sector. Some of these institutional frameworks included preferential access to credit high costs of establishing/expanding a business, enforcement of property rights, and inconsistent

application of laws, among others. Furthermore, the study noted that productivity in terms of volume sales, savings, and profits made (performance indicators) is determined by factors such as credit facilities, workers' technical skills, infrastructure and the market for goods and services. Ondiege and Aleke-Dondo recommended that the government should facilitate training in SSEs in order for them to improve product service quality and also increase productivity. The same level channels and mechanisms that were used should be expanded to be utilized by those interested in the sector. The analysis showed that factors related to market opportunities, credit and training accessibility if improved, will greatly enhance the sector's performance in terms of productivity. Hence, the study is relevant to this study. However, the study did not analyze variables such as government regulations and entrEpreneurs characteristics, which were considered in this study.

Abuodha (1992), carried out a study on realising optimal growth in Kenyas' informal sector through training and educational paths. The study analysed the effects of education and training policy on the performance of the informal sector through both case studies and statistical cross tabulations. The findings were that vocational training within formal education improves attitudes to manual labour and introduces them as tools used in practice. However, only very high levels of education, those classified as tertiary significantly improve incomes. On comparing the effects of training for tailoring, woodwork, candlework and metalwork, the results indicated that those in tertiary levels of training had higher incomes in both tailoring and woodwork while, those with vocational training and long experience in formal firms proved to be best in metalwork. The study recommended that informal training should be improved and recognized in the educational systems. Abuodha's study is relevant to this study as it provides a basis of statistical cross tabulations. It also analyses the metalwork and woodwork enterprises. Therefore, this study adopted the variables used in Abuodha's study. However, the study omitted important variables such as dependency level, entrepreneurs' age and experience and government regulations, among others. Like Onyango (1990), the study used income as a performance indicator. This study used the profit function which captures most of the costs incurred by the firm including income.

Parker and Torres (1993) in a GEMINI survey on micro and small-scale enterprises found that performance of SSEs in terms of employment (expansion) was a location phenomenon. The survey observed that those enterprises located at home were less likely to employ more workers than those located along roads or markets, whether traditional markets, trading centres or commercial districts. The GEMINI survey further observed that those premises to which they have secure tenure either in form of title deed/written lease, were more likely to expand than those operating with informal agreements. The survey results showed that enterprises operated by those previously employed by the *Jua kali* sector were more likely to expand than those operated by the entrepreneurs coming out of unemployment, government service or from agriculture. The survey is relevant to this study as it analyses the performance of SSEs in various locations. However, no functional relationship was developed to determine the relative effect of each location on the performance of SSEs. This study developed a profit model to capture relative effect of each location on the performance of SSEs. Also, the survey considers employment as a performance indicator while this study considered employment as a variable.

Ondiege (1995) conducted an empirical study on how the performance and development of SSEs was affected by the models and assistance types (programmes). The study was aimed at making a comparative analysis of SSEs development models and assistance programmes by various agencies. The study focused on the impact of credit, technical training, marketing, business management training, technology and infrastructure related assistance types/models

on the performance of the sector. These performance indicators included: productivity or efficiency of SSEs, profits, sales volume, business savings, and employment size. Data were collected using questionnaires, discussions and interviews, first from the agencies involved in SSEs development. Data and information collected from these agencies were then used to identify some of the enterprises in the 2000 sample of the survey. A total of 1986 enterprises in the manufacturing, trade and restaurant and service sectors in Nairobi, Mombasa, Kisumu, Eldoret, Nyeri, Meru and Bungoma towns were surveyed. Both qualitative and quantitative techniques of analysis were used to analyze the data.

