

# Effect of Legal and Technological Arrangements on Performance of Micro and Small Enterprises in Kenya

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## 1. Abstract

The purpose of technology is to improve productivity of enterprises and enhance the quality of goods produced by the firms to help them withstand local and international competition. When applied to micro and small enterprises, technology has proved to be the engine of economic growth amongst “Asian Tigers”. This paper aimed at investigating how legal and technological arrangements that micro and small enterprises (MSEs) have entered into enforce quality practices in their industry to improve performance of their businesses. It used training, purchase of equipment, franchising and sub-contracting as its independent variables while enterprise performance was its dependent variable. Both qualitative and quantitative research designs were used which was descriptive in nature. The target population for the study was MSEs in Embu district who received any form of technology between the years 2008 and 2010.

The findings of the study revealed that dependent variables were a function of investment in technology. Consequently, these variables affect performance of MSEs which in turn influences the type of legal and technological arrangements that the MSEs adopt. At start-ups and early stages of business growth, there is very minimal investment in technology which results to adoption of lower levels of legal and technological arrangements and consequently to ineffective MSE performance. This is the situation in Kenya today and unless interventions are made to break this status quo, the study concluded that the MSEs are off the road to achievement of Kenya’s vision 2030.

**Key words;** Micro and Small Enterprise Performance, Quality, Technology,

## 2. Introduction and Research Objectives

Technology has been described as “the systematic application of scientific and other organized knowledge to practical task” (Ablu, 1997). When applied to micro and small enterprises, technology has proved to be the engine of economic growth amongst “Asian Tigers”. The purpose of technology is to improve productivity of enterprises, and enhance the quality of their goods to help them withstand local and international competition (ILO/UNDP, 2000). In a market – oriented environment, one way of achieving and maintaining competitiveness is by creating knowledge faster than competitors (Albu , 1997: Maskell and Malmberg, 1999). In turn, this depends on cost advantages, innovation and the continuous improvement of products and services – all coming through the capability to generate and manage technical change (Moyi and Njiraini. 2005).

### Statement of the Problem

According to Haan (1999), there is evidence that MSEs in Kenya are continually engaged in adapting Industrial equipment for their own use and self constructing tools and equipment. There is also evidence that other informal sources of information such as friends and simple imitation through observations are common (Ngahu, 1995; Haan, 1999). Coupled with this, the government of Kenya has done the following to empower micro and small enterprises. First, the government has issued new regulations on tendering so that all government agencies will be compelled to give preferential treatment to bids for MSEs.

Secondly, the government has encouraged technical Institutes and other relevant bodies to develop simple goods and production methods. Thirdly, the government has been disseminating information on new products and production methods to potential producers. Fourthly, the government has revised building codes to favour architectural and engineering structures that make intensive use of products supplied by MSEs; and, lastly, the government has encouraged the formation of co-operatives as a means through which MSEs would access information and support on technology, credit, input and markets (Moya and Njiraini, 2005).

However, despite all this, the Kenyan baseline survey of 1999 estimated that 80% of the MSEs fail within their first three years due to problems related to appropriate technology (GOK, 2001). This research study aimed at finding reasons for this so as to bridge the existing gap. It was to reveal legal and technological arrangements

adopted by the MSEs and their effect on performance of the business. Once completed, the study aimed at empowering MSEs to be on the forefront in assisting Kenya to achieve its vision 2030.

### **Objective**

The overall objective of this study was to find out the effect of legal and technological arrangements that micro and small entrepreneurs have adopted on performance of their enterprises.

### **Research questions**

The study aimed at finding answers to the following research questions

- i.** What legal and technological arrangements have MSEs adopted?
- ii.** How much do these arrangements affect MSE's productivity?
- iii.** What interventions need to be put in place to enhance MSE's benefits from legal and technological arrangements?

### **Significant of the study**

The findings will be of great assistance to donors as they will be able to engage suitable technology transfer mechanisms and implementers. It will also give direction on prioritizing the expenditure of the donors and policy makers in consideration to areas where the strategies should be focused so as to effectively promote MSE's development and lead them towards achievement of Kenya's vision 2030.

### **Definition of terms**

The study used key words under the following operational definitions.

