

Efficiency and Social Capital in Micro, Small and Medium Enterprises: The Case of Ethiopia

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Efficiency and Social Capital in Micro, Small and Medium Enterprises: the case of Ethiopia

Abstract

The long-term survival of micro, small and medium enterprises (MSMEs) in developed and developing countries remains an intensely debated issue in the literature. Marxists, as well as Schumpeterian and neoclassical economists, argue with persuasive force that small enterprises are destined to disappear as economies reach more advanced stages of development and global integration. The fundamental reason for this claim relates to the perceived operational inefficiency of MSMEs and their inherent lack of economies of scale. Despite such theoretical assertions, MSMEs in Ethiopia have maintained an impressive degree of resilience and survival amidst highly adverse macroeconomic circumstances and poor institutional support. The fact that MSMEs have managed to survive in spite of numerous challenges to growth offers a compelling rationale for isolating and explaining the critical determinants of resilience and expansion of MSMEs in Ethiopia.

This study extends the existing literature on how social networks enhance the performance and sustainability of small enterprises. More specifically, the study isolates and investigates the mechanisms through which social capital helps with the growth and survival of MSMEs. The evidence presented in this study strongly suggests that an indigenous social network widely practiced in Ethiopia, the “iqqub”, contributes significantly to the start-up, survival and development of urban MSMEs.

The study exploits the properties of survival analysis or duration modelling to examine the theoretical propositions stated above and to derive its important findings, which are subjected to several robustness tests for reliability. For this empirical exercise we used longitudinal data from a purposively stratified random sample of 500 MSMEs located in five major cities in Ethiopia between 1996 and 2001. This rich dataset has made it possible to cluster core socioeconomic factors that are known to influence viability and long-term survival of small firms in countries similar to Ethiopia. Elements of the

methodological technique that was used include computing Kaplan-Meier probabilities and hazard ratios from the Cox Proportional Hazards Model. Based on Kaplan-Meier survival probability curves, MSMEs that used iqqub schemes regularly have a greater probability of survival compared to non-users of iqqub schemes. Based on hazard ratios estimated from the Cox regression model, the failure rate of MSMEs that regularly used iqqub schemes was six times lower than that of non-users of iqqub schemes.

The majority (64%) of MSMEs raised money from iqqub schemes at least twice over the six-year study period. Nearly 20% of the small firms that were sampled used the iqqub to finance their start-up operations. Of the sampled enterprises, 79% used iqqub finance because they faced barriers to accessing loans from formal financial institutions, including commercial banks and government-backed microfinance institutions. MSMEs prefer iqqub financing because these schemes are perceived to reduce transaction costs, enhance own savings, and facilitate the sharing of knowledge and skills, to name just a few reasons. These are typical mechanisms and benefits of social capital. This study has found that, although the risk of default in iqqub schemes is very low, the schemes lack the financial capacity to address the financial needs of all members at a single time. Further research needs to be conducted in order to assess the feasibility of establishing formal institutional linkages between iqqub schemes and formal financial institutions.

Declaration

I declare that the doctoral thesis entitled “ *Efficiency and Social Capital in Micro, Small and Medium Enterprises: the Case of Ethiopia*” is my own original work, which has not been submitted for a degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

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List of abbreviations

| | |
|----------------|---|
| ADLI | Agricultural Development-Led Industrialization |
| AEMFI | Association for Ethiopian Microfinance Institutions |
| AIDB | Agricultural and Industrial Development Bank of Ethiopia |
| BDS | Business Development Service |
| CBB | Construction and Business Bank |
| CBE | Commercial Bank of Ethiopia |
| CBO | Community Based Organization |
| CSA | Central Statistics Authority of Ethiopia |
| EEA | Ethiopian Economic Association |
| e.g. | For Example |
| et al. | And others |
| EPRDF | Ethiopian Peoples Revolutionary Democratic Front |
| EU | European Union |
| FeMSEDA | Federal Micro and Small Enterprise Development Agency |
| GDP | Gross Domestic Production (s) |
| GNP | Gross National Product |
| IFC | International Finance Cooperation |
| ILO | International Labour Organization |
| IMF | International Monetary Fund |
| MEDaC | Ministry of Economic Development and Cooperation |
| MOFED | Ministry of Finance and Economic Development |
| MTI | Ministry of Trade and Industry |
| FeMSEDA | Federal Micro and Small Enterprise Development Agency |
| NGO | Non Government Organization |
| OAU | Organization of African Unity |
| OECD | Organization for Economic Cooperation and Development |
| ReMSEDA | Regional SME Development Agency |
| RSA | Republic of South Africa |
| PLC | Private limited company |

| | |
|---------------|--|
| SAP | Structural Adjustment Program |
| SMEs | Small and Micro Enterprises |
| MSMEs | Medium, Small and Micro Enterprises |
| SNNPRG | Southern Nations, Nationalities and Peoples Regional Government |
| SOEs | State Owned Enterprises |
| UN | United Nations |
| UNDP | United Nations Development Program |
| UNIDO | United Nations Industrial Development Organization |
| US | United States |
| USA | United States of America |
| WTO | World Trade Organization |

Study areas

Map of Africa and the study region, Ethiopia



Map of Africa



Map of Ethiopia and Regions:

Study areas: Tigray region (Mekele)

Amhara region (Baherdar)

Southern region (Awassa)

Region 14 (Addis Ababa)

Oromya region (Nazareth)

Chapter 1: Introduction and objectives of the study

1.1 Introduction

This study is based on a six-year-long follow-up or longitudinal study conducted in Ethiopia between 1996 and 2001 based on a purposively stratified random sample of 500 micro, small and medium enterprises (MSMEs) operating in five major cities of Ethiopia (Addis Ababa, Awassa, Bahir Dar, Nazareth and Mekele). It attempts to identify factors that affect the long-term survival and viability of small businesses and enterprises, and to explain the contribution of social capital to the survival of MSMEs. In Ethiopia, despite the enormous potential of the MSME sector in reducing poverty and unemployment, the low level of performance and the high failure rate among small businesses and enterprises have become the subject of much concern to policy makers and economists. The fact that some of these enterprises thrive in the context of a challenging market environment, limited state support and other macroeconomic shocks provides the main reason for investigating differentials of long-term survival and viability in small businesses and enterprises. This research therefore attempts to explain why MSMEs that use social capital continue to thrive and operate better than MSMEs that do not use social capital.

In the economic literature, the survival of a business firm is defined as the ability of the firm to continue its operation and remain in business over a certain period of time in a competitive market. A review of the theoretical and empirical literature shows that only one in three small businesses survive to their third anniversary, and that the probability of survival of firms is associated with the socioeconomic circumstances in which these firms operate (Watson & Everett, 1999; John & Jim, 1996). This is even more remarkable in the context of the long-standing theoretical pessimism embodied in the dominant schools of economic thought in which firm size and scale of operation are believed to determine the future of small firms (Audretsch & Thurik, 2001). Therefore, there is a need to identify factors that contribute to the success of small enterprises. Specifically, this study, among other things, argues that the long-term survival and competitiveness of MSMEs in Ethiopia is significantly influenced by access to social capital.

The current research contributes to Economics by demonstrating that, irrespective of firm size and the scale of operation, MSMEs that use social capital are economically efficient. Moreover, in poor economies like Ethiopia, social capital plays a positive and significant role in the survival and dynamism of MSMEs. The study hypothesises that promoting social capital significantly eases multiple financial and non-financial constraints in small-enterprise operations. To investigate this, logit regression and survival analysis were used for data analysis in order to estimate the likelihood of the survival of firms using social capital. Odds ratios and hazard ratios were used as an econometric measure of effect in performing logit regression and survival analysis (Cox regression) respectively. Although social capital is rarely used in the modelling of economic production processes, the use of social capital in resource-constrained MSMEs, particularly in poor countries, is no less important than using other forms of capital.

The thesis is divided into seven chapters. This rest of this chapter highlights the research background, the key research questions, the research hypotheses, objectives of the study, methodological issues and the limitations of the study. It also briefly previews the remaining chapters of the thesis.

1.2 Background of the study

Poverty in Ethiopia is widespread and remains a major challenge to sustainable development and stability (Easterly, 2002; Ministry of Trade and Industry of Ethiopia (MTI), 1997). It is estimated that close to half of the population in urban and rural areas of the country lives in absolute poverty due to lack of economic opportunities, inadequate basic household income, and poor means of survival (Serneels, 2004). Studies conducted in 2003 and 2004 by the Ethiopian Economic Association (EEA) and a report by the Lutheran World Federation of Ethiopia (2006) show that nearly half of the 71.3 million Ethiopians live below the absolute poverty line, lacking an average income of one American dollar per day as a means of acquiring the basic necessities of life. Currently, 50% of the urban population of the country in the age group 15 to 30 years is unemployed (Serneels, 2004). In order to bring about economic growth and development

in the country, the current government has pursued a new economic policy that aims to alleviate poverty and unemployment (MTI, 1997). Accordingly, the development of the MSME sector is supposed to be a key development strategy without which abject poverty among the masses cannot be addressed (MTI, 1997).

Development economists generally agree that MSMEs have a role to play in addressing persistent unemployment and poverty problems in Ethiopia (World Bank, 2006; International Labour Organization (ILO), 2004; Asena & Edward, 2004; Degefe & Nega, 2001). The priority given to this is based mainly on the importance of thriving MSMEs to economic dynamism, diversification, productivity, competition, innovation and, ultimately, the reduction of poverty among the poorest of the poor. However, the economic significance of the MSME sector is often debated among researchers. On the one hand, some economists argue that, although MSMEs can expand very fast, most of them are vulnerable to challenges related to basic infrastructure and high technology, macroeconomic policy, good governance, the availability of resources, etc., and that they run a sizeable risk of failure within the first three years of their existence (Dunne & Hughes, 1994; Dunne et al., 1989; Little, 1987). On the other hand, many development economists, including the World Bank, have shown that MSMEs are essential for the industrial development of a country, and that the need for strategic support to the MSME sector cannot be overemphasised (Wole, 2004; World Trade Organization (WTO), 2002). Such economists argue that the challenges experienced by MSMEs can be addressed by using suitable macroeconomic policy tools and adequate financial and institutional support from national governments. Although recent studies suggest that the likelihood of a firm's survival tends to increase in favourable macroeconomic environments, MSMEs in Ethiopia have never been a major focus area of the national government (Mammo, 2008; Negash & Kenea, 2003; Amha, 2002).

Although the government in Ethiopia has issued a national MSME development strategy for the promotion of MSMEs, it has had mixed success to date. A reason for this limited achievement partly derives from the fact that essential facilities and services required by MSMEs are scarcely available, or are produced and delivered by means of limited

capacity and competence (Negash & Kenea, 2003). For instance, MSMEs struggle to have access to finance at favourable terms of credit. Shortage of finance at favourable terms constitutes by far the biggest challenge experienced by small businesses and enterprises, in spite of the recent increase in the number of commercial banks and microfinance lenders in the country (Alemayehu, 2006). Formal financial institutions have failed to develop a suitable innovative strategy and the capacity needed to provide this sector with credit on favourable terms (Ahmed, 2003; Aredo 1993). These financial institutions are fully aware of problems resulting from asymmetric or lack of accurate information for the borrower, as well as the associated harmful effect of moral hazard while advancing credit to small enterprises. Endanchiyalem (2002) has reported that creating dynamic MSMEs in the economy requires due recognition that the MSME sector is essential for growing the national economy, and that such a recognition should be accompanied by practical and adequate support in areas such as finance, infrastructure, macroeconomic policy and skills development.

1.3 Statement of the research problem

In Ethiopia, despite the enormous potential of vibrant MSMEs to contribute to job creation, income generation and poverty alleviation, the high failure rate of small firms and enterprises is a subject of much concern. In an attempt to identify determinant factors that affect survival, previous studies have focused on firm size/scale of operation, firm age, type of entrepreneur, macroeconomic environment and type of technology. However, little attention has been given to analysing the contribution of social capital in promoting the survival of small enterprises, and for improving their degree of performance. A critical analysis of MSMEs that have managed to survive and remain competitive in challenging environments indicates that such firms have relied on social capital. This finding suggests that the likelihood of firm survival tends to increase along with participation in social capital. Therefore, there is a need to investigate empirically the economic merits of social capital, and determine the underpinning mechanism by which social capital and vibrant MSMEs are associated, as this, so far, has not been done adequately.

In Ethiopia, “iqqub” schemes constitute an economic institution that relies on social capital for resource mobilisation in the community. The schemes have promoted the survival of MSMEs in overcoming multiple financial and non-financial constraints in their operation (Pankhurst, 2003; Aredo, 1993). In spite of the contribution made by iqqub schemes in terms enhancing the growth of MSMEs, the extent of empirical research done so far has been essentially inadequate, and the broader economic significance of iqqub schemes has been neglected in policy issues. A number of studies conducted by sociologists and anthropologists have gathered empirical information on the nature, operation and importance of the schemes based on cross-sectional and descriptive study designs. As the study designs have not been longitudinal, it has not been possible to produce reliable econometric measures of effect such as hazard ratios on proxy variables of social capital. Descriptive and cross-sectional study designs do not enable impact assessment. It has therefore not been possible to highlight the protective effect of iqqub schemes against failure in MSMEs in Ethiopia. The purpose of this present study is to empirically analyse and quantify the contribution of social capital or iqqub schemes in terms of enhancing the likelihood of survival in small businesses and enterprises in Ethiopia.