To analyze the effects of the assistance types and models on the performance indicators, Ondiege computed an overall mean value (mean category) for each performance indicator. The assumption was that the assistance types that generate values of performance indicators above the category where the mean value falls, had a higher impact on the performance indicator for each sub-sector in the cities studied. The study found that a sizeable number of enterprises are located in residential areas compared to commercial zones. On calculating the mean values, the results indicated that businesses operating within the commercial zones performed better than those operating within the residential zones. While this was attributed to the fact that the sector's goods and services competes favourably with the formal sector businesses, especially when their quality is relatively competitive, it may also imply that there is limited markets in the residential areas due to their semi-exclusive nature. Further, the results showed that different sub-sectors require different assistance types in order to enhance their performance. For instance, using the sales volume indicator, in the furniture making sub-sector, the most significant assistance types were technology; a combination of credit, management and technology; management, marketing and technology; technical training; management; and marketing. In the metal furniture and fixtures, management, a combination of management, marketing and technology; credit, management and infrastructure; and technology are the most significant assistance types to the sub-sector. Ondiege's study is relevant to this study since the analysis shows that it is imperative to have sectoral and sub-sectoral approach in designing assistance programmes in the performance of SSEs. According to the study, this would have positive and sustainable development of the sector especially in the areas of improving the performance indicators. However, the study did not determine whether the assistance programmes were statistically significant despite the fact that they generated higher mean values. No functional relationship was developed. This study developed a functional relationship to determine the relative significance of each individual variable on the performance of the sector.

Ongile and McCormick (1997) carried a study on growth and barriers to growth among small and medium sized garment producers by estimating an employment size function. The study proxied growth as a performance indicator of the SSEs by the current employment size relating it with initial capital. The study found that the adjusted R^2 of 0.54208 indicated that over half of variations in the current firm employment were explained by initial capital. Furthermore, other variables thus, entrepreneur's age, education level, ethnicity, availability of credit and diversity, originally believed to be related to the sectors' performance lacked the universal impact of the initial capital. The recommendations were that studies to determine the relative significance of these variables on other SSEs' performance be undertaken, as they were insignificant for garment firms. This study will adopt these variables with an exception of ethnicity since it will be carried in a rural setting. The study used current firm employment as a proxy of growth (performance indicator). This study used profit as a performance indicator which account for over 50 per cent of informal sector employment (both self-employed and employed) (Republic of Kenya, 1997a). Firm employment was used as a variable in this study.

Bowen (1997), conducted an empirical analysis on the determinant of rural micro-enterprise growth in selected northern districts of Rift Valley Province in Kenya. The study specified a business size function using the number of persons employed as a proxy for the business size. This was expressed as a function of capital constraint, business age, household size and education years. The study further estimated a logit model to determine the influence of entrepreneur and business characteristics on the probability of encountering a constraint. On estimating the business size model, the results showed that capital constraint significantly affected the business size. When the logit modelwas estimated, the results showed that as business age, household size and entrepreneur's age increased, the probability of encountering capital as a constraint increased. On the other hand, as number of education years and business size decreased, the probability of encountering constraint also decreased. Bowen's study is useful to this study as it is microeconomic and all the variables were considered in the analysis. However, the capital dummies were omitted since this study considers capital as a variable but not just a constraint. Employment size was used as an independent variable in this study. The study was carried out in Rift Valley Province. This study was carried out in Makueni District, which is semi-arid hence, agriculture is not promising.

Mbuthia (1998), developed a profit model to investigate the profitability determinants in the informal food kiosk sub-sector. The assumption was that profit was a function of input and output prices, licensing, Ministry of Health inspections, level of education and training, years of experience, age, gender, size, age and location of the food kiosk, variety of food/drinks, type of financing and working capital. On estimating the model using both linear and log linear model specifications, working capital was found to be the most statistically significant variable in profit determination in informal food kiosks. Other factors found to significantly affect profit were output price, level of competition and gender differences. The study recommended that the government and other stakeholders of the informal sector should help in financing the operations of the entrepreneurs. To reduce the level of competition, the city council should allocate plots to build food kiosks based on population density. However, the study suggested that profitability determinants in other informal sub-sectors be studied as factors vary from sub-sector to sub-sector. Mbuthia's study is relevant to this study since it provides some basis of formulating the profit function. This study adopted almost all the variables for analysis. However, the Ministry of Health inspections were omitted since medical certificates are not required in the operation of woodwork and metalwork enterprises.