#### **Micro and small enterprises (MSEs)**

A micro or small enterprise is an undertaking, which employs between 1 and 20 employees, with capital investment of not more than kshs 30 million. Operational and administrative management lies in the hands of one to three persons who usually make major decision

#### **Technology adoption**

Is the modification of an existing technology to meet the needs of specific types of producers or consumers, become compatible with locally available materials or local tastes and preferences or take advantage of abundance of labour relative to capital.

## **3. Theoretical Background and Informing Literature Review**

### **Background**

At the onset of industrial revolution came in technological innovations. Today, this has become the scene of information explosion. The world has shrunk in size to a global village. Quality has become the buzzword for survival (Oakland, 1999). Micro and small enterprises have to cope up to the challenges of operating in a very dynamic, technological, competitive and volatile environment. It is only those firms that will embrace quality as their core business which will survive the onslaught that competition brings with it (Kithae et al, 2013b).

There are many new market entrants with 'bigger stick' which will give existing firms a good run for their money. Successful business operation depends on the ability to compete; and the ability to compete depends largely on the quality of the product (Lyman & Grubellini, 1975). This will, therefore require that an entrepreneurial organization work towards product/service improvement on a continuous basis. This will, in turn, call for managerial talent that is capable of harnessing organizational resources – human, material, physical and informational resources- efficiently and effectively towards meeting the organization's objectives and goals. Most organizations' objectives are to make profits; which is partly realized through the provision of competitive and quality products and services (Kithae et al, 2012).

### **Conceptual framework**

The paper conceptualizes that training, purchase of equipment, franchising and sub-contracting ( legal and technological arrangements) are closely related to MSE performance (dependent variable) and that their effects was expected to impact positively on performance of MSEs as shown in figure 3.1 below.