1.4 Significance of the study

Much has been reported of late about the significance of MSMEs to the national economy, and that the sector could be used as an important policy tool for promoting socioeconomic development goals. However, thus far, little is known about the survival mechanism of the sector. The majority of previous studies have taken the socio-economic contribution of the sector for granted, and have devoted more attention to the role played by MSMEs in the economy. Unlike previous studies, this study argues that the contribution of small firms to the overall economy is often hindered by factors affecting their efficiency and competitiveness. Accordingly, policies that aim to use MSMEs as a vehicle to promote socioeconomic policy goals need to identify and address the various bottlenecks of the sector prior to implementation of policy. The literature does not provide enough detail about factors that adversely affect the day-to-day operation of

small businesses and enterprises in Ethiopia. Hence there is a need to gain more knowledge of factors that are influential for the survival and dynamism of MSMEs.

This study extends the existing research on social capital and the survival of MSMEs in three important ways. First, while research on the contribution of MSMEs is growing, it tends to neglect the role of social capital in the survival of MSMEs. Small firms face resource constraints and challenges in the process of their operation and use social capital to alleviate such challenges. Given the importance of social capital to the performance of firms, this study shows the economic significance of participation in social networks (iqqub schemes) to the survival of small enterprises. Secondly, this is the first six-year-long study conducted in five major geographical regions of Ethiopia in which the relationship between the long-term survival of small enterprises and social networking is quantified, based on a robust survival analysis model such as the Cox proportional hazards model. Thirdly, the study has important policy implications as it identifies influential factors that affect the long-term survival and viability of small businesses and enterprises, and recommends appropriate and feasible policy measures for overcoming bottlenecks that stifle the growth and development of the sector.

1.5 Specific research questions and hypotheses

In the economic literature, the survival of a firm usually means its ability to operate efficiently and maximise returns that are needed for remaining in business in a competitive market for a certain period of time. Survival is a measure of a firm's competitiveness in terms of the efficient utilisation of its scarce resources in comparison with other players in the market. In the context of the research problem identified above, this research seeks to answer the following key research questions:

- What are the survival rates of MSMEs in Ethiopia?
- What specific factors influence the long-term survival of MSMEs?
- How does participation in iqqub schemes, as social capital, contribute to the efficiency and survival of MSMEs?

The study hypothesises that the integration of three dynamic factors, namely internal efficiency, the availability of micro credit and social capital with a suitable macroeconomic policy, can significantly improve the competitiveness and survival of MSMEs in Ethiopia. This broad research hypothesis is split into the following three specific hypotheses:

First hypothesis: Social capital has no effect on the survival of MSMEs in Ethiopia.

Second hypothesis: Firm-level (internal) inefficiency is not a potential dynamic factor for failure in MSMEs.

Third hypothesis: Financial sectors do respond efficiently and effectively to the credit needs of MSMEs.

1.6 Objectives of the study

The primary objective of the study was to examine each of the formulated hypotheses on the basis of the research question. The specific objectives were the following:

- To determine the role of iqqub schemes as social capital, in terms of promoting the long-term survival and viability of MSMEs.
- To broaden the current understanding of the nature of social capital and its complementarities with other assets of the poor.
- To supplement the existing economic literature on the survival of MSMEs by integrating social capital with micro and macro determinants of the survival of MSMEs in Ethiopia, one of the world's least developed countries.
- To assess the current micro- and macroeconomic policy environment in which MSMEs operate, and to recommend appropriate policy measures.

1.7 Methodology and data collection

In the economic literature, determinants that influence the survival of MSMEs are widely discussed. Researchers have employed different approaches in identifying determinants of the survival of MSMEs; most of the firm-level literature focuses on the relationship between firm dynamics and/or turnover, productivity, sales, entrepreneurship, and firm-level efficiency. One of the most commonly used methods discussed in the literature concerns measuring the survival ratio and the relative risk of failure. The approach assumes that firm owners/managers would like to stay in business for several years through the economic selection process that increases their competitiveness, sales, profitability and market share. The approach is descriptive, and is based on the estimation of the percentage of firms that fail during a certain period due to exposure to conditions adverse to entrepreneurs (Tsyliakus, 2007; Audretsch & Thurik, 2001; Whalen, 1991).

The success of small businesses can be measured in various ways. Agrawal and Gort (2000) and Whalen (1991) have reported that, in the context of a neoclassical model, the probability of a firm's survival at a given period of time is a function of market conditions and attributes of the individual firm such as age, size, ownership type, and investment level. Watson and Everett (1999) state that the success or failure of a business is dependent on the type of industry, experience of the entrepreneur, location, age of business and barriers to entry. Quite often, subjective measures such as the owner's evaluation of his/her performance relative to others in the industry, owner's objective achievement, are used as a measure of success or failure.

Although the above aspects are of great importance in analysing firm survival, this study seeks to extend the existing literature by deepening our insight concerning the interaction between social capital and the survival of MSMEs. In economic theory, social capital is assumed to generate economic efficiency in small firms fundamentally in three ways: (1) It facilitates interdependent relationships within and among firms which, in turn, enable firms to optimally allocate and use scarce resources; (2) It provides impetus for innovation and entrepreneurial development; and (3) It reduces transaction costs between

parties. Hence, based on this economic theory and data gathered from a random sample of 500 MSMEs, the present study attempts to econometrically examine the association between social capital and the long-term survival and viability of firms. Examples of predictor variables that are assumed to affect the survival of MSMEs are type of sector, competition, type of entrepreneur, source of finance, profit level, conversion of profit into investment, level of skills of business operators, participation in iqqub schemes, level of education, level of support from the state, suitability of physical location of business, firm age, firm size, business environment, quality of business plans, managerial capacity, history of past bankruptcy, etc. To facilitate the analysis and recommendations, these predictor variables were further grouped into four broad categories of variables: microfinance, internal efficiency, social capital, and macro policy issues.

The methodological approach used in this study for assessing the survival of MSMEs is similar to the approach used by Lane, Alan and David (1996) and Audretsh (1991), in which binary logistic regression analysis (with the random effects logit model) was used to identify predictor variables that strongly affect the economic viability of small enterprises. The dependent variable of study, Y , denotes survival or failure (1, 0) and, as such, Y is a dichotomous dependent or outcome variable of the study. The regression of Y on several factors that affect the survival of businesses in one way or another was performed. This was done using two methods (logit regression and the Cox proportional hazards model).

Unlike logistic regression, Cox regression (Kleinbaum, 1996) is based on a longitudinal study design, and accounts for censored observations (firms whose exact survival times are not known precisely due to administrative censoring). Results from Cox regression are theoretically more reliable than results from logistic regression analysis. In Cox regression, hazard ratios are used as an econometric measure of survival. When using Cox regression, the likelihood of failure is estimated for key predictors of survival.

The principal method of data collection was a structured questionnaire that was designed for the entire six-year period of study. Data were collected annually between 1996 and

2001 from each of the 500 businesses that were selected for the study, using structured questionnaires. Data were gathered from each respondent (business owner) by trained field workers who were specifically trained for the survey. Additional data were gathered from the Ministry of Trade and Industry on an annual basis, using the record-review method. In Ethiopia, the number of large-scale panel studies conducted on MSMEs based on longitudinal study designs is quite small. Most of the studies conducted on MSMEs have been descriptive and cross-sectional, therefore the impact of social capital on survival could not be analysed empirically. As a result, this study constitutes one of very few longitudinal studies that have been successfully conducted in Ethiopia to quantify the impact of social capital (participation in iqqub schemes) on the long-term survival of MSMEs, and to identify and explain key factors that affect the long-term survival and viability of small businesses and enterprises.

Selection of eligible business owners was done according to a two-stage sampling technique in which five geographically representative administrative regions were selected on the basis of purposive sampling as Stage 1 of the selection procedure. As Stage 2 of the procedure, MSMEs within regions were selected randomly. MSMEs that could not provide complete records were excluded from the study. The sample represents all major economic sectors of the national economy. The 500 MSMEs selected for the study constitute a fairly large and representative random sample from among the population of MSMEs in Ethiopia. As such, the 500 MSMEs represent the typical socio-economic environment within which small businesses and enterprises in Ethiopia operate. Although the predominant method of data collection was quantitative, qualitative methods of data collection such as in-depth interviews were also used for data collection. In addition to the owners of the 500 MSMEs in the study, data was gathered from entrepreneurs, government employees, NGOs, community groups and private business associations using personal interviews. The NGOs interviewed for the study were selected depending on their ability to influence policy affecting the MSME sector.

1.8 Limitations of the study

The definition of MSMEs in Ethiopia lacks precision and consistency, as MSMEs in Ethiopia are not exactly the same as MSMEs elsewhere in the world. Hence, results of this study must be restricted to MSMEs in Ethiopia, although valuable lessons could be drawn from the study by other developing countries in Sub-Saharan Africa.

Most of the 500 MSMEs in the study operate in urban areas of Ethiopia, although the majority of Ethiopians live in the rural areas of the country. This study was unable to gather data on rural MSMEs due to financial and logistical constraints. It should therefore be noted that, since the study was purposive, rural MSMEs were not included in the study. As a result, findings from this study cannot be generalised to rural MSMEs to the same degree as they can be generalised to urban MSMEs in Ethiopia. Further research needs to be conducted with particular emphasis on rural businesses and enterprises in order to answer key research questions relevant to rural MSMEs.

1.9 Outline of the chapters of the study

The study is organised as a series of seven major chapters. Chapter 2 discusses various developmental theories related to MSMEs. In this sub-section, a review of theoretical and empirical studies on the determinants, efficiency and growth of MSMEs, factors that affect the economic viability and the long-term survival of MSMEs will be discussed. The section extends the existing literature by demonstrating that the survival of firms does not necessarily depend on their size, and that efficient firms thrive in competitive markets irrespective of their size.

Chapter 3 provides a discussion of social capital, one of the most debatable issues in the literature. The financial sources of MSMEs often are the informal sectors, hence this section investigates the role of social networks in promoting the performance and survival of MSMEs. The chapter contributes to the existing literature by asserting that there is a socio-economic benefit in creating linkages between formal financial

institutions and social-capital-based informal associations, such as iqqub schemes, to promote the survival and viability of small enterprises. Establishing such a link has potential for creating a win-win situation for both parties.

Chapter 4 introduces an overview of the Ethiopian economy over the past four decades since 1960, and discusses the various economic reforms implemented by successive Ethiopian governments, along with the socioeconomic outcomes achieved. The chapter also presents a review and analysis of the MSME economy in Ethiopia. The chapter starts with the definition of the MSME sector in the Ethiopian context, followed by a discussion of the importance of the MSME sector to the Ethiopian economy, as well as the various constraints that adversely affect the growth and development of MSMEs in Ethiopia. Finally, the chapter presents how MSMEs in Ethiopia are coping with a shortage of finance.

Chapter 5 presents methods and materials that have been used for determining the sample size of the study, data collection, the analysis of data, interpretation of results of data analysis, answering the various research questions, and testing the research hypotheses in the study. Different statistical models such as multiple linear regression, Pearson's chi-square tests of association, the logit model, the Cox proportional hazards model, and others will be discussed. In contrast to other studies conducted previously, this section attempts to identify and quantify differential factors of survival in small businesses and enterprises through utilising advanced methods of econometric analysis, such as time-to-event (survival analysis) models based on a longitudinal study design.

Chapter 6 presents the results of the data analysis. As such, it provides descriptive statistics on influential factors that affect the survival and viability of MSMEs. In so doing, the chapter provides answers to the research questions of the study. Factors that strongly affect the survival of businesses will be identified and quantified, based on reliable econometric measures of effect such as odds ratios and hazard ratios. As part of this, the chapter will measure the degree of benefit accrued by MSMEs from regular

participation in iqqub schemes as social capital. The chapter will compare successful and failed MSMEs on the basis of odds and hazard ratios.

Chapter 7 deals with the discussion of the key findings of the research, and provides suitable recommendations based on concrete findings from the research. The recommendations have implications for policy, planning, academic and research issues. Areas of strategic interest that require further research are pointed out with a view to contribute towards the promotion of the sustained growth and development of MSMEs in Ethiopia.

Chapter 2: Conceptual overview: Economic theories and the development of MSMEs

2.1 Introduction

According to standard microeconomic theory, in the course of economic development the survival of firms depends primarily on firm size. This implies that, as a country grows wealthier, smaller firms are likely to be displaced by larger firms and small enterprises are bound to disappear due to their inherent inefficiencies. However, contrary to the predictions in our standard microeconomic story, MSMEs have managed to play an increasing role in economic development locally, nationally and globally (ILO, 2004; WTO, 2002). This suggests that the causal relationship between firm size and survival is far more complex than what is suggested by traditional economic theories. Therefore, there is a need to shed light on the mechanism responsible for the survival of small firms, especially in poorer developing countries. This chapter begins with relevant background theories of the firm, and moves on to a discussion of conditions that are necessary for the creation of vibrant MSMEs in the economy.

In dominant schools of thought such as the Neoclassical, Marxian and Schumpeterian theories, factors such as economies of scale, cooperation among firms for the reduction of transaction costs, and the capacity for innovation constitute the critical determinants of the optimal size of a firm required for ensuring efficiency (Curzon, 2006; Pitelis, 2005; Tommaso & Dubbini, 2000) . According to these theoretical perspectives, firms, as they grow larger in terms of ‘size’, tend to make a bigger contribution to (or account for a larger share of) economic growth and development. Conversely, production by small units such as MSMEs is considered essentially inferior, less important and inefficient. As a result, economists until recently have shown little interest in studying the case of small firms as the sector was considered incapable of guaranteeing the level of efficiency that is possible by large-size firms.

Nonetheless, small firms have adequately demonstrated their potential for long-term survival over the years, have thrived in both developed and developing economies, and

have successfully survived stiff competition from large enterprises, including multinationals. This study attempts to show that theories based on large size provide only partial information about the survival, efficiency and contribution of small firms, and therefore do not help much in explaining the existence of vibrant MSMEs in poor economies like Ethiopia, where the national economy is highly dominated by the MSME sector in terms of size, structure, and organisation. This creates a need to understand why and how some MSMEs continue to survive and be efficient while others fail, despite being of similar size and facing more or less similarly challenging environments.