4 Analytical Framework and Data

4.1 Model Specification

The literature reviewed identifies various performance indicators that have been used to measure the performance of SSEs. This study adopted and modified the profit model developed by Mbuthia (1998). This is because unlike other performance indicators for instance employment size, sales volume, earnings, employment size, rate of capital increase and management improvement, profits determines excess funds available for the entrepreneurs to plough back into their businesses, thus increasing production leading to even higher profits. The firm's profitability determines its ability to bear the costs of finance, labour, raw materials, equipment technology and infrastructure. According to Republic of Kenya (1997a), profits account for over 50 per cent of informal sector employment (both self-employed and employees). Profits also help to project cash flows since it indicates the

percentage of the amounts due that the business can expect to receive based on past experience.

The unit of analysis was assumed to be a competitive firm, producing all products within the firm and aiming at maximizing profits. Firms are assumed to choose those actions, which have the potential to maximize its profits. The profit function is stated as follows:

$$g_i = Max(R_i - C_i) \qquad (3.1)$$

Where g_i is profit of the ith firm, R_i is revenue of the ith firm, C_i is cost of the ith firm and i = 1,2… I.

Suppose firm i uses X units of jth input to generate Y units of Kth output such that;

$$R_i = \sum_{k=1}^{K} P_{ki}.Y_{ki} \quad and \quad C_i = \sum_{j=1}^{J} W_{ji}.X_{ji} \qquad (3.2)$$

Where, P_{ik} is Price of the Kth output produced and sold by the ith firm, Y_{ik} is number of units of the Kth output produced and sold by the ith firm, W_{ij} is Price of input j used by the ith firm , X_{ij} is number of units of input j used by the ith firm, j = 1,2…J and k = 1, 2…K. Therefore,

$$g_i = Max(\sum_{k=1}^{K} P_{ik}.Y_{ik} - \sum_{j=1}^{J} W_{ij}.X_{ij}) \qquad (3.3)$$

If $Y*$ is optimal output and $X*$ is optimal input, the profit function will then be expressed as;

$$g_i = Max(\sum_{k=1}^{K} P_{ik}.Y_{ik}^* - \sum_{j=1}^{J} W_{ij}.X_{ij}^*) \qquad (3.4)$$

The study postulates a relationship between profit and its determinants. From economic theory, profit is determined by input prices (W) and output prices (P). Input price constitutes all the costs that an entrepreneur incurs when he engages in production. These costs include government regulations and the enterprise attributes. Government regulations include licensing (LIC) whilst enterprise attributes include competition (COMP), size of enterprise (SIZE), variety of products (VAR), working capital (WC), credit (CRED), type of enterprise (TYPE) and location of enterprise (LOC) On the other hand, output price will depend on the individual attributes of the entrepreneur. These attributes include education level (EDU), training level (TRA), gender (GEN), age of the entrepreneur (AGE), dependency level (DEP) and experience in the sector (EXP). Equation 3.4 can therefore be modified to include government regulations, enterprise characteristics and entrepreneur characteristics. This can be expressed mathematically as;

$$g = f(LIC, EDU, TRA, AGE, GEN, COMP, DEP, EXP, SIZE, VAR, \\ WC, CRED, TYPE, LOC) \qquad (3.5)$$

The variables were defined and measured as follows:

Profit (g): This is the dependent variable in the analysis. It is the difference between the revenue a firm receives and the costs that it incurs.

Price of output (p): This is the unit value of the final good produced by the enterprise. It was measured in Kenya shillings (Kshs).

Price of input (w): This is the price of inputs. Inputs included labour, capital, electricity, raw materials, land (space), among others.

Licensing (LIC): This is a proxy for the legality of business and was captured by use of a dummy. Licensed enterprises took the value of one and zero if otherwise.

Educational level (EDU): This is the education level attained by the entrepreneur. It was measured by the number of years spent in formal schooling.