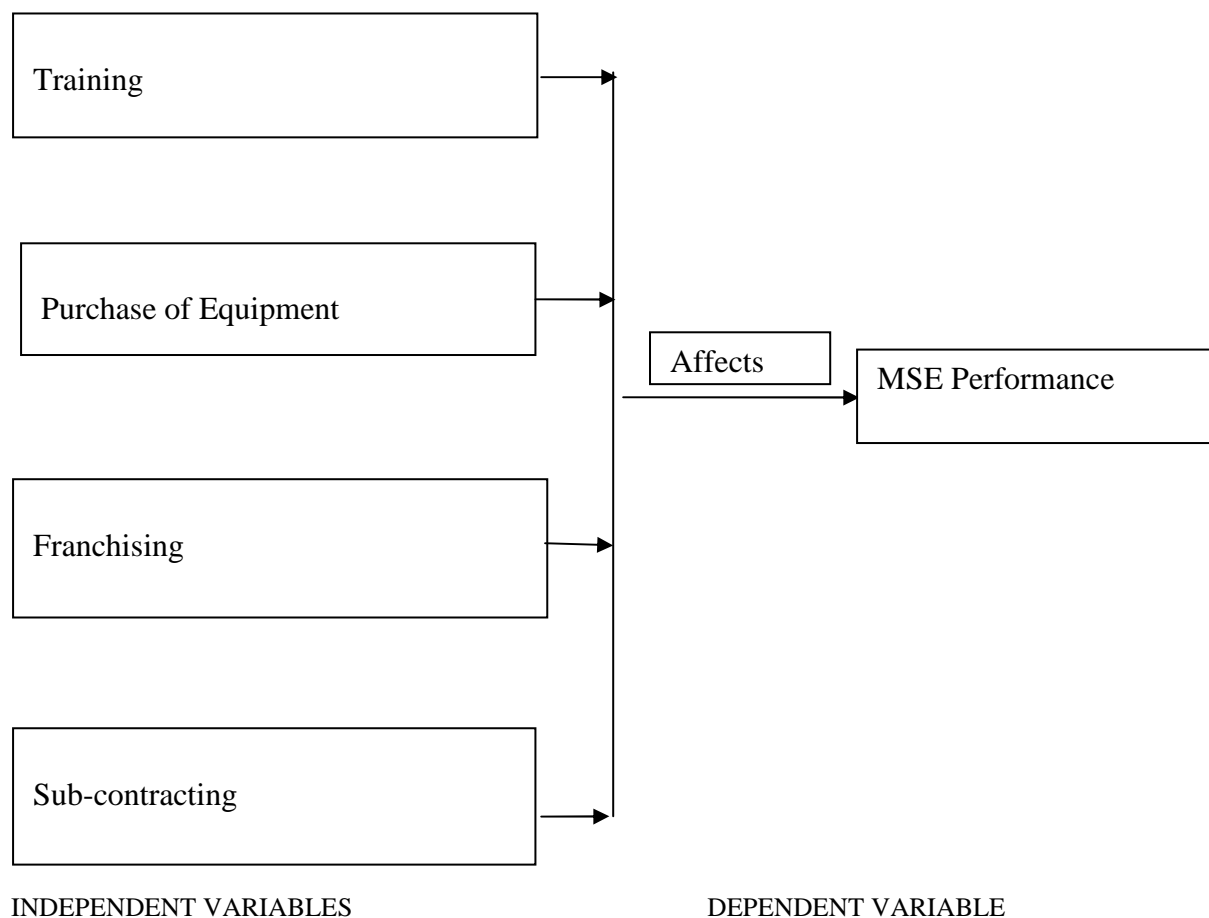


Fig. 3.1. Conceptual framework.

Performance of Micro and Small Enterprises takes the form of improvement in quality of products and services rendered, marketability of the products, increase in quantity of goods produced, improved efficiency of operations, sustainability and growth prospects and hence increased competitiveness of the firm. There is a growing realization that high quality goods and services can give an organization a considerable competitive edge over its competitors. Good quality reduces the cost of rework, scrap, and returns and, most importantly, generate satisfied customers (Kithae et al, 2012).

Firms are able to assimilate and adopt technology by developing technical capabilities which are the information and skills (technical, managerial and Institutional) that allow productive enterprises to utilize equipment and technology efficiently (Gichira, 1999). However, studies undertaken in African countries reveal a weak learning environment which is attributed to lack of import and export competition (Moyi & Njiraini, 2005; GOK, 2004; Olomola, 2002, and Kithae et al, 2012) . Biggs et al (1995) suggests that the most important investment in new technology that MSEs in Africa can adopt is importation of new technology in form of franchising, sub contracting and licensing. He further concurs with Gichira (1999) that firm size and firm age are the major determinants of investment in training and technology; with old and large firms investing more. The two papers conclude that accumulation of human capital increases firm's productivity through worker training and investment in technology.

### Research gap

From the above, it is clear that small enterprise sector is recognized as having potential to enhance job creation through establishment of industries and initiation of commercial enterprises (GOK, 2001; Kithae et al, 2012). It is also clear that much has been done to promote programmes aimed at improving the Kenyan economy through promotion of SMEs (GOK, 1992; GOK, 1997 and GOK, 1999). Skills upgrading not only enhances employee technical and managerial skills but also increases MSE's ability to adopt new technologies (Kithae et al, 2013a). When incorporated in the introduction of new technology,

skills upgrading has been shown to have a crucial impact on productivity as it involves experimentation, modification and adaptation to the enterprises (Enos, 1992; Awe and Tan, 1995; Kithae et al, 2013b).

#### **4. RESEARCH METHODOLOGY**

The study used both qualitative and quantitative research designs to reveal direction and strengths of the variables while at the same time show the main themes. The design was descriptive in nature; as Gall and Borg (1989) noted, “Descriptive studies by nature emphasis interpretation”.

The target population for this study was Micro and Small Enterprises in Embu district who received any form of technology between 2008 and 2010. Stratified random sampling technique was used to get a study sample of 60 MSEs as it gives all target population within a stratum an equal chance of being selected. Qualitative data was manually analyzed using the researcher’s insight and research skills to bring out the main themes and were then operationalised for content analysis and to make meanings and importance of the study. On the other hand, responses to quantitative questions were electronically analyzed to reveal relationship between the dependent and independent variables.

#### **5. RESEARCH FINDINGS AND DISCUSSIONS.**

##### **Introduction**

This chapter examined the research objectives formulated in relation to the findings obtained. Conclusions and recommendations were subsequently given being based on information generated from the analysis of the questionnaire.