The fact that small firms have survived successfully in a way that differs from what is asserted in traditional theories about firms suggests that firms survive and grow because they are efficient, and not merely due to being large in size. Economic theory tells us that improvement in efficiency is one of the important means of enhancing production and growth in productivity, and that it is essential for obtaining a higher return from investment in any firm. It is obvious that, if any firm in a competitive market is less efficient than its rival, it fails to make sufficient returns or profit to stay in business in the long run. This study shows that investing in social-capital-based networks produces a significant and positive return in terms of efficiency and performance. Social capital presents an important platform for cooperation among small firms, which is of benefit in the reduction of transaction costs, attaining scale of operation, improvement in technical and allocative efficiency, etc. These benefits are critical for ensuring the competitive advantage and survival of firms. However, as in many other developing countries, not enough research has been done in Ethiopia to measure the contribution of social capital to the long-term survival of small enterprises.

The present chapter is organised as follows: the first part revisits the longstanding debate on the long-term existence of small enterprises with a particular focus on the assertion that small enterprises are bound to disappear due to their inefficiency. The second subsection explores theories on efficiency and determinants of survival in explaining the long-term survival of MSMEs. The third part examines factors that assist the creation of vibrant small enterprises in both industrialised and newly emerging economies. The

fourth section highlights why MSMEs constitute a viable option for economic development in poorly developed and under-resourced countries such as Ethiopia. The final section presents an overall summary of the chapter.

2.2 Economic theories on the efficiency and survival of MSMEs

2.2.1 Firm size and efficiency

Much has been written in the economic literature about the positive relationships between the size of a firm and its efficiency. Various theories or approaches that exist attempt to describe the relationship between size and efficiency in the economy. These theories can be categorised into four major approaches on the basis of You's (1995) taxonomy regarding the determinants of firm size: (1) the technological approach (returns to economies of scale), (2) the transaction cost approach or institutional efficiency, (3) the evolutionary life-cycle of the firm approach, and (4) the imperfect market structure approach, an approach that seems to play an important role in explaining the state and survival of firms.

The first approach, returns to economies of scale, correlates efficiency with the optimal size of a firm. The efficient size of a firm is defined as the optimal size of a firm for which the average long-run costs of operation is minimised (Gulbitten & Taymaz, 2000; You, 1995). According to this view, technological factors are the principal determinants of the efficient size of a firm. The approach implies that large-scale enterprises benefit due to their large size as they have the capacity for employing more technology and fully utilise all available resources. The second approach deals with transaction costs that are incurred in making economic exchange, and assumes that the efficient firm size is the size that is capable of minimising market-related and organisational transaction costs (Tommaso & Dubbini, 2000). According to this approach, transactions that are conducted through market-based institutions are expensive, and internalising is an appropriate strategy to minimise the costs associated with these transactions. This fact implies that efficiency is more likely to be achieved in large-size firms. The third approach is based on theories that are related to innovation and research and development (R&D) activities.

In this approach, large-scale and established (aged) firms have an advantage over small enterprises in pursuing R&D activities, which in turn suggests that efficiency should be sought in large firms (Audretsch & Thurik, 2001; Farrel, 1957). The fourth approach is based on the market power of firms. The size of a firm is viewed as a measure of its market power and competitive structure. This view assumes that firm size depends on conditions of imperfect competition (Tommaso & Dubbini, 2000; You, 1995; Wagner, 1999).

Most traditional theories concerning firms associate the high failure rate of small enterprises with their size, scale of operation and age. According to these theories, small enterprises are both technically and economically inefficient, not only relative to large enterprises, but also relative to their own internal best practice standards. In addition to being considered inefficient, they are also regarded as a transitory phenomenon destined to disappear gradually in the course of economic development (Gulbitten & Taymaz, 2000). The existence of small firms in the economy, according to such traditional views, is a feature of underdevelopment rather than economic dynamism. Marxists and neo-classical scholars seem to agree on this point, yet sharply disagree with each other on most other concepts of economic development.

Marxists view small enterprises as indicators of the injustice and inequality arising from the capitalist economic system. They argue that a small enterprise sector conceals the prevailing structural unemployment and poverty resulting from an accumulation process solely aimed at profit making (Curzon, 2006; Borchardet, 2001; Luipig, 1993). These economists assert that the development of monopoly capitalism is usually accompanied by an unprecedented concentration of production and centralisation of capital in the hands of a few owners, which, in turn, results in the deprivation of the poor majority from owning productive assets and income-generating enterprises.

According to Marxian economists, a country can achieve socio-economic development through promoting large-scale cooperatives under public ownership. A cooperative way of doing business is assumed to create opportunities for the joint utilisation of existing

resources and techniques that are essential for effectively improving productivity by creating economies of scale. Tommaso & Dubbini (2000) and Breheny & Mcquiad (1987) have reported that production and distribution undertaken by cooperatives have the potential to assist members in a number of ways. These include: (1) minimising transaction costs or per unit processing costs by handling large volume, i.e. economies of size or scale; (2) enabling members to have a high bargaining power in setting the costs of producing outputs and purchasing inputs; and (3) facilitating government and institutional support for securing easy access to credit on favourable terms, as well as other services that are critical for the survival and competitiveness of firms. Because of these perceived benefits, cooperatives are assumed to operate more efficiently at lower cost per unit than individual firms.

This approach implies that attaining economies of scale is possible through pooling of production resources, which basically increases firm efficiency. Hence the higher the potential of cooperatives to pool production resources, the more effective the mechanism of production and distribution of benefits to fellow members becomes. In attempting to achieve these goals, cooperatives work towards the sustainable development of the enterprise through back allocating the surplus for the development of cooperatives (Couture, 2003). Based on the above, Marxists tend to promote the cooperative way of doing business and production as the best strategy for ensuring the survival of the firm.

Whilst cooperatives have advantages that arise from their collective action and collaboration, the type of cooperative has an influence on its size and efficiency level. In fact, organisational factors may create diseconomies of scale. For example, if a cooperative lacks coordination or effective communication and control of resources, its efficiency in production may be retarded. This then renders cooperation unnecessary. In less coordinated cooperatives, people do not work hard or care for production resources. Such cooperatives result in diseconomies of scale or force production and productivity to slow down. This is because unit costs of production escalate instead of being reduced. Obviously, the presence of a high level of trust among the cooperating parties is a precondition for cooperatives to work effectively.

Neoclassical economists explicitly support the view that economies of scale are achieved easily by promoting large-scale enterprises (Ruttan, 2000; Moskalenko, 1993). According to this view, although economies of scale are predominantly of a technical nature, the diseconomies produced by organisational technology have an influence on firm size. Hence the efficient size of the firm is defined by the combined effects of technical economies of scale and diseconomies produced by the organisational technology. Neoclassical economists emphasise the advantages of large-scale investment and production for the best use of available resources to achieve the maximum possible output in the context of a competitive equilibrium. This assumption is based on cost-related advantages that a firm obtains due to expansion in size. According to this view, there is a reduction per unit cost as output increases, due to the spread of total cost over mass production (Gulbitten & Taymaz, 2000). This allows firms to use resources optimally.

Economists such as Lakew (1999) and Pagano and Shiverdi (2001) have argued that large-scale establishments allow firms to avoid cost-inefficiency through mechanisms such as the efficient allocation of resources, the purchase of materials in bulk, increased specialisation, securing access to a greater range of financial institutions, spreading the cost of production, improving managerial capacity, and the promotion of research and development as a means of ensuring the optimal utilisation of resources. They argue that economies of scale give an opportunity for the application of research and development, which, in turn, leads to innovation, high levels of productivity and profitability – opportunities that are more abundant in large firms. Accordingly, they argue that the existence of small-size firms would thus be explained by a predominance of organisational diseconomies and consider small-scale firms as uneconomical due to inefficient utilisation of scarce resources in a competitive environment.

Little (1987) has argued that the very existence and survival of small firms largely is an indication of a stagnant economy. According to this view, the increase in production volume as a firm grows to its optimal size permits a better chance of decreasing costs. The view that economic growth will be achieved when economies of scale are realised

questions the significant contribution of small enterprises on the basis of their inability to exploit the advantages that emerge from economies of scale. However, there are different factors which often lead to the diseconomies effect even in large firms. It is important to establish empirically whether “bigger is always better”, especially in poorly developed economies where there is an acute shortage of resources such as finance, skills, technology, entrepreneurial skills and limited market demand for goods and services.

The Schumpeterian theory of the life-cycle of a firm indicates that there is a recurrent process of entry, exit and growth of firms in an industry. This process is characterised by technological changes that undermine, subvert and destroy small ‘uncompetitive’ enterprises (Gulbitten & Taymaz, 2000; Utton, 1982). An underlying assumption here is that innovation results in cost reduction and an increase in the volume of production, as well as improved quality. According to this theory, large and aged firms have an advantage over smaller and newer firms (Tommaso & Dubini, 2000). Technological advancement promotes R&D activities, as well as the adoption of more productive skills, and this explains productivity differentials that exist between firms. Competition enhances the storm of innovation where there is always “creative destruction”. Consequently, small and younger firms have a relatively smaller likelihood of survival whereas matured regimes using routine technology prevail in the industrialisation process.

Although this view regards small enterprises as a place where innovation typically takes place, it is only those enterprises that survive competition that can grow into large-sized enterprises (Metcalf, 2000; Kloppenborg, 1989). Thus, in this school of thought, the efficiency of firms is directly and positively correlated with the duration and age of the firm’s operation, as learning and specialisation takes place over time. As competition among firms in terms of their products and service intensifies, small firms fall behind in this competitive race and ultimately disappear due to the lack of a reliable level of innovative potential. Firms that develop capacity for innovation ultimately survive and transform themselves into large-scale firms (Acs, 1999). However, contrary to the

Schumpeterian view, small enterprises in many developed and developing countries do survive, enhance competition, and stimulate growth and innovation in the economy.

In each of the above three schools of thought, large firm size, large scale of operation and older firms are explicitly promoted as common denominators for better economic growth and development. These theories argue that the larger the size of the enterprise, the greater its efficiency and contribution to employment, income, innovation and value added to the economy. For a number of reasons, these theories have regarded production by small units as inferior, less important and inefficient, with varying levels of productivity (Kloppenburg, 1989). However, the existence of thriving MSMEs in the face of intense competition from large enterprises, including multinationals, suggests that small enterprises have their own relative importance, both in the industry and in the economy. Thus it is difficult to accept the idea of the inefficiency of small firms merely on the basis of the size of the firm. According to Schaper (2006), comparing and assessing the performance of small firms based on size alone does not help much in explaining their survival mechanism and the significant role they play in the economy. Rather, it is more reasonable to study MSMEs separately, as their characteristics, operating environments, the technology they use, the competence of their operators, the constraints they face, and their social dimensions are different from that of large enterprises. Understanding factors that are related to internal efficiency and profitability is crucial for explaining differentials of survival in small businesses and enterprises.

A number of pro-small-enterprise economists have criticised the assertion, based on the conditions of their production, that large-scale firms are efficient. For instance, Kopell (2003) indicates that the cooperative structure of public ownership has the potential to impede innovation and technological progress due to administrative bureaucracy and time-consuming and protracted decision-making processes. Productivity can be stifled due to bureaucracy and lengthy consultative procedures. This may cripple the ability of decision makers to arrive at key strategic decisions fast enough. Hence, innovative performance is often poor in cooperative productions, and could result in economic stagnation.

The Schumpeterian view of destructive innovation that results in the gradual disappearance of small enterprises is not convincing. Tommaso & Dubbini (2000) and Utton (1982) have pointed out that the entry of small firms into the economy is as continuous as that of existing firms, and that the birth of new small firms keeps the sector alive and thriving. In this respect, small- and medium-sized enterprises are important for the continuation of intensive competition in the market. Contrary to Schumpeter's idea that assumes that small enterprises are constrained with regard to resources, and therefore cannot make any meaningful contribution, experience shows that many small firms actively participate in innovating new products or processes, either through their in-house innovative activity or through adaptation of new technologies (Audretsch, 1995). It must also be noted that a sizeable proportion of new MSME owners are motivated to start small enterprises primarily for non-innovative reasons. This indicates that the existence of non-innovative firms in the economy has been relatively neglected in Schumpeter's theoretical explanation. Thus it would be grossly inappropriate to use pure innovative measures alone for evaluating the long-term survival and economic performance of firms in the economy.

The neoclassical model for growth states that a high level of physical capital investment results in an extra unit of capital. This model is challenged by the eventual suffering resulting from a decreasing return to scale that generates a socially suboptimal allocation of resources. Some firms can actually grow large beyond the scale of production, a situation in which long-term average cost gets minimised. However, when physical investment exceeds optimal mix, diseconomies of scale force the entrepreneur to produce goods or services at a large per-unit cost due to several reasons that are associated with large size (Tommaso & Dubbini, 2000). Such costs may include costs of communication, duplication of efforts and slow analytical responding time. This indicates that large firms are also vulnerable to inefficiency in situations where profit declines while the size of investment is increased. With the expansion of capital stock, the organisational factor of the firm may also have an influence on its efficiency. For example, effective control and communication will decrease once the firm starts to increase in size. Thus, it can be deduced that the optimal size of firms will be defined by

the combined effects of technical economies of scale and diseconomies produced by organisational arrangement (Szteker, 2000; Baldwin, Cohen, Sapir & Venables, 1999).