Training level (TRA): This is the level of skills an entrepreneur has attained after formal schooling. It was measured by the number of months spent in training.

Age (AGE): This is the age of the entrepreneur. It was measured by the number of years completed since birth.

Gender (GEN): This is the sex of the entrepreneur. It took the value of one if male and zero if otherwise.

Competition (COMP): This is the number of entrepreneurs in a given walking distance (at most one kilometre) who produce products of the same type.

Dependency level (DEP): This is the number of persons who depend on the enterpreneur for their livelihood.

Experience in the sector (EXP): This is the period of time (in years) an entrepreneur has been involved in production and or ina related field.

Size of enterprise (SIZE): This size of the enterprise was measured by the number of workers employed in the enterprise (owner inclusive).

Variety of products (VAR): This is the number of different metal (wood) products sold in the enterprise.

Working capital (WC): This is the expenditure on things bought by the entrepreneur to generate profit. It was proxied by total expenses per month. Expenses included wage, electricity, and raw materials, among others.

Credit (CRED): This is the form of financing the enterprise. This involved the use of a dummy variable taking the value of 1 if an entrepreneur has borrowed / received money and / raw materials in the previous year and zero if otherwise.

Type of enterprise (TYPE): This refers to businesses having the same characteristics. A dummy variable was used taking the value of 1 if woodwork enterprise and zero if otherwise.

Location of enterprise (LOC): This is the site of the enterprise. It took a value of 1 if in commercial areas and zero if otherwise.

4.2 Data Sources and Sampling Techniques

To achieve the objectives of the study, cross sectional primary data were collected from the entrepreneurs operating in the woodwork and metalwork sub-sectors. The study was conducted in Makueni District, one of the semi-arid areas in Kenya covering an area of about 7,440 square kilometres. It borders Kajiado District to the west, Taita Taveta to the south, Kitui to the east and Machakos District to the north. Employment in the formal sector in the District has been scarce thereby forcing more job seekers to look for employment in the informal sector. However, According to the Republic of Kenya (1997b), the informal sector employs about 2,798 people out of the recorded labour force of about 327,953 people in the district.

Three divisions namely Wote, Kilome and Mbitini were chosen randomly from the 14 divisions of Makueni district. From the three divisions, Wote, Nunguni and Emali towns were selected using purposive sampling technique. The population of interest was all the entrepreneurs in Makueni District operating woodwork and metalwork small-scale enterprises. A sampling frame of all entrepreneurs in the three towns was made. Stratified random sampling technique was used to select the sample for interview in the three towns. The use of stratified random sampling technique was justified on the grounds that the

population of interest is heterogeneous; hence there is a need to divide the population of interest into non-overlapping elements called strata. First, the population of interest was divided into two strata in each town. That is, woodwork and metalwork enterprises. Proportional allocation procedure was then used to determine the sample size of each stratum which was then selected using a table of random numbers. The study sample was 40 enterpreneurs.

5 Empirical Results

Prior to regression, all the average profit values were stepped up with Ksh. 6,000 in order to be able to estimate the log-linear model, which cannot be estimated in presence of negative numbers. Regression analysis entailed multiple regressions of all variables and of selected variables using both linear and log-linear models(the results are available on request). Further, a correlation matrix for all the variables in the models was generated to test for the degree of multicollinearity. The results of the correlation matrix showed that the degree of multicollinearity was not high. A high degree of multicollinearity exists when an R squared that approaches one (1) is obtained.

The regression results of all the variables indicated that at 90 per cent, 95 per cent and 99 per cent levels of confidence, the linear regression results had a stronger explanatory power in terms of the F-ratio and the coefficient of determination (R^2) as compared to the log-linear results. All the signs of the linear estimation were correct (consistent with theory) except that of experience, training, age, dependency and education level. Of the nine correctly signed independent variables, two that is, working capital and competition pass the significance test at the ten, five and one per cent level. A variable is statistically significant at 90 per cent, 95 per cent and 99 per cent levels of confidence if it has a t-ratio of approximately 1.64, 2 and 2.58 and above respectively. The Durbin-Watson statistic showed absence of serial correlation. Further, the linear regression results passed both Breusch – Godfrey serial correlation LM and normality tests. However, the results failed the stability test.