##### **Summary of the major findings**

The overall data on the business profile indicates that most entrepreneurs have a sole proprietorship form of business of three to four years of operation. These businesses are in the service industry and the major investment in technology amongst most businesses is training.

##### **Legal and technological arrangements adopted**

The study revealed that 54% of all businesses had adopted training as their major legal and/or technological arrangement, 28% had equipment, 16% had franchise and only 2% had others. These results imply that a major legal and/or technological arrangement adopted by most MSEs is training. These findings tend to strengthen Ikiara’s and UNIDO’s assertion that education and on job training are drivers of adoption, survival and growth amongst enterprises and economies (Ikiara et al, 2005; UNIDO, 2004). Likewise, the results also compare fairly well with Biggs et al (1995) and Gichira (1999) that firms in Africa have not invested much since they are young and small and that most of their investment in technology is in training. This means that these businesses are not able to reap much from emerging technologies as they have invested in only one low level technological arrangement, the training. Figures 5.1 shows entrepreneurs’ major invest in legal and technological arrangements.

### Major Investment in Technology

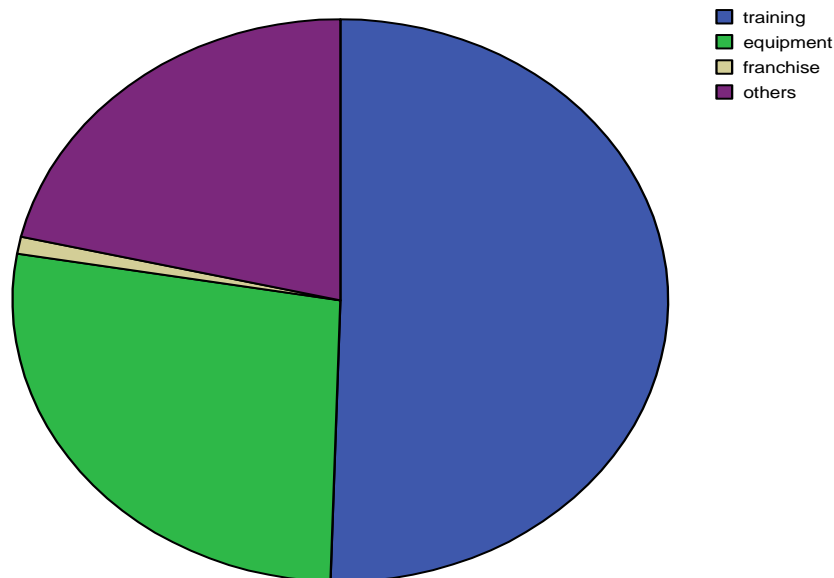


Fig.5.1 pie chart showing major investment in legal and technological arrangements and their frequencies

#### **How much do the legal and technological arrangements adopted affect MSE's product and service quality?**

Most respondents perceived that legal and technological arrangements adopted are of much help in improving quality as well as increasing sales volume of the products. However from Pearson's correlation matrix (table 5.2); there is minimal correlation between legal and technological arrangements in use and MSEs performance. Major challenges experienced from respondents are insufficient finances and irrelevant skills.

#### **Extent to which legal and technological arrangements in use affect MSE's productivity**

Most entrepreneurs felt that legal and technological arrangements in use are of much help in improving their MSE productivity. However a few of them did not feel its effect. Pearson's correlation matrix shows a very low correlation between the legal and technological arrangements in use and MSEs performance. Major challenge in using the legal and technological arrangements was inefficient machines and a major intervention measure suggested to enhance effectiveness in the technology is provision of finances, training and provision of efficient machines.

#### **Pearson's Correlations matrix**

When independent variables were plotted against dependent variable on a Pearson's correlation matrix, they gave an indication of how the two variables are related to each other through a combined mean correlation coefficient. A correlation coefficient of +1.00 implies that the variables are positively correlated; a situation which in our case would imply that the legal and technological arrangements are being adopted by entrepreneurs' and are very well enhancing the MSE's performance and thus giving them competitive advantage in the market. A correlation coefficient of -1.00 on the other hand would imply that the variables are negatively correlated and in our case, it would imply that the legal and technological arrangements are hindering MSEs from performing and thus rendering them weak in their competitiveness.