On the other hand the neoclassical economists assume that firms maximise profit on the basis of full and relevant information (Mishkin, 2006). According to this view, any credit seeker could get credit, and debts always are paid back. However, the existing reality shows that, contrary to this assumption, getting adequate finance at reasonable rates as well as failure in the credit market are well-known challenges that adversely affect efficiency and investment in small firms. With the neoclassical assumption of perfect information, it therefore is difficult to explain why small enterprises are credit constrained while there is excess demand in the credit markets. While small firms can maximise their profit through improving their existing capital, labour force and technology, they generally do not have access to the finance that is required for improving productivity.

The traditional theory of large-scale industrial organisations fails to examine the social and organisational aspects of small enterprises that are essential for explaining their existence and survival in the economy. While researchers have shown little interest in studying small firms until recently, several causal factors that affect their establishment and successful operation in the economy have been identified. Empirical evidence from various parts of the world also clearly shows that small firms are not generally inefficient, and that they are more efficient than large firms in favourable environments (Tommaso & Dubbini, 2000). For instance, the exclusive profit-making motive of large firms may result in monopoly or oligopolistic practice in the economy, which, unless regulated, usually works against the public interest. Such enterprises could easily cause socially negative impacts by increasing the cost of production and inefficiency in production.

This study argues that investment should be made where the return is high. This implies that the size of the firm does not matter as long as the profit and benefits accrued from investment is the highest possible per unit. For instance, in knowledge-intensive firms

the size of the firm is usually small, yet the return is usually high (Admassie & Matambalya, 2002). Experience has also showed that owners of firms, in spite of having adequate capacity, may not be interested in making large investments, mainly because increasing size may not be desirable. We must also recognise that each owner of a small enterprise may have a unique set of goals related to his or her individual situation. This study shows that a large firm size by itself does not necessarily imply that the firm is more efficient, and that size contributes towards survival. Growth and positive economic return are quite possible in all efficient firms, irrespective of their size. Therefore, a firm's size or scale of operation does not necessarily provide a satisfactory explanation for the efficiency and survival of firms, particularly in a developing economy such as Ethiopia.

Based on the existing reality and the significant contribution of the MSME sector to the national economy (both in developed and developing economies), it becomes necessary to question the rationale of accepting what has been asserted by the traditional theories about small enterprises. Traditional theories have failed to explain the continued existence of small firms, as well as their efficiency in most economies of the world. While the theory related to large-sized firms suggests that small enterprises are not efficient and their presence is characteristic of underdevelopment, merely because they are not large in size, empirical evidence from all over the world clearly shows that small enterprises have been around for a long time, and that they have played a major role in transforming the economies of countries such as China, Taiwan, India, Malaysia, South Korea, Japan, Germany, the United States and England. Studies conducted by the International Labour Organization (2004), UNCTAD (2003) and Liedholm & Mead (1999) have shown that a large number of small enterprises have played a crucial role in transforming the lives of millions of people by creating job opportunities and wealth, and that they have alleviated extreme poverty in most of the world's poorest countries, for instance Bangladesh. The continued existence of small firms in the world's leading economies is attributed to the fact that small firms are quite efficient and resilient and easily adapt themselves to changing economic, technology-related and market circumstances. Small firms are almost always the pioneers in introducing key innovative

skills and efficient production techniques. As this necessitates to investigate factors that determine efficiency, resilience and survival in small firms, economists over the past number years have constructed various empirical and analytical frameworks in order to challenge the size-based paradigm of industrial policy.

2.2.2 Determinants of efficiency in small firms

The performance of a firm can be measured in terms of efficiency. At firm level, efficiency differentials originate from a number of sources, and are measured in various ways (Tommaso & Dubbini, 2000). From the microeconomic point of view, the relative efficiency of a firm can be determined on the basis of how well the entrepreneur transforms available resources (inputs) into a set of outputs for a given set of technological and economic factors that affect productivity. The ratio of output(s) that a firm produces to input(s) is a measure of the productivity of the firm. Different measures of productivity have been used in empirical studies. For instance, measures that relate to a single input such as labour or capital to output are known as partial productivity measures, while a total productivity measure incorporates all available inputs (Oczkowski, 2005; Tommaso & Dubbini, 2000). From the assumption that not all firms operate efficiently, Koopmans (1951) infers that not all producers are technically efficient; hence, firm level efficiency is a relative measure.

Microeconomic theory tells us that the production frontier is the theoretical maximum possible output that can be achieved using every possible combination of inputs. According to this notion, a firm can produce the maximum feasible amount of output for any available combination of inputs including financial and non-financial resources. A common assumption that is used in estimating the production function is that all producers operating on the production function are technically efficient, and that points on the production possibilities curve indicate the maximum productive efficiency. Conversely, points inside the frontier curve are feasible, but inefficient due to poor coordination of resources (Tommaso & Dubbini, 2000; Rosegger, 1986). For any given input level, the corresponding efficiency can be measured relative to the theoretical

maximum output. Theoretically, a value of 1 represents the best practice, and values between 0 and 1 measure how far away firm efficiency levels are from poor and best practice respectively. A firm with an index of 0 is not efficient at all, while a firm with an index of 1 operates at the production frontier, being fully efficient and optimally utilising all available resources and technology. When the production frontier of a firm is known, the technical inefficiency of any particular firm could be assessed by comparing the position of the firm relative to the frontier. In practice, however, only observations from input levels, employment and output levels are available as a basis on which the production function can be constructed empirically.

Empirical studies on productive efficiency of the firm can be broadly grouped into parametric and non-parametric frontiers. Non-parametric frontier models do not impose functional forms on production frontiers as the models do not require large sample sizes or the fulfilment of the central limit theorem of the normal distribution. The models can be used even with small sample sizes, without making assumptions about the error term although they use linear regression methods. On the other hand, parametric frontier production functions impose specific functional forms as a mathematical representation of the production frontier. Frontier measures can also be labelled as deterministic, because the possibility that a firm's actual performance could, in a real-world situation, be affected by factors entirely outside its control as well as factors under its control is disregarded. On the other hand, stochastic frontier models assume that firms may deviate from the production frontier, not only because of technical inefficiency, but because of measurement errors, statistical white noise related to time series, or any other non-systematic influence. Thus, observed deviations under this approach are caused partly by random events reflecting measurement errors and statistical white noise, or else by specific firm-level inefficiencies.

The alternative approach that is adapted in the literature in measuring firm level performance makes the presumption of allocative efficiency, which is a market condition in which resources are allocated in a way that maximises the net benefit obtained by their use (Oczkowski, 2005; Badunenko, Fritish & Stephan, 2004). It refers to a situation

where the limited resources of a country are allocated in accordance with their optimal or best mix for production. According to neo-classical theory a firm is said to be allocatively efficient if its price is equal to its marginal cost in a competitive market. However, studies show that small firms survive despite their higher cost because small firms do not always price their output at marginal price. Thus, markets and other institutions of social decision making such as communities, governments, social and traditional institutions, etc. enable enterprises to utilise their limited resources efficiently, so that the most feasible goods and services are produced in the economy. In general, allocative efficiency ensures that resources are allocated in a way that maximises the net benefit resulting from their efficient utilisation. Hence, allocative efficiency theoretically refers to a situation in which limited resources of a firm are allocated in order to generate a high return from operation in small enterprises. Conversely, when a firm fails to allocate existing resources efficiently, the gain from operation will be low, leading to the ultimate failure of the firm.

A large number of firm-level empirical studies on efficiency have measured the technical and allocative efficiency of firms (Agarwal & Gort, 2000; Acs, 1999; Rosegger, 1986). The efficient allocation of resources (inputs) yields maximum output, and enables a firm to increase its output without consuming more resources than is actually necessary in the process of production. Consequently, this will result in an increase in profitability, further investment and job creation in almost all efficient firms. By contrast, since inefficient firms produce less output for the same level of input used by efficient firms, this practice leads them to less profit, firm contraction, job loss and ultimate failure. There is large consensus in the literature that, in low-income countries like Ethiopia, the socio-economic wellbeing of the majority poor could be improved through enhancing the efficiency of the MSME sector. Hence, it can be stated that economic efficiency at society level can be created by means of utilising disposable resources optimally, or by providing resources to needy fellow entrepreneurs so that they can improve their production efficiency and create better opportunities for employment and income. In this regard, trustworthy social networks can contribute to efficiency in small firms through mobilising resources for optimal utilisation in the community.

With the current changes in the global economy, and with competition increasing, MSMEs have been forced to be competitive by way of improving their efficiencies. According to Admassie and Matambalya (2002) improving the efficiencies of small enterprises should be given due consideration. The fact that MSMEs are exposed to a number of bottlenecks that affect efficiency shows that determinants of efficiency in small firms are numerous and different, although most of the traditional theories concerning firms concentrate on firm size in justifying firm level efficiency. Hence it is critically important to identify determinant factors that affect firm level efficiency and to use firm-specific attributes.

For instance, the existence of high entry cost reduces the number of new entrants, and deflects incumbents from technically efficient methods of production. The large productivity differentials in developing countries can be attributed to entry-level barriers; heavy regulations usually have an adverse effect on small enterprises as they prevent them from entering the market (Tommaso & Dubbini, 2000; Tybout, 2000). The fact that small firms face greater constraints than big firms means that small firms face greater turbulence, which affects the efficiency of their operation. Economic institutions can, for instance, affect firm efficiency. In many developing countries, unfavourable bureaucratic regulatory and administrative issues have been found to be an important determinant in explaining size and efficiency differentials between firms. Such institutional effects on firm efficiency can be grouped into two main groups: regulatory and financial.

On the regulatory side, studies indicate that the playing field is biased against small enterprises in many developing countries in which large-sized enterprises receive the lion's share in terms of policy and institutional support. Firm size has often been used as an exogenous variable in explaining financing decisions in credit markets. But the availability of external finance is a critically important factor for attaining efficiency in a number of newly established MSMEs and for the expansion of existing firms. Rajan and Zingales (1998) have pointed out that firm growth and efficiency are positively correlated with the availability of adequate external finance. The availability of adequate finance at

favourable terms obviously leads to the creation of more efficient firms in the economy. It is also true that lack of institutional support lead to the creation of inefficient firms.

In view of the grossly inadequate institutional support provided to small enterprises, and the fact that they have continued to thrive in Ethiopia, there must be factors that support the growth of MSMEs by alleviating the operational constraints on the sector. This study argues that such factors could explain why some firms perform better than others, and what it is that enables firms to take advantage of existing opportunities to expand and grow while others do not, in spite of facing similarly challenging environments. This study suggests that social networks among small firms do contribute towards improved efficiency in the sector and towards the overall economy. Among small firms, cooperation based on social networks and mutual trust provides an alternative strategy for overcoming the problem of economies of scale, and enables small firms to increase efficiency in productivity through sharing pooled resources, skills, innovative ideas and the minimisation of cost.

2.2.3 Determinants of firm survival

In the face of the current drive for globalisation and trade liberalisation, identifying the determinants of efficiency and survival of firms has become an interesting and attractive research topic for both researchers and policy makers worldwide. Findings reported in several influential research articles indicate that firm survival (continuance in operation) is measured on the basis of profitability, revenue and cost (Wasilczuk, 2000; Wagner, 1999). Efficiency is an essential requirement for profitability. A firm struggles to continue its operation if the rate of profit is less than the opportunity cost of funds. Such a firm ceases operation in the course of time. Most of the earlier empirical studies devoted to investigating firm survival have focused largely on firm-level characteristics such as type of sector, type of industry, firm age, firm size, location, market demand for products, barriers to entry, prior experience of owner, and other related factors that have been found to have a positive effect on survival (Thompson, 2005; Agarwal & Gort, 2000; Watson & Everett, 1999; Kumar, 1985). In the context of a neoclassical model, the

likelihood of the success or failure of a firm in a given period of time, according to Agrawal and Gort (2000) and Klepper and Simons (1997), is a function of a vector of market attributes that relate to the individual firm. Further studies have focused on the ability of the firm to conduct or perform research and development activities or adapt innovation for firm survival (Ortega-Argiles & Moreno, 2005). Difference in educational level also affects the survival of firms (Ruuskanen, 2004). The higher the level of education of a business owner, the greater will be the likelihood of the survival of the business. Firms that are better equipped with skilled human resources are highly efficient in utilising their resources, and have survived much better (Alvarez & Crepi, 2004; Phillips & Kirchoff, 1989).

Some other studies have focused on the analysis of government policy and institutional support in creating an enabling macro environment that improves firm level efficiency and survival (Harding, Soderbom & Teal, 2002; Tybout, 2000). Government support is considered crucial in terms of streamlining regulatory barriers to small enterprises. Government support also includes a whole range of specific business development initiatives, such as levying a fair tax rate, provision of credit on favourable terms, facilitation of linkages between MSMEs and large enterprises, provision of skills training, provision of suitable business premises, etc. In many developing countries, lack of adequate finance to small enterprises at favourable terms of loans and lack of access to markets, for instance, are considered major obstacles to the survival and efficiency of MSMEs.

Freshman (1988) has conducted a landmark longitudinal study of 300,000 American manufacturing firms, and has identified several factors that affect the long-term survival of firms. Firstly, his study found that sector differences were significant in explaining variation in the rate of firm survival. Secondly, his study shows that firm growth tends to decrease with firm size and firm age. Thirdly, the likelihood of firm survival increases with increase in firm size and firm age. Following this, other research conducted by Dunne & Hughes (1994), Audretsch (1991) and Phillips and Kirchoff

(1989) have revealed that survival rate tends to increase as one moves from small- to large-sized firms, and with firm age.

It is clear that one significant factor that influences the survival of a firm is the ability of the entrepreneur to learn from experience in the market place. Jovanovic (1982) has reported that there is a positive correlation between firm age and efficiency and has shown that entrepreneurs learn helpful lessons about techniques needed for survival through time. A number of studies have examined the effect of the owner's age on the continued survival of the business, and found a positive correlation between the two factors. Based on cross-sectional and descriptive study designs, Tsyliakus (2007) and Gebeyehu & Assefa (2004) have found that lack of business skills and managerial experience are significant causes of failure among the majority of small firms in Ethiopia. Findings from their studies suggest that the failure or success of a firm is significantly correlated with the managerial ability of the entrepreneur in the determination of efficient input or output flows in the market, or the efficient utilisation of resources.