In attempting to correct for stability, the most insignificant variables in the linear estimation were omitted. These included: credit, training level, location of business and gender. The results indicate that both linear and log-linear estimations improved in terms of the, measures of statistical reliability of parameter estimates (t-statistics) and the model (F-statistic), measure of goodness of fit (adjusted R-squared), residual and stability tests. On the basis of the coefficient of multiple regression (adjusted R-squared), t-statistic and f-statistic, the regression results indicate that the linear function gave a better description of the relationship between the variables than the log-linear model. However, on basis of the stability and residual tests (except for normality), the log-linear proved more appropriate since its results showed a better fit. Therefore, interpretation of the results was based on the log-linear model (see equation 4.1). The parameter estimates in the log-linear function measure elasticities.

$$Lng = 6.117 - 0.667\,ln\,AGE + 0.119\,ln\,DEP - 1.335\,ln\,EDU + 0.989\,ln\,WC$$

$$(1.7)*** \quad (-1.364) \quad (0.680) \quad (-2.353)** \quad (3.602)*$$

$$0.989\,ln\,WC - 0.667\,LIC - 0.149\,LnEXP + 0.094\,TYPE - 0.352\,ln\,COMP -$$

$$(3.602)* \quad (-2.146)** \quad (-1.231) \quad (0.251) \quad (-1.73)***$$

$$0.073\,LnVAR - 0.390\,LnSIZE$$

$$(-0.273) \quad (-1.308)$$

(4.1)

R-squared	0.622	F-statistic	4.764
Adjusted R-squared	0.491	Prob.(F-statistic)	0.001
S.E. of regression	0.621	Durbin-Watson statistic	1.532
Sum squared resid	11.191		

Stability Test

Ramsey RESET test	F- statistic	0.726
	Probability	0. 401

Residual Tests

B-G serial correlation LM test	F- statistic	2.005
	Probability	0.167
ARCH LM test	F- statistic	0.001
	Probability	0.978
White Heteroskedasticity	F- statistic	0.794
	Probability	0.687
Normality test	Jarque-Bera	8.63
	Probability	0.012

Note: *,** and *** - significant at 1 per cent, 5 per cent and 10 Per cent level of significance respectively. t-values are reported in parentheses below the coefficient. Any probability value below 0.05 leads to the rejection of the stated null hypotheses. RESET denotes Regression Specification Error Test, B-G denotes Breusch-Godfrey, LM denotes Least Method while ARCH Autoregressive Conditional Heteroskedasticity.

The regression output for the log-linear function shows that the independent variables in this equation explain over 49 per cent of the variations in average profits. The F value of 4.76 is significant indicating there is a significant log-linear relationship between the independent variables taken together and average profits per month. The stability test indicated that the log linear results were relatively stable (probability – 0.401). With such relatively low stability, parameter estimates are expected to be less precise. Hence care should be taken when interpreting them. The F-statistic (0.726) was statistically insignificant at 10, 5, and 1 per cent level of significance indicating absence of mis specification error in the log linear model. The following is a discussion of each variable with regard to sign, significance and possible policy implications.

Working capital was the most statistically significant variable (t=3.602) with a positive coefficient as expected. This implies that working capital improves the performance of the small-scale enterprises. The significance of working capital is partly demonstrated by the fact that 67.5 per cent of the informants cited lack of finance as their major limitation to expansion of the enterprise. Out of the 40 informants, only 5 percent had received credit facilities. Through probing, the study revealed that most of the informants were not aware of the existence of various incentives and credit facilities provided by government, donors and other

stakeholders. However, those who were aware of these services and had approached the concerned institutions for financial support, complained that the institutions gave them conditions to fulfill before any loan was given to them. These included: land collateral and a minimum amount of stock of goods for example, goods worth Kshs. 20,000, among others. In which case, most of the financial institutions could not fund start up businesses since according to them, such businesses were not well established. This was consistent with Oketch (1999) who found that respondents could not receive any credit partly due to stringent rules put by lending institutions.