#### **The study results**

##### **Personal and business details on MSE performance indicators**

When personal and business details (independent variables) are plotted against MSE performance indicators (dependent variable), the results give very low correlation coefficients. These coefficients indicate very weak correlations and imply that age, marital status; professional as well as academic qualification, business legal form; years of operation and business activity all do not influence MSE performance.

### Major investment in legal and technological arrangements on MSE performance indicators

When details of major investment in legal and technological arrangements are plotted against MSE performance indicators, they likewise give very low correlation coefficient. These results imply weak overall correlation coefficient between legal and technological arrangements adopted and the ingredients of MSE performance. The inference to these results is that legal and technological arrangements adopted have very little effect on performance of MSEs. Table 5.2 below represents these two scenarios.

Table 5.2. Pearson's Correlations matrix- Effect of personal and business details on performance of mses

| INDEPEND VARIAB<br>DEPEN VARIABLE    | Age       | Marital status | Number of Children | Academic Qualification | Professional qualification | Work Experience (yrs) | Legal Form | Years of operation | Business Activity | Major Invest in Technology |
|--------------------------------------|-----------|----------------|--------------------|------------------------|----------------------------|-----------------------|------------|--------------------|-------------------|----------------------------|
| Age                                  | 1         | .453(**)       | .311(**)           | .242(*)                | .196(*)                    | .516(**)              | -.123      | .305(**)           | .072              | .045                       |
| Marital status                       | .453(**)  | 1              | .454(**)           | .125                   | .110                       | .448(**)              | -.021      | .402(**)           | .202(*)           | .057                       |
| Number of Children                   | .311(**)  | .454(**)       | 1                  | .133                   | .150                       | .259(**)              | .001       | .141               | .101              | .001                       |
| Academic Qualification               | .242(*)   | .125           | .133               | 1                      | .339(**)                   | .193                  | -.071      | .137               | .270(**)          | .207(*)                    |
| Professional qualification           | .196(*)   | .110           | .150               | .339(**)               | 1                          | .250(*)               | -.027      | .228(*)            | .067              | .038                       |
| Work Experience                      | .516(**)  | .448(**)       | .259(**)           | .193                   | .250(*)                    | 1                     | -.211(*)   | .718(**)           | .252(*)           | .088                       |
| Legal Form                           | -.123     | -.021          | .001               | -.071                  | -.027                      | -.211(*)              | 1          | -.199(*)           | .150              | .013                       |
| Years of operation                   | .305(**)  | .402(**)       | .141               | .137                   | .228(*)                    | .718(**)              | -.199(*)   | 1                  | .137              | .034                       |
| Business Activity                    | .072      | .202(*)        | .101               | .270(**)               | .067                       | .252(*)               | .150       | .137               | 1                 | .337(**)                   |
| Major Invest Technology              | .045      | .057           | .001               | .207(*)                | .038                       | .088                  | .013       | .034               | .337(**)          | 1                          |
| Faster Production                    | -.005     | -.124          | -.219(*)           | .023                   | .014                       | .017                  | -.090      | .022               | .184              | -.128                      |
| Saving on Labour Cost                | .037      | -.251(*)       | -.180              | -.046                  | -.126                      | -.093                 | -.095      | -.110              | .036              | -.030                      |
| Saving on Time                       | .070      | -.163          | -.111              | -.072                  | .235(*)                    | .058                  | -.094      | .045               | -.008             | .002                       |
| Substitute for Cheaper Material      | .006      | -.088          | -.163              | .186                   | .090                       | -.085                 | -.046      | .056               | .130              | .387(**)                   |
| Increase Production Efficiency       | .056      | -.160          | -.022              | .143                   | .093                       | -.019                 | .050       | -.077              | .194(*)           | .106                       |
| Reduced Operation Costs              | .205(*)   | .015           | -.144              | .080                   | .018                       | .092                  | -.158      | .032               | .223(*)           | .382(**)                   |
| Reduced working Capital Req.         | .102      | .051           | -.201(*)           | -.018                  | .079                       | .039                  | -.042      | .101               | .127              | .277(**)                   |
| Improving Product Reliability        | .162      | .050           | .165               | .040                   | -.072                      | .043                  | .088       | -.057              | .045              | .125                       |
| Better Packaging                     | -.108     | -.014          | -.006              | -.029                  | -.015                      | -.045                 | -.102      | -.143              | -.128             | -.034                      |
| Greater Self Sufficiency in supplies | -.260(**) | -.276(**)      | -.076              | -.024                  | .027                       | -.272(**)             | -.049      | -.038              | -.096             | .108                       |
| Increased Market Independen cy       | .232(*)   | -.135          | -.090              | .146                   | .110                       | .055                  | -.170      | -.023              | -.042             | .267(**)                   |
| Developme nt of Skills               | .160      | .087           | -.146              | .095                   | .083                       | .026                  | -.027      | .014               | .105              | .203(*)                    |
| Increased Output                     | -.026     | -.161          | -.161              | .239(*)                | -.038                      | -.008                 | -.150      | -.066              | .290(**)          | .306(**)                   |