Many studies have reported that small firms are capacity-constrained, and that they are unable to attain a level of efficiency that is required for continued survival. Lack of capital is shown to be a significant factor that adversely affects the survival and viability of small businesses and enterprises. Formal financial institutions are often reluctant to deal with small enterprises in terms of fulfilling requests for loans. This is partly because small firms are associated with high risk of default due to information asymmetry and high transaction cost (Barrie, 2003; Jordan, Lowe & Taylor, 1998). The literature shows that, in countries where there is a favourable macroeconomic policy and the necessary institutional support for small and medium enterprises, the survival of such enterprises is ensured, and that their contribution to the overall economy is quite sizeable (Organization for Economic Cooperation and Development (OECD), 2006; Audretsch, 1995).

Finding out that firms are technically inefficient might not be a useful exercise unless an additional effort is made to identify the sources of inefficiency. In many developing

economies, including Ethiopia, some MSMEs have demonstrated the potential to survive in the economy, irrespective of the unfavourable macro policy environment and lack of financial support from formal financial institutions. This prompts one to identify differential factors that make a difference between successful and failing firms. For this reason, a comparison is made between successful and non-successful firms in order to answer the following research questions: What specific factors characterise successful MSMEs? What specific factors characterise MSMEs that have failed to survive?

In attempting to answer the above key research questions, this study extends the literature on the efficiency and survival of small enterprises on the basis of its empirical findings. This study assumes that firm-specific variables have a direct influence on the firm's efficiency and likelihood of survival. This is because input levels are directly correlated with technical efficiency, which in turn is correlated with characteristics that are supposed to explain differences in the efficiency of firms. Accordingly, the study examines the efficiency differentials of firms by estimating the impact of social networks on their efficiency and survival, based on hazard ratios and survival probabilities estimated from Cox regression. Moreover, since the analysis is based on a large representative sample of firms gathered from five different regions of the country, it becomes easy to compare survival probabilities of firms in the study with regard to geographical location, firm-level profitability, and other relevant factors that affect survival.

The economic literature shows that the MSME sector in the world's least developed nations (such as Ethiopia) is subject to heavy regulation, and that macroeconomic policy is clearly biased in favour of large enterprises. According to the World Bank (2006), countries with poor business environments (costly regulations, heavy bureaucracy, poor credit and banking systems) tend to have large "informal" sectors. Accordingly, it is often argued that small enterprises in these countries perform poorly in several respects. In addition to this, many small firms are unable or unwilling to grow because of heavy administrative burdens. Studies have found evidence that heavy regulation increases the price-cost margins of firms, and reduces average efficiency levels at the margin (OECD,

2006). This explains why small businesses and enterprises in Ethiopia deserve intervention from the national government.

The main merit of this panel data study is that it allows the estimation of the impact of social capital on the survival of MSMEs over time. The sample consists of firms that did and did not utilise social capital and networking (iqqub schemes) for their operation, thereby enabling a direct comparison over time between the two categories of firms. Accordingly, one of the research hypotheses of this study states that social capital and networking do not make any significant difference in the long-term survival of firms and their efficiency. That is, the role of social capital as one of the determinant factors that enhance efficiency at firm level is examined according to empirical data with the use of advanced econometric models such as the Cox proportional hazards model and Kaplan-Meier survival probability curves. Hazard ratios are used as an econometric measure of effect in order to compare financially viable and non-viable firms. According to this, access to social capital (participation in iqqub schemes) has turned out to be one of the most influential predictors of efficiency and long-term survival of firms. It has been shown that utilisation of social capital does enhance firm level efficiency, and that high earning firms possess a more dynamic potential as well as a low likelihood of failure.

2.3 The international experience

2.3.1 Why do MSMEs exist and grow in developed economies?

The traditional theory of firms, which favours large-scale enterprises, is based on the assumption that small businesses and enterprises are outperformed by large enterprises since technology is used more extensively and effectively in advanced economies. This claim, however, is not supported by the existing reality. The existence and growth of small enterprises in developed economies indicates their economic importance to every economy regardless of their level of economic development. For instance, MSMEs in OECD economies account for over 95% of firms, 60-70% of employment, 55% of GDP, generate the lion's share of new jobs and 17% of gross manufacturing output by member countries (World Business Council for Sustainable Development (WBCSD), 2007; OECD, 2002). According to Mathur (2005), MSMEs continue to be the essential

driver of innovation in OECD countries, and are used as a means to facilitate the transfer of skills and technology among member countries. Lowrey (2005) indicates that small enterprises account for about 40% of the total economic activity in the United States and their importance goes far beyond making a contribution to household income and wealth accumulation.

Table 2.1, below, shows the contribution of small enterprises to the overall economy in a few selected industrial economies in terms of generating employment opportunities, percentage of export earnings and percentage of total value added for four of the world's most industrialised nations (USA, Japan, Canada and Australia). The table clearly shows that small enterprises play a prominent role in all three aspects in each of the four highly industrialised nations. For instance, the percentage share of small enterprises in the respective economies is significantly higher and employs the lion's share of the workforce. Contribution from small enterprises to the total value added is also high in these countries. This indicates that, although developed economies have managed to transform their economies significantly by using modern technology and industrialisation, small enterprises still play a major role in terms of job creation, value addition, innovation and share of export.

Table 2.1: The relative importance of small enterprises in developed economies

| Country | % share of all small enterprises | % total workforce employed by small enterprises | Export as % of GDP by small enterprises | % of total value added by small enterprises |
|-----------|----------------------------------|---|---|---|
| USA | 96.0 | 69.0 | 10.8 | 51 |
| Japan | 98.8 | 77.6 | 10.4 | 50.8 |
| Canada | 98.0 | 66.0 | 43.0 | Not available |
| Australia | 97.0 | 97.0 | 42.1 | 30 |

Source: Harvie and Lee (2002).

According to Schaper (2006), it is generally accepted that the number of MSMEs typically exceeds the number of large firms in most countries. The vast majority of all enterprises are small- or medium-sized in scale. Hence the contribution of small- and medium-sized enterprises to a country's overall economic growth cannot be underestimated. In many other countries, although detailed breakdowns by employment

size on the distribution of MSMEs are not readily available, it is claimed that MSMEs account for more than 95% of all private-sector firms (Gebre Medhin, 2000). This shows that MSMEs are a source of employment opportunities and wealth creation in well-managed economies where they are supported in terms of policy by national governments. According to the International Finance Corporation (IFC, 2001), there is a positive relationship between a country's overall level of income and the number of MSMEs. Table 2.2, shows the distribution of small firms in four highly developed economies of the world, and indicate that the proportion of firms decreases as size increases. This indicates that, despite being small in size, micro, small and medium enterprises have their own economic advantages in developed countries. According to the World Trade Organization (2002), the promotion of small enterprises has economic, social and political advantages. Small enterprises contribute to the healthy competition that must exist among enterprises, and are able to accept a calculated risk in adjusting to new market conditions more easily than large enterprises. Even under adverse conditions, small firms have the advantage of easily adapting to change. Small firms can also form strategic alliances with other small firms, as well as with large firms. Because of these and other perceived advantages, small enterprises continue to exist in highly developed economies.

Table 2.2: Distribution of small firms in four highly developed economies

| Number of firms (proportion of all firms) | | | | |
|---|---------------------|------------------------|-----------------------|------------------------|
| Sector | Australia, 2002 | Europe, 2003 | UK, 2002 | US, 2000 |
| Micro enterprises | 952 200 (81.80%) | 17 820 000 (92.28%) | 2 600 000 (68.42) | 19 988 000 (94.18%) |
| Small enterprises | 169 800 (14.59%) | 1 260 000 (6.53%) | 1 170 000 (30.79%) | 1 009 000 (4.75%) |
| Medium enterprises | 39 300 (3.38%) | 180 000 (0.93%) | 27 000 (0.71%) | 167 000 (0.79%) |
| Large firms | 2800 (0.24%) | 40 000 (0.21%) | 7000 (0.18%) | 59 000 (0.28%) |
| Total | 1 164 100 (100%) | 19 310 000 (100%) | 3 804 000 (100%) | 21 223 000 (100%) |

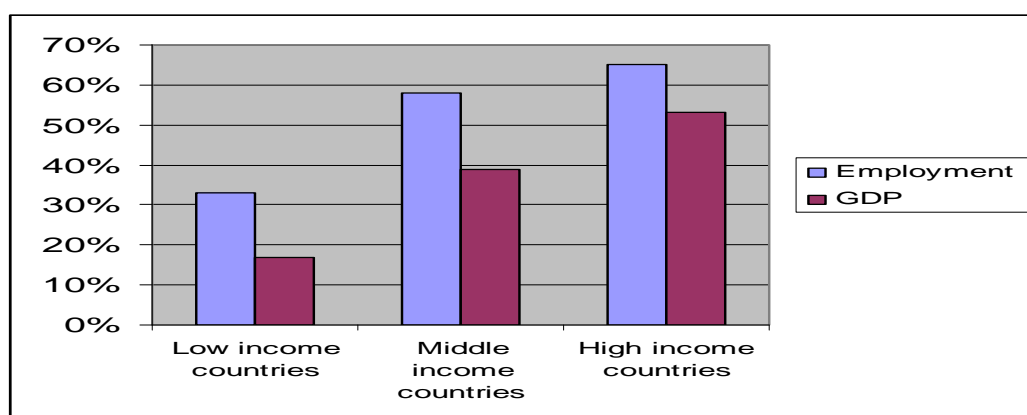
Sources: The Australian Bureau of Statistics (2002), the European Union (2003), United Kingdom Department of Trade and Industry (2002), United States Department of Commerce (2000).

In almost all developed economies of the world, the state has played a vital role in ensuring the presence of a sound and supportive environment for small enterprises through establishing well-functioning markets along with strong financial and non-financial institutions that can provide the necessary support to the sector in cost effective ways. Pagano and Schivrrdi (2001) have reported that such institutions include high-quality civil service, credit institutions, adequate pace of human capital formation, the sufficient supply of public goods (including legislative regulations, utilities and infrastructure), and the maintenance of a stable macro economic environment that facilitates the environment for enterprise development and for attracting entrepreneurs willing to invest in the economy. Efforts made by the national governments of developed nations to break down trade barriers and remove unnecessary trade regulations have helped small firms to produce high quality products and find markets on every continent.

In developed economies, the strategic importance of the sector is widely recognised and economic policies give due recognition and attention to the basic needs of MSMEs. The OECD (2002) report indicates that member countries are firmly committed to implementing the Bologna Charter, in which macroeconomic policy is used as a tool in order to meet the basic needs and operational requirements of small businesses and enterprises at local, national and international level. The charter underlines the importance of small enterprises and attempts to remove their constraints in business activities. For instance, some of the key policies by which support can be provided include supporting MSMEs by subcontracting, purchasing in bulk from MSMEs and retailing the purchase domestically or internationally; by facilitating the transfer of skills and technology; by reducing interest rates on MSME borrowings, thereby facilitating financial loans from banks; by providing education and training in business skills to young people from an early age. Doing so results in the creation of a large proportion of viable small businesses, job creation and the alleviation of poverty among the poor. A few shining examples in this regard are Germany, England, Japan, India, Taiwan, China, South Korea, Singapore and the USA. Figure 2. 1, below, compares the contribution of small enterprises for employment and GDP in developed and under-developed

countries. The figure shows that the contribution of small enterprises in both respects is quite significant in developed countries. Enslin (2006) and Hazelhurst (2006) have reported that the employment multiplier through backward and forward linkage or replication of MSME-related activity is much higher than that of large enterprises in countries where MSMEs operate efficiently, and that the success of MSMEs is vital for overall economic growth due to their resource endowment. Based on the prominent role small and micro enterprises play in American and European economies, they have the potential to play an even greater role in developing countries, provided that they are provided with the support they deserve. In light of the significant role MSMEs have managed to play in developed economies, it is essential to examine why small businesses and enterprises in Ethiopia have failed to do the same.

Figure 2.1: Employment and GDP contribution of small enterprises in developed countries



Source: World Business Council for Sustainable Development (2007).

According to Harvie and Lee (2002), the attainment of high rates and sustained growth and contribution by MSMEs in developed economies can be attributed to a number of factors that contribute to their growth, such as the presence of an enabling macro environment; the availability of finance; skills and appropriate technology; less bureaucracy and the presence of efficient institutions that have contributed to the accelerated development of MSMEs in such developed economies.

In conclusion, small firms have played a vital economic role in the world's highly developed countries. They continue to do so even today. They typically provide more than half of all jobs, foster entrepreneurship and help key sectors of the economy to adapt to changing market conditions. In light of these and other benefits, designing programmes that benefit small enterprises has become an important policy issue. In developing countries of the world, although MSMEs are critically important for economic development, the majority of MSMEs struggle to survive, with tremendous odds against them. As a result, they are unable to achieve their full potential, and often lack efficiency due to lack of institutional support and the underdeveloped market in which they operate. Providing MSMEs with adequate institutional support, the creation of competitive markets, and enhancing internal efficiency in terms of the efficient utilisation of scarce resources will enable small businesses and enterprises to flourish, be viable, and contribute more for job creation and GDP, as is the case in developed countries.