Licensing was a significant determinant of performance at both five (5) and ten (10) per cent levels of significance (a t ratio of -2.146). This means that the difference between the performance of licensed enterprises and unlicensed enterprises was significant. The coefficient was negatively related to profits implying that license is a cost hence, decrease in average profits. Education level of the entrepreneur was found to be statistically significant at both five (5) and ten (10) per cent levels of significance (t=-2.353). However, the variable had a negative coefficient of 1.335 contrary to expectations. This implies that most of the entrepreneurs are from lower levels of education (see table 4.6). Infact, although none of the respondents was illiterate, the most learned one was of form four level of education. This was consistent with Oketch (1999) who found that majority of the entrepreneurs were primary school leavers. This implies that those entrepreneurs with higher levels of education have better qualification skills and thus, venture more into formal businesses.

The coefficient of competition was negative (-0.352) and statistically significant at ten (10) per cent level of significance (a t-ratio of –1.73). A possible explanation for this is that most of the enterprises concentrated in one area make products of the same type leading to a high competition among themselves through lowering of the output price even if the cost of production is high. Hence, decrease in the revenue leading to decrease in profits. Note that the low output price could be caused by the big enterprises, which produced at a very low cost.

Age of the entrepreneur was statistically insignificant with a t-ratio of –1.363. This implies that the age difference does not vary between the entrepreneurs. The variable had a negative coefficient of -0.667 indicating that as the older one grows, the less profits one makes. A possible reason for this is that as people grow old, they are entitled with other responsibilities. For example, paying school fees and other basic needs. The size of business was statistically insignificant (t=-1.308) implying that the number of employees did not vary between the enterprises. Most of the informants had three employees as indicated in the descriptive statistics. The variable was negatively related to profits. A possible explanation for this is that as the enterprise employs more people, the variable costs increase hence, decrease in profits.

Experience was negatively related to average profits contrary to expectation and was statistically insignificant. A possible explanation for this is that most of the entrepreneurs depend on their employees for increase in quality of the products and production rendering their experience insignificant. The results showed that dependency level was statistically insignificant with a t-ratio of 0.679. The variable had a positive coefficient (0.119) contrary to the expectations. This is partially explained by the *Kambas'* tradition of not counting their family members in fear that they might die if counted.

Variety of products was statistically insignificant but negatively related to profits contrary to expectations. This is partly explained by the added cost in preparing an extra product that is not matched by extra revenue earned. The insignificance implies that the entrepreneurs make and sell relatively the same number of different products. The type of business was an

insignificant factor in determination of profit. This means that the difference between the performance of metalwork and woodwork enterprises is not significant. The implication is that in both enterprises can be operated in Makueni District.

6 Summary, Conclusions and Policy Recommendations

6.1 Summary and Conclusions

The main objective of this study was to investigate the factors that determine the performance of woodwork and metalwork enterprises in Makueni District. The study revealed that 50 per cent of the entrepreneurs made less than Kshs. 10,000 average profits per month. This is very low given that these profits included only the actual costs of the firm. 20 per cent of these enterprises were operating on loss. This makes it difficult for the enterprises to have excess funds to reinvest in order to increase production. Most of the enterprises therefore close down within the first five years of operation. In addition to this, most of the entrepreneurs (67.5 percent) cited finance as the most serious constraint to the expansion of the business as reflected in the descriptive statistics. The study revealed that only two respondents had taken credit facilities. Therefore, any policy on the sub-sector should thus be aimed at providing financial support to the enterprises.

Further, the study found working capital to be the most statistically significant variable in the determination of profits. Other significant variables included licensing, competition and level of education. The rest of the remaining variables in the log-linear estimation (equation 4.1) were insignificant. These included: dependency level which had a positive effect on average profit and type of business, variety of product, experience, age of the entrepreneur and size of the enterprise which had a negative effect on profit determination. In this study, R^2 was explaining 49 per cent of the variations in the determination of profits of both metalwork and woodwork enterprises. Other variables such as previous profits and macro-economic variables such as inflation and devaluation of currency can partly explain part of the remaining variation.