\*\* Correlation is significant at the 0.01 level (2-tailed).  
 \* Correlation is significant at the 0.05 level (2-tailed).

## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

### Summary

From the discussions, the following points came out strongly;

I. Legal and Technological arrangements were rated highly as of major help in solving customer complaints as well as retaining them, in keeping business records, coping with market competition, incorporating innovations and product differentiations, motivation of employees as well as identifying refinancing needs. On business competitiveness, the legal and technological arrangements were seen as very effective in increasing sales volume, improving product quality as well as in increasing production efficiency.

II. For legal and technological arrangements adopted on performance of MSEs, there was a general consensus that MSEs have invested in varied forms of legal and technological arrangements. However, Pearson's correlation matrix showed a very weak correlation index, (very close to zero), implying that the legal and technological arrangements adopted have had very little effect on performance of MSEs. This makes the arrangements not effective in enhancing performance of MSEs, a possible reason why many MSEs fail within their first two years of operations (Nelson, 1986; Kithae et al, 2013c).

### Conclusions

MSE operators believe they have all the technology they need to enable them adopt the various legal and technological arrangements to manage their businesses. However they do not realize that these arrangements do not get translated into favourable business results. Three possible reasons for this are:

- That what MSEs are using is not appropriate technology
- That if MSEs are using appropriate technology, then the legal and technological arrangements adopted are inappropriate
- That MSEs are not empowered (do not have basic capacity) to adopt the technology, to assimilate the technology, to manage it and to control results with it (UNIDO, 2004)

These conclusions correspond to the Government of Kenya's assertion that "MSEs have very restricted levels of technology, inappropriate technology and inadequate institutional capacity to support adaptation and absorption of modern technological skills (GOK, 2001)." This creates a vicious circle of poor performance.

Thus, dependent variables are a function of investment in technology. Consequently, these variables affect performance of MSEs which in turn influences the type of legal and technological arrangements that the MSEs adopt. At start-ups and early stages of business growth, MSEs have minimal funds to invest in technology which results to inappropriate legal and technological arrangements and consequently to ineffective MSE performance. This is the situation in Kenya today and unless interventions are made to break this status quo, the MSEs are off the road to assisting Kenya in achievement of its vision 2030.

### Recommendations

To make MSEs be able to benefit more from appropriate technology and be able to enforce quality practices in their enterprises, a deliberate action is necessary from the government to inject more capital to finance all the four legal and technological arrangements and assist them break the vicious circle of poor performance. Once this is done, it is projected that the resulting technology will be able to help MSEs achieve improvement of product and service quality, increased efficiency, increased output and sales volume, and increased profitability and market share. These profits would then be re-invested in technology to further enhance the enterprises' sustainability (Kithae et al, 2013c) and global competitiveness; and thus help Kenya to achieve its vision 2030

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### **Acknowledgement**

We would like to acknowledge the support given to the authors by the following:

1. Ms Esther Wainaina, Assistant librarian, Management University of Africa
2. Ms Jackline Onyango, Registrars office (ASA), Management University of Africa



This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

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