2.3.2 The contribution of thriving MSMEs to developing economies

There are fundamental reasons why vibrant MSMEs should be promoted in developing economies. First and foremost, the MSME sector generates employment, income opportunities and wealth creation. Secondly, the sector is an effective means of deepening the privatisation process. Thirdly, since small businesses and enterprises are directly owned and run by private owners, MSMEs manage to adapt to a changing market environment with ease, without losing efficiency. Fourthly, they contribute to diversification and competition through improving the supply and quality of products and services. Fifth, MSMEs contribute to social stability by generating tax revenue. Sixth, small enterprises constitute an important outlet of distribution for large enterprises in terms of goods, services and products. However, creating a thriving MSME sector that successfully contributes to economic growth requires conducive institutions and policies. The government is a crucial institution in this context. Its monetary and fiscal policies ought to strive to create macroeconomic stability. It should also formulate and enforce fair and transparent regulations because the efficiency of a firm is enhanced in a favourable regulatory environment.

Reinecke and White (2004) and Liedholm and Mead (1999) have shown that there is a positive relationship between the state of the overall economy and the growth pattern of MSMEs. Empirical findings by Peres and Stumpo (2000) on small- and medium-sized manufacturing enterprises in Latin America and the Caribbean nations have found that MSMEs depend heavily on macroeconomic conditions. However, according to Van Wyk (2003) and the World Trade Organization (2002), the majority of African countries have failed to promote the sector and, until recently, the needs of MSMEs basically have been kept out of the development agendas of national governments in several Sub-Saharan countries, including Ethiopia. In many developing countries, macroeconomic and development policies are biased in favour of large-scale and state enterprises in terms of sector promotion strategy, regulatory policy and access to credit, whereas the small-firm sector has received insignificant support from national governments such as Ethiopia (Belay, 2000; Helmesing & Kolstee, 1993).

Access to finance plays a major role in achieving sustained growth and viability in MSMEs (Lechler, 2001; Tommaso, Sabrina & Dubbini, 2000). The fact that the level of savings in most small businesses usually is small, make external financing critically important for the sector's development. Adequate access to credit is an essential requirement for dynamic enterprises whose growth potential outstrips their internal and informal financial resources. Hence it becomes essential for growing MSMEs to find better sources of finance or face imminent stagnation or failure (Helmesing and Kolstee, 1993). Firms with limited access to finance are more vulnerable to failure (Helmesing & Kolstee, 1993). By contrast, firms with adequate access to finance are bound to succeed, grow and expand (Millin & Nichola, 2005; Belay, 2000).

This study hypothesises that one credible option in which MSMEs in Ethiopia can overcome operational constraints is the efficient utilisation of social capital by way of participating in iqqub schemes. Participating in iqqub schemes (social capital) provides multiple opportunities for growth and expansion under conditions in which participants pool their resources and share their expertise and technical skills. Empirical evidence from several South East Asian and Latin American countries shows that the efficient

utilisation of social capital has contributed to firm successes (Dowla, 2005). In Ethiopia, iqqub schemes constitute the main form of social capital available to owners of small and medium businesses, and these schemes are spread all over the country (Pankhurst, 2003; Aryeetey, Baah, Duggleby, Hettige & Steel, 1994; Aredo, 1993), so that it is interesting to test whether they play any role in the survival of small firms.

2.4 The research framework

In economics, the traditional theories of firms favour large-scale over small-scale firms because smaller firms are fraught with inefficiencies that raise the likelihood of failure. According to these theories, sustained economic growth can only be realised when economies of scale are attained and smaller firms are evidently unable to exploit the advantages resulting from economies of scale. As a result, MSMEs until recently have been regarded as a transitory phenomenon that is not stable enough for consideration in economic theory. Marxian, Neoclassical and Schumpeterian economists have thus concluded that small enterprises are destined to vanish in the course of industrialisation and economic development. Over time, according to these paradigms, large-scale firms stand a better chance to raise capital and offer entrepreneurial leadership in an environment of intense competition.

Despite assertions made by traditional theories, the continued existence of thriving MSMEs in the face of intense competition from large firms suggests that small enterprises have undeniable merits and relative competence. The literature shows that, despite being small in size, small and medium enterprises have their own economic advantages in terms of efficiently adapting to changes at the market place. According to the World Trade Organization (2002), the promotion of thriving small enterprises has economic, social and political advantages. Small enterprises contribute the healthy competition that must exist among enterprises, and are able to accept a calculated risk in adjusting to new market conditions more easily than large enterprises. Even with adverse conditions, small firms have the advantage of easily adapting to change. Small firms can form strategic alliances with small and large firms alike in order to improve

efficiency in production and marketing of goods and services. Enslin (2006) and Hazelhurst (2006) have reported that in countries where MSMEs operate efficiently, the employment multiplier from backward and forward linkages, and the replication of MSME-related activities are much higher than that of large enterprises. These authors point out that promoting thriving MSMEs is vital for the overall economic growth of developing countries due to their resource endowment.

However, in spite of the significant importance of small firms to overall economic growth, the contribution of MSMEs has been challenged by massive institutional, policy-related and internal constraints that hinder their competitiveness and survival. This study argues that, in a resource-constrained environment, participating in trust-based social networks enhances the efficiency and survival of small enterprises. Within this framework, the intention of this study is to extend the existing knowledge on social capital, with a particular reference to the contribution of iqqub schemes to small enterprises in Ethiopia.

2.5 Summary

Traditional economic theories favour large-sized firms, and cast doubt on the degree of importance of small enterprises in overall economic growth and development, citing their small size as a major limitation. However, empirical evidence clearly shows that the contribution of MSMEs to overall economic growth is more associated with efficiency than with size. In the traditional schools of thought, differences in survival and market share are explained on the basis of size. In traditional economic theories, size and economies of scale are used to justify why large enterprises deserve to be supported more than small enterprises. The Schumpeterian theory argues that large firms are capable of conducting research and development, and that the same cannot be done by small firms. As a result, large firms have a competitive advantage over small firms in terms of improving the quality and quantity of productivity. Neoclassical and Marxist theories argue that maximisation of the size of a firm minimises the average cost of production, as the volume of production increases through the cooperative (joint) production of goods and services. According to traditional theories, small firms are not

large enough to exploit advantages derived from economies of scale due to their small size, and they are inefficient and bound to perish.

However, empirical evidence clearly shows that small firms with high efficiency have survived competition from well-established large enterprises. The literature shows that large firms have perished as a result of poor organisational efficiency and inability to adapt themselves to changing market and technological conditions. Over the past several decades, it has been shown that, compared to firm size, firm efficiency is more crucial for sustained growth and development. This study shows that, although there are considerable differences among firms at any time in terms of the technology used, productivity and profitability, differences in survival among firms are quite difficult to explain on the basis of simple indicators such as firm size and efficiency, and that several other factors should be taken into consideration. The relationship between firm size and efficiency is more complex than what is described as a causal relationship by the traditional school of thought. Traditional theories are limited in explaining why some MSMEs are efficient and survive in developed and developing countries irrespective of their small size. This indicates that there is a gap between what has been asserted about small firms by the traditional theory of the firm and the likelihood of survival of small firms in the real world. Traditional theories on small firms are flawed due to the wrong assertion that firm size, and not efficiency, is critical for survival and resilience.

In explaining the reasons why small enterprises in Ethiopia have thrived under challenging circumstances, the role of social capital in enhancing efficiency in small enterprises needs to be examined in detail. Social capital has played a vital role in enhancing efficiency in small enterprises and their long term survival. This study shows that MSMEs survive because they play a key role in generating jobs and income opportunities for the majority poor. Hence, identifying influential determinant factors of survival of MSMEs is the aim of this research. In doing so, this study differs from earlier works in that it attempts to examine the potential impact of social capital to the survival of MSMEs. It also investigates the impact of integrating determinant factors

such as internal efficiency, micro credit, social capital and favourable macro-economic factors to the growth and long-term survival of MSMEs in Ethiopia.

Chapter 3: Social capital and the development of MSMEs

3.1 Introduction

In recent years, the notion of social capital has received much attention from researchers and policy makers, and has become one of the most vigorously debated topics in Economics. This debate has straddled the domain of gaining a better conceptual grasp of the meaning of social capital and has investigated how it contributes to economic development. Social capital can be considered as formal or informal networks that facilitate co-operation among various individuals, groups, institutions, and organisations based on mutual benefit, valuable relationships, mutual trust, social norms and reciprocity (Gomez & Santor, 2003). The key concept of social capital is that social relationships make possible certain actions that contribute to the wellbeing of each actor in a group, something that cannot be attained by parties that do not belong to the group. In this chapter, we first clarify the notion of social capital, and then examine its significance for enhancing the performance and survival of MSMEs.

In many developing countries, social networking among MSMEs is one of the strategies that small enterprises use to overcome constraints, or to solve problems that adversely affect operation (Kavanamur, 2002). The MSME sector in many developing countries face challenges such as small operational size, marketing difficulties, low quality of products, shortage of technical skills and technology, lack of support from the national government in terms of policy, and lack of institutional support on key issues such as access to finance. Social networks among MSMEs help them to overcome the asymmetric information and collateral problems in credit markets, reduce transaction costs, share risks at times of difficulty, and facilitate the sharing of business skills that are essential for improving efficiency in business and survival at firm level.

Despite the widespread existence of social networks and the participation of a sizeable proportion of business people in such schemes, little effort has been made to accurately assess the link between social capital and the long-term survival of MSMEs. The need to understand and explain the complex relationship between membership in social network

schemes and survival of MSMEs has led to this research. Therefore, the basic research question that this study seeks to answer is the following: Do MSMEs that participate in social networks enjoy a higher probability of survival than MSMEs without “social capital access”?

The rest of this chapter proceeds as follows: Section two describes the notion of social capital and its significance to the MSME sector. The section explains why MSMEs need social network relationships for sustained growth. Section three discusses methods in which benefits from social capital can be measured objectively. Section four provides a summary of key issues discussed in the chapter.

3.2 The notion of social capital

The meaning of social capital and how to measure it are contested issues in the rapidly expanding literature on social networks and institutions. Woolcock and Narayan (2000) and Fukuyama (1999), among others, define social capital as a collective action that promotes mutual cooperation between two or more individuals through informal norms or values shared among members of the group. Others refer to social capital as a feature of social organisations such as networks, norms and trust that facilitate coordination and cooperation in a community or between individuals for mutual benefit (Putnam, 1993). Coleman (1998) defines social capital as a means for bridging the gap between the sociologist’s explanation of human behaviour as determined by social norms and the economist’s interpretation of rational behaviour. Coleman describes social capital as concrete social ties and mutual obligations among individuals which give them benefits that are otherwise not obtainable (Spence & Schmidpeter, 2004; Busse, 2001). According to Krishna (2002), social capital has two broad dimensions: cognitive (trust, norms and attitude) and structural (networks, roles, rules and precedents) which reinforce relationships embedded in distinct social networks with boundaries. Yet others have defined social capital as the “missing link” that should be able to improve the

explicative and predictive capacity of neoclassical economics, the investment in social relations with expected return at the market place (Van Staveren, 2002; Lin, 2000).

Although there are a variety of inter-related definitions of the term social capital, all of them tend to share the core idea that social networks are valuable assets that facilitate certain actions of the members. Social relationships among individuals, firms, and institutions, together with associated norms of behaviour, trust, and informal customary rules, etc., positively affect performance both at individual and collective levels by way of enabling them to function more effectively. The literature cited above at the same time suggests that social capital is analogous to commodities with capital-like properties, implying that it yields similar longer-term benefits. However, unlike capital (tangible and intangible assets) in the traditional sense, social capital does not dwindle due to its use, and in fact benefits derived from social capital decrease due to non-use (Krishna, 2002). This would suggest that, the larger the social network and the more frequently it is used, the greater the potential benefits bestowed to network participants.

Although the notion of social capital has been fairly well established in other social sciences, its influence in neo-classical economics flows from the empirical and theoretical work of Coleman (1988) and Putnam (1993). Putnam (1993) has shown that, in Italy, local communities in which social networks are abundant have achieved better social and developmental goals than communities with weak and scarce social networks. Evidence from other studies also reveals that most social networks show that in utilisation of resources, cooperation is more likely to foster economic growth than to affect it adversely (Aredo, 1993). In the case of Ethiopia, for instance, indigenous social networks such as *iqqub* schemes and “*iddir*” associations have been around at the grassroots levels over several decades, with ever-increasing dynamism and integrity in pooling resources and supporting scheme members socially and economically (Pankhurst, 2003).

Social capital is important for socio-economic development. Fafchamps and Minten (1999) have shown that social capital reduces the cost of transaction significantly, and

that such a reduction is no less important than returns from labour, physical or human capital. Durlauf and Fafchamps (2004) have indicated that social capital promotes the efficient utilisation of resources through the avoidance of unnecessary governmental bureaucracy and cost by the utilisation of social networks. However, their findings also indicate that the achievement of goals depends on the quality of relationships existing in particular groups. Collective benefit and social capital are interlinked, and the existence of one promotes the existence of the other (Woolcock, 1998). The institutional mechanism in social capital enforces compliance with a collectively desirable behaviour. Where people are trusting and trustworthy, transaction costs of business are less costly. Hence social networks with good institutional mechanisms allow members to resolve collective problems more easily in view of the fact that resource-constrained people are better off cooperating with each other in social networks in which each member does his or her fair share. Social capital is rarely used in the modelling of economic development processes, though (Fafchamps & Minten, 1999). In several developing and transitional countries, attempts and proposals made for promoting the development of small enterprises give little attention to benefits from social capital.

Some researchers consider social capital an important tool for correcting frequent market failures and the resulting negative impact on individuals and communities (Manski, 2000; Lin, 2000). According to such researchers, since it is quite normal for markets not to function perfectly, social capital contributes to the promotion of productive economic activities among communities, thereby playing the role of a fourth form of capital, along with financial, human and physical. As is the case with financial, human and physical forms of capital, social capital is a vital element of economic development in almost all communities. This fact affirms the strong relationship between social capital building and successful economic development (Putnam, 1993). However, some researchers are reluctant to view social capital as a credible type of capital, like financial and physical capital. They doubt the positive impact of social capital on overall economic growth and development, and argue that social capital should not be seen as a reliable resource for individuals, firms and organisations (Di Ciaccio, 2005; Spence & Schmidpeter, 2004).

According to Van Staveren (2006), social relations are ends in themselves, and do not

necessarily generate economic benefit. None of the above researchers, however, has examined what benefits entrepreneurs in poor countries such as Ethiopia have managed to obtain from various forms of social networks. The key question here is whether or not social capital is useful for enterprise development. The fact that there are highly successful entrepreneurs that use social cooperation as a resource for enterprise development suggests that social capital does have an undeniable economic merit.

3.3 Social capital measurement debate

While policy-relevant research on social capital is proliferating, controversy exists on how to objectively measure or quantify benefits derived from social capital (Durlauf, 2002; Gebre Medhin, 2000). There is no widely held consensus on how to measure benefits derived from social capital. More specifically, the debate revolves around several forms of social capital, dimensions in which social capital is accrued and, the various determinants of social capital (Sabatini, 2005; Heckman, 2002).

According to the literature, it is not so easy to quantify benefits from social capital directly or by use of proxy variables, although it is possible to intuitively sense the level or amount of social capital involved in a given relationship. It is not so easy to measure the impact of social capital on economic development in many societies (Spence & Schmidpeter, 2004). The fact that social capital is multi-dimensional, and uses different proxy variables that are difficult to quantify in different settings, limits its measurability and the benefits stemming from the various social network relationships. Hence much work is still required to assess and objectively determine benefits from social capital on the basis of theoretical extrapolation. In view of this difficulty in objectively measuring the impact of social relations on the basis of proxy variables, scholars generally agree that measuring the impact of social capital objectively is a rather tricky issue among development economists, an issue that continues to lead to intense scholarly debate. This is because the key proxies of social capital consist of relations that are characterised by norms, trust and reciprocity defined as mutual benefit. Many researchers have found that

attempts at measuring benefits obtained from social capital are flawed due to challenges related to separating sources of benefits from consequences (Ruuskanen, 2004).

A host of authors such as Durlauf (2002) and Manski (2000) have argued that the term social capital is ambiguous, and that its effect on socio-economic outcome is difficult to measure, but this is mainly because social capital is conceptually new and its definition, manifestation and consequences vary across studies. The authors argue that the concept of social capital involves a number of disparate ideas, such as trust, norms and reciprocity, which hinders empirical analysis. Heckman (2002) and Solow (1995) have questioned whether social capital is objectively measurable at all because quantifying the sources of causal relationships is an extremely difficult econometric problem. They argue that social networks connect people with each other, build trust and reciprocity through informal norms, and motivate members of the group over a range of activities that have mutual benefit. The question does not concern how important social capital is to the group member, but how to clearly identify and measure factors that enable or stimulate individuals or groups for mutual benefit, since social capital does not appear in a particular guise.

What is clear from the literature is that it is not so easy to quantify the productive benefits stemming from social networks. Some of the confusion about the meaning, measurement, outcome and relevance of social capital is caused by the lack of empirical research. Hence, in order to evaluate the role and extent of social capital in communities, it is crucially important to understand the theoretical and empirical nature of social capital. For instance, unless the impact of social capital on economic development is measured or quantified accurately, it will be difficult to assess its contribution to the survival of MSMEs. Empirical work therefore is needed to objectively quantify how much small businesses and enterprises benefit from social networks, but, according to Sabatini (2005), conceptual vagueness, the coexistence of multiple definitions and shortage of reliable quantitative data have retarded both theoretical and empirical research on the objective measurement and quantification of social capital. The result is that many economists are reluctant to acknowledge that social capital is a useful analytical tool for

measuring economic growth and development in MSMEs. Such economists point out that the measurement of social capital is subjective, and that, in most cases, it is not wise to use unobservable factors such as trust and networking as proxy variables for social capital and Solow (1995) advises that trust and networking, because of the difficulty in measuring it objectively and consistently, should not be used to measure the impact of social capital on overall economic growth.

Ruuskanen (2004) and Durlauf (2002) point out that the literature on empirical social capital research work seems to be particularly plagued by vague definitions and the lack of information necessary to make identification claims plausible. Also, the structure of social capital varies from country to country, sector to sector, industry to industry, and business to business. As a result, a suitable mechanism for measuring social capital in one country may not be perfectly suitable for another country (Krishna, 2002; OECD, 2001). The present study shows that, although social capital assumes various forms in various economies, small businesses tangibly benefit from social capital, irrespective of the type of economy in question. In fact, there are some studies in which social capital has been quantified objectively, and its contribution to economic growth assessed using rigorous econometric methods. However, most of the studies conducted in Ethiopia are descriptive and cross-sectional by design, and consist of variables that are only suitable for qualitative analysis.

At the end of the 1990s, the World Bank became one of a few organisations to produce a research proposal for assessing the impact of social capital. The proposal introduced a method for defining, monitoring, evaluating and measuring social capital and its impact on the economy quantitatively. This proposal suggested that social capital and its impact on economic prosperity and community development at local and national levels could be measured by developing adequate measurement tools. The measurement of social capital necessitated identifying indicators that help track the level of economic benefits accrued from various forms of social capital. To this end, researchers investigating social capital have made an effort to quantify the effect of social capital at four levels: (1) the micro or the individual level; (2) the neighbourhood or community level; (3) the regional level; and (4) the national level. At each level, the outcome of social capital is

used as the main tool of measurement for analysing the impact of social capital (Ruuskanen, 2004). Durlauf (2002) has suggested that constructing different indices of social capital was necessary to facilitate the measurement of social capital. Group success, for instance, can be measured by using indicators that are attributed to social capital in the group in situations where it is appropriate to measure social capital in terms of group success. Trust can be observed through maintaining relationships with members on economic performance, and managing crisis effectively at times of difficulty.

Ambiguity related to the key ingredients of social capital and the difference between various structures of social capital could be reduced by restricting definitional and structural contexts to what is measurable. In this regard it is important to draw lessons from a few practical empirical research works attempted after the World Bank initiative of the 1990s. The literature on the empirical research shows that it is possible to quantify the impact of social capital at individual, community and national levels on the basis of social network proxy variables. There is unanimous agreement on the benefit of utilising econometric methods of categorical data analysis (Agresti, 2002) and non-linear estimation techniques for measuring the impact of benefits from social capital on economic growth at various levels. It is possible to measure the impact of social capital without necessarily dealing with the structure and key ingredients of networks in different countries. However, doing so requires reliable study designs and data collection on several predictor variables to clearly isolate the impact of social capital from that of confounding factors.

Over the past several years, econometricians have used longitudinal or panel study designs and categorical data analysis in order to adequately explain interactive factors in the measurement of the impact of social capital on overall economic growth (Gugarati, 2006; Brooks, 2002). The current study utilises this particular approach to quantify the impact of social capital on the long-term viability and survival of businesses. Participation in social capital is measured in terms of participation in iqqub schemes. Measurement of participation is dichotomous (yes, no). The relationship between participation in iqqub schemes and survival is measured by using robust econometric

methods such as the Cox proportional hazards model, Kaplan-Meier survival probabilities and life tables. This approach is theoretically sound and justified.

In general, measuring social capital may be difficult, but is not impossible, and several studies have identified useful proxies for measuring benefits from social capital with the use of a combination of qualitative, comparative and quantitative research methodologies (Woolcock & Narayan, 2000). For instance, Knack and Keefer (1997) have used indicators of trust and civic norms from the World Values Survey of 1997, which was based on a sample of 29 market economies in which the impact of social capital on overall economic growth was assessed. Knack and Keefer (1995) used proxies for measuring the strength of civic associations in order to test two different propositions on the impact of social capital on economic growth. Narayan and Pritchett (1997) constructed a measure of social capital in rural Tanzania, using data from a large-scale survey in which respondents were asked questions related to their social activities and levels of trust in various institutions and individuals. The authors matched responses obtained from such questions with household income, and found a positive and significant relationship between participation in village-level social capital and improved household level income. Other researchers have used ethnic diversity as a proxy for measuring the density of social networks, and have combined trust and reciprocity for explaining variation in individual economic performance. This shows that how we measure social capital depends on how we define it. However, depending on the multi-dimensional definition of social capital and the context in which it is defined, some indicators may be more appropriate than others.

What is clear from the debates raised in the literature is that, although there is a general agreement on the importance of social capital, the task of objectively measuring benefits from social capital needs a lot of innovative research. The conceptual theory behind this task needs a great deal of further research. Based on this, this study attempts to examine the survival of small enterprises and their participation in social networks in an attempt to test the theory. In this study, participation in social capital was measured on the basis of a simple dichotomous variable (yes, no). Survival time was measured as the duration

of operation. The presence of censored observations was accommodated in the Cox proportional hazards model used for data analysis. Data was gathered from the 500 businesses in the study on a large number of predictor variables that affect the survival and viability of businesses in one way or another. The study estimated the degree of benefit obtained from participation in social capital in terms of the duration of the survival of businesses. The model has the ability to demonstrate that businesses that participate regularly in social capital activities actually survive longer in comparison with businesses that do not do the same. Comparative benefits were measured based on hazard ratios estimated from the Cox proportional hazards model. Screening of variables took place on the basis of odds ratios estimated from logit regression. The comparison of likelihoods of survival was based on life tables from Cox regression, the log rank test and Kaplan-Meier survival probabilities. Estimation was performed by controlling for potential confounding variables that are quite relevant to MSMEs. The reliability of all fitted models was assessed by means of highly reliable diagnostic measures used in econometric panel studies. Hence, the methods used in this longitudinal study for the measurement of benefits accrued from participation in social capital are theoretically highly reliable (Agresti, 2002).

The study assumes that entrepreneurs who lack some of the basic resources for their business operations have a greater need for participation in social networking in an attempt to overcome their constraints and to maximise their return from cooperation with others. In such enterprises, benefits obtained from social capital can easily be seen from inputs (from the type of individual networks and level of cooperation among members) as well as outputs (from the scope of collective action).

Hence, this study assesses the impact of social capital on viability and long-term survival on the basis of a solid and highly reliable theoretical framework. The study quantifies the impact of social capital on internal efficiency, long-term survival and human capital development. The literature shows that the development of small enterprises is affected by the degree of participation of business owners in social networks, but this study has been more interested in examining the contribution of social capital to long-term survival

and viability in small enterprises by reasonably distinguishing the owner's participation in the network. Differences with regard to viability and long-term survival are attributed to factors such as participation in social capital and internal efficiency. The research has tested the hypothesis that participation in social capital is a key differential for survival and viability in small enterprises. In attempting to empirically measure the impact of social capital, this study reformulated social capital as a combination of input and output recourses related to socio-economic relations and activities. Findings from the study could be used to address challenges encountered by MSMEs in poorly developed countries such as Ethiopia.

3.4 Mechanisms through which social capital supports MSMEs

Networks based on social capital exist in developed and developing countries. In many countries, people have long been involved in mutual-support and benefit-sharing social networks for the fulfilment of needs and improvement of the quality of life. A few examples are the Chinese *Hui*, the Japanese *Tanomoshi* and the South African *Stokvels*. There is a positive and robust association between participation in social capital and improved efficiency in small enterprises. It has been reported that the effective utilisation of social capital can significantly shrink the information gap between borrowers and lenders, and improve the likelihood of loan repayment (Allen, Marco, Frame & Nathan, 2006). An innovative micro-lending system can improve sustainability in micro businesses, and promote the majority of small businesses to the rank of profit-making firms. Financing small businesses and enterprises is a first step in creating profit-making firms. Doing so is essential for promoting innovative business ideas, and for creating employment opportunities for members of the community. There is a long-term benefit in financing today's small enterprises through an appropriate support strategy. Findings by Allen, Marco, Frame and Nathan (2006) on the utilisation of social capital and the efficiency of small firms show that there is a statistically significant positive relationship between access to social capital and viability in small businesses and enterprises. Therefore, social capital seems to enhance efficiency and survival in small firms through

the alleviation of financial and non-financial constraints of such small businesses and enterprises.

Empirical evidence also suggests that alleviating the internal and external constraints of small firms is critically important and explains why some small firms are less efficient than others (Alvarez & Crepi, 2004; Tybout 1999). Some of the factors that play a role in determining inefficiency include: (1) lack of access or limited opportunity to formal credit; (2) failure to formalise business for fear of being taxed aggressively; (3) lack of specialisation or inadequate labour skills, poor experience, low level of education of owners of firms, poor utilisation of modern technology, poor quality and quantity of products that cannot be marketed efficiently although there is a free trade policy; (4) lack of production and business information necessary for survival; (5) marketing problems and stiff competition from large firms; and (6) poor external support provided to the firm.

Social capital, in the first instance, helps to overcome the financial constraints of small firms through alleviating the problem of collateral requirement in the process of borrowing credit from formal moneylenders or establishing savings and credit associations. Utilisation of social capital in substitution for collateral requirement is not only an important strategy in increasing the degree of access of MSMEs to credit from formal institutions, but also minimises the cost of borrowing and the risk of information asymmetry. Hence, social capital can be used as an instrument for the reduction of risk in credit markets (Van Der Gaag & Snijders, 2004; Sacerdote & Keefer, 2000; Torsvik, 2000). The credibility of social capital is practically evidenced in many structures such as microfinance credit schemes in which social groups serve as collateral. In these schemes, social groups demonstrate high commitment and less default, and greatly reduce the likelihood of litigation and excessive administrative cost (Ababu, 2001). According to Ruuskanen (2004), adequate finance promotes competitiveness in MSMEs, and this, in turn, results in business survival and growth.

One of the most widely cited banks that utilises the group innovative system of lending is the Grameen Bank of Bangladesh (Dowla, 2005). In this bank, the employment of social

capital has reduced the cost of borrowing, as well as the cost of loan administration. The bank has made finance accessible to the poorest of the poor in Bangladesh. The bank does not demand collateral from poor people such as peasants and women. Instead, it provides loan to groups of poor people who accept collective responsibility for money borrowed from the bank on favourable terms. The bank has an effective monitoring and evaluation as well as skills development programme that ensures the effective utilisation of borrowed money and minimises the risk of default. Social capital also favours the flow of information and utilises a non-monetary punishment mechanism for enforcement. With money borrowed from Grameen Bank on the most favourable terms, millions of poor and unskilled people have been able to set up small businesses and enterprises. As a direct result of using social capital as collateral, the poor have been empowered, millions of jobs created, and massive poverty alleviated in Bangladesh. In facilitating this, the Grameen Bank has single-handedly alleviated abject poverty among millions of poor peasants and unemployed people in Bangladesh. The background to this concerns Professor Muhammad Yunus who, in the early 1970s, envisioned social capital as a means of alleviating poverty by circumventing the major impediment to lending-the need for physical collateral-to the poorest in society. He tested this assumption in an experiment in 1976, when he lent about \$27 to only 42 women in an ordinary Bangladeshi village. This was the origin of the Grameen Bank, which, just 30 years later, has more than 3.2 million borrowers, 1,178 branches, services in 41,000 villages and assets of more than \$3 billion (David, 2004). A recent study pointed out that the bank has helped to increase significantly household incomes, productivity, labor force participation, and rural wages in Bangladeshi villages, and which resulted in reducing by 75% the level of absolute poverty as compared to villages without Grameen Bank program (Bhutt and Tang, 2001; Khandker, 1996).

The lesson from the Grameen Bank of Bangladesh clearly shows that social capital is no less important than collateral in cases where social capital is coupled with innovative money lending policies to the masses, on community-based programmes. The model used by the Grameen Bank places emphasis on mutual trust among fellow members and the commitment of the national government to have the poor empowered by making

finance accessible to them. Success has been achieved by accepting collective responsibility, commitment to save money, and the efficient utilisation of money and scarce resources. The model has demonstrated that the alleviation of poverty among the poor is not impossible, provided that there is enough political commitment on the part of the national government. Individuals who are resource-constrained but economically active deserve to borrow money for a business venture on favourable terms (Chemed, 2004).

Secondly, according to Van Staveren and Knorringa (2006) and Szreter (2000), social capital plays a key role in promoting business enterprises through influencing the development of human capital, skills, information, the pooling of technology and financial resources in different networks. In this regard, it can be seen that social capital does make direct and indirect contributions to internal efficiency and the overall economic performance of firms. Social capital improves productivity in small firms by enhancing knowledge or innovation spill-over. According to Ruuskanen (2004), active participation in networking and mutual cooperation is significantly associated with the overall innovative capacity of firms.

Fafchamps and Minten (1999) have also reported that a high level of social capital is associated with high productivity which improves competitiveness in small firms through sharing valuable business skills from fellow members who have succeeded relatively better. The transfer of skills and knowledge among members happens free of charge. This includes the sharing of helpful and innovative business ideas and marketing opportunities. Access to vital information is crucial for success among small enterprises, and enhances productivity and competitiveness. In this regard, social networks significantly contribute to productivity at firm level. Due to internal cooperation and reciprocity, fellow members of a network gain important business and productive information from each other, while other firms do not. It is obvious that individuals require access to business and marketing information to determine production inputs and production technology, and to identify and contact clients who have access to market-related information. Obtaining this and other business-related information not only makes

a positive contribution to the performance of individual firms, but also contributes to the overall economic growth of the country. Conversely, a shortage of essential business-related information has the potential to deter the growth and expansion of firms. Porter (1998) has pointed out that productive, business-related information acquired through social networks can promote business formation and expansion, which consequently enhances the income-return of entrepreneurs. Gomez and Santor (2003) have empirically proven the positive impact of obtaining information through social networks on the earnings of small firms in Canada, and have found that social capital promotes income-return as well as self-employment.

Thirdly, social capital promotes entrepreneurship. In many developing countries, formal education is not focused on the acquisition of skills needed for small-scale entrepreneurial development, which means that the production skills and business talents needed by MSMEs cannot be acquired through formal education. Such production and business skills can only be acquired from experienced individuals, over time. Social networks enable inexperienced entrepreneurs to acquire necessary skills in the operation of small businesses and enterprises free of charge and in the shortest possible time. The higher the level of business skills acquired by the entrepreneur, the higher is the level of income. The possession of key business skills is a key factor affecting the quality and quantity of production and service provision in MSMEs. Therefore, social capital is crucial in the process of learning valuable skills and the creation of human and intellectual capital (Coleman, 1998). Thus it can be claimed that social capital positively influences the creation and growth and dynamism in MSMEs by positively influencing the human capital process.

Fourthly, social capital improves the size or scale of operation in small firms through collective action and mutual cooperation among firms. According to economic theory, cooperation helps to improve problems related to the size of firms or scale of operation, and is an important strategy for improving the competitiveness of firms in a free market. The OECD (2001) and Barr (2000) have reported that individuals and groups that work in collaboration have an advantage over their competitors. Social capital facilitates the

creation of cooperative environments that encourage the sharing of productive resources such as materials, skills or capital free of charge. This reduces the likelihood of experiencing problems related to firm size and scale of operation. In substantiating this view, a study done by Annen (2004) using the Cobb-Douglass production function, has demonstrated the remarkable impact of cooperation on positive returns and the growth of small firms. This indicates that, in the era of globalization, where competition is expected to be fierce, and an era of rapidly changing social needs, small enterprises need to cooperate in order to conduct business on a sustainable basis, and to thrive. Social networks facilitate cooperation among small firms that are often exposed to scarcity of resources and operational capacity. Inter-firm cooperation among small firms enables small firms to achieve economies of scale, and to lower production cost.

Based on the above discussion, it is safe to assume that social capital is a potentially useful tool for the development of MSMEs in developing economies such as Ethiopia. There is empirical evidence that shows that there is a positive and significant relationship between the efficiency and survival of enterprises. Social capital allows members to resolve their individual problems easily by way of mutual cooperation, the reduction of operational cost, the sharing of helpful business information and the development of vital business and production skills. With support from social capital, small enterprises can improve their productivity and competitiveness, and make a greater contribution towards generating employment opportunities and the alleviation of poverty. Conversely, entrepreneurs who fail to make use of social capital are at a disadvantage in terms of firm-level efficiency and long-term survival.

3.5 Summary

The definition of social capital in the literature is not uniform. However, there is a consensus on the importance of social capital to economic growth. The literature clearly shows that social capital enhances the performance of the economy and society at large by way of facilitating cooperation, the reduction of the cost of transaction, and by improving the flow of information among members. Researchers, by and large, have

come to regard social capital in much the same way as other credible forms of economic capital, like physical, financial and human capital, are viewed in the production process. The literature also shows that social capital is crucial for resource-constrained individuals due to the following four reasons: (1) First, social capital helps to overcome financial constraints in small firms through reducing transaction costs in the credit market. (2) Secondly, social capital improves productivity in small firms by enhancing knowledge or innovation spill-over. (3) Social networks enable inexperienced entrepreneurs to acquire essential business skills in the development of small businesses and enterprises. (4) Fourthly, social capital alleviates problems related to the size or scale of operation in small firms through collective action and mutually helpful cooperative actions among small firms.

In this study, the benefits from social capital are measured by means of techniques such as categorical and panel data analysis in which a comparison is made between businesses that participate in social capital activities and businesses that do not do the same with regard to the duration of survival and viability. Hazard ratios and survival probabilities are estimated on the basis of a longitudinal study design. The measurement of causal links between the sources and the consequences of social capital is not easy. Although there is overwhelming evidence in the literature for the strategic benefits of social capital and networking to small enterprises, it has not been easy to quantify or objectively measure benefits derived from social capital in one way or another. The subjective nature of benefits and the presence of confounding variables make the task of quantifying benefits from social capital quite challenging, complex and a multidimensional phenomena. Nonetheless it is easy to observe positive outcomes of social capital. For example, social capital enhances survival in small enterprises by reducing the financial and non-financial constraints in their economic processes. The return from social networks in reducing transaction costs in economic processes involving small enterprises is one important mechanism by which benefits from social networking could be measured objectively. Likewise, a comparison could be made between enterprises benefiting from social networks and those that do not do the same. In addition to this, social capital is critically important for alleviating the credit

problems of small enterprises by way of improving information asymmetry based on social networks. Social capital can positively influence the efficiency of small enterprises through interconnection. In view of the reluctance of financial institutions to provide credit to small enterprises that lack physical collateral, social capital plays a significant role in substituting physical collateral with trusted social networks. In addition to this, it helps to reduce costs related to market research and the identification of business opportunities. The evidence from the literature shows that MSMEs that use social networks have succeeded, whereas MSMEs that do not use social networks do not succeed.

The relative resilience of small businesses that take part in social capital schemes regularly has prompted researchers to acknowledge that social networks enable individuals and firms to deal with each other in a more trustworthy manner by improving the information asymmetry in credit markets, facilitating the exchange of business information and improving the scale of operation in production. This shows that social capital is essential for small enterprisers in the economic production process. Trustworthy social networks are an essential input in ensuring the survival of firms as well as other inputs, and improve the diffusion of information on innovations.

Formal financial institutions such as commercial banks have a history and policy of discriminating against small enterprises on the ground that such enterprises cannot raise the collateral needed for a loan, and that small loans are too costly to administer. They cite small loan amounts, high administrative costs, difficulty in reaching widely dispersed geographical locations, failure to produce sound business plans, inability to do financial bookkeeping and auditing, lack of past credit track record, and lack of collateral as a cause for not assisting small businesses and enterprises. The absence of collateral increases the risk premium that normally has to be compensated for by charging a high interest rate on the loan amount advanced.

As a result, the majority of small firms in developing countries are denied access to credit from formal financial institutions. In the absence of practical assistance from

formal money lending institutions, small businesses and enterprises have had no choice but to rely on informal institutions such as social capital (iqqub schemes) in their attempt to raise monies needed for day-to-day operation and for the expansion of existing business ventures. Social capital generates financial and non-financial benefits such as savings and credit provision, productive information exchange, improved level of skills and innovation that enhance the economic output of the firm. This study examines the robust positive correlation between economic return to MSMEs and participation in social capital. An attempt is made to empirically show the importance of social capital for improving the efficiency and ensuring the survival of MSMEs.

Chapter 4: The role of MSMEs in the Ethiopian Economy

4.1 Introduction

The contours and building blocks of the theoretical and empirical aspects of this study were outlined in the previous two chapters. We have demonstrated that firm efficiency is not a unique feature of large firms and conglomerates only, as asserted in traditional theories of the firm. Contrary to the assertions of traditional theories, MSMEs in both developed and developing countries are surprisingly resilient and it will be interesting to know which forces sustain these firms. From an empirical and policy perspective, what scope exists to further enhance the developmental impact of small-scale firms in these contexts? Furthermore, Stiglitz and Weiss (1981) have shown that smaller firms are usually finance-constrained due to adverse selection and moral hazard that result from asymmetric information. In this regard, we have demonstrated and argued that social capital has the potential to assist smaller enterprises to bridge these constraints. Social capital manifests itself in terms of networks based on trust, solidarity and reciprocal relationships. As such, social capital helps to reduce the transaction costs associated with asymmetric information, which, in turn, enables smaller firms to participate in credit and asset markets.

As a first step to test this last proposition, using Ethiopian data, this chapter examines the position of MSMEs in the Ethiopian economy since 1960. The chapter investigates the economic policies of successive governments that have been in power since 1960, with the aim of assessing their support of the MSME sector. Based on this, we will firstly examine a few key economic reforms and policies implemented by successive Ethiopian governments since 1974, and the impact such reforms and policies have had on the MSME sector. Secondly, we will examine the fundamental reasons why MSMEs are unable to raise finance from formal financial institutions such as commercial banks, and the helpful role of social capital in alleviating financial constraint in the MSME sector.

Access to finance on favourable terms is a key requirement of MSMEs for improving productivity and competitiveness through selecting viable investment options to realise their full potential. However, the existing reality shows that it has never been easy for MSMEs in Ethiopia to borrow money from formal financial institutions (Wole, 2004; Chant & Walker, 1998) such as commercial banks. Although the new government has published a White Paper intended for assisting the MSME sector in Ethiopia, not enough has been done to meet the dire financial, technological, administrative and policy- and skills-related needs and requirements of small businesses and enterprises. Iqqub schemes operate on the basis of trust-based relationships and networks of contacts among individuals and groups have been supporting entrepreneurs to overcome the financial and non-financial needs of MSMEs that are members of the schemes, thus employing an unexplored development strategy.

The rest of the chapter proceeds as follows. The first section briefly discusses the evolution of economic reforms and structural changes implemented by three successive governments that ruled Ethiopia over the past four decades since 1960, with particular attention to the MSME sector. The next section provides an overview of Ethiopian MSMEs and their growth-related challenges since 1974. Following this, the study examines why the MSMEs sector is unable to secure adequate financial support from formal financial institutions, and explores how iqqub schemes fill the gap by providing badly needed finance to the MSME sector. The final section concludes the chapter by providing an overall summary.

4.2 Key Economic Policy Shifts in Ethiopia

Since the mid-1970s, Ethiopia has experienced two major political power shifts and subsequent economic reforms in the economy. The first occurred in 1974, when the Derg regime (a group of military officers led by Colonel Mengistu Hailemariam) overthrew