6.2 Policy Recommendations

On basis of the study findings, the following policy recommendations arose.

Loans in form of money or kind should be made available through relevant lending institutions to supplement working capital. This should be offered to all small enterprises, inclusive start-up businesses, without the rigorous requirements associated with credit such as land collateral. Instead, loans should be offered with minimum security, longer repayment periods and low interest rates. Items of value such as television sets, radios and even bicycles should be acceptable. This is because most of the entrepreneurs do not have the security required by the lending institutions. This will make the loans affordable to the entrepreneurs. However, the entrepreneurs should form organizations in which they can be helping one another to raise the minimum security required by the micro-financial institutions. This is usually done through merry-go-round activities within the organization members.

Apart from providing credit facilities to the small business operators, the government, donors and other stakeholders should offer other banking services like savings account which are

easy to operate. For example, the co-operative bank of Kenya offers a saving account namely *Haba na Haba* that is flexible and easy to operate. To open this account, one requires a minimum amount of Kshs. 1000. There are no charges and commissions when operating this account. In addition, withdrawals and deposits should be made as many times as required. On the other hand, entrepreneurs should be taught strategies of saving the money they earn from the business daily. For example, putting a certain amount of money in a sealed tin daily or weekly for a minimum of one year without opening it. This would enable them save money to use as security when borrowing loans and / or reinvest in order to increase production.

From the survey, it was found that most of the informants were not aware of the existence of various incentives and credit facilities provided by the government, donors and other stakeholders. It is recommended that awareness campaigns through seminars and conferences be held to inform the entrepreneurs of the government, donors and other stakeholders activities, and how they can get in contact with them. Handouts should also be given to the entrepreneurs for further details about the lending institutions. This will enable the entrepreneurs know which institution to approach for financial and/or non-financial support.

The study revealed that woodwork and metalwork enterprises encompass both small and big investors. To protect the small enterprises from big investors, the market should be expanded and, standard price be set by the government for the products sold in the market. This would enable the small entrepreneurs have a wider market of selling their products at an appropriate price. The government should subsidize the small enterprises advertising costs to enable them meet the advertising costs. On the other hand, the entrepreneurs should increase the number of different products made and sold in their enterprises in order to capture a wider market. These products should be made attractive for example, through differentiation and making the most recent designs according to the needs of the market.

Frequent droughts experienced in the district necessitate the laying off of labourers from the farms during such periods. Most of the labourers who are laid off usually remain unemployed until the next rainy season when labour is required for cultivation and during harvest time. Therefore, sales are sensitive to seasonal variations since most of the customers come from within the district and are affected by the change of weather. To keep the market/flow of sales steady, the government should help the entrepreneurs create links with markets within and outside the district through ensuring that the entrepreneurs participate in trade fairs and exhibitions both locally and abroad.

Entrepreneurs should be taught business management skills and in particular, book-keeping skills. Book-keeping skills courses will enable the entrepreneur record any transactions made on a daily basis. In addition to the business management skills, practical training courses should be offered to improve on the already acquired skills. These courses should be offered at places accessible to most of the small business operators at affordable rates.

6.3 Suggested Areas for Further Research

The present study was conducted in Makueni District in the semi-arid areas of Kenya. It is suggested that a more elaborate research cutting across other different districts in semi arid areas be undertaken to investigate further the determinants of performance of SSEs. This will help confirm whether the results of this study are applicable in other semi-arid areas. A study should be carried out with a larger sample to test on the stability of the results. Also, apart from cross sectional data, time series data should be used in order to see the impact of macro-economic variables such as previous profits, inflation and devaluation of currency on the performance of the enterprise. A survey instrument which makes provision for other types of revenue such as payments from trainees and income from repair work should be constructed to enable researcher calculate the net profit of the firm.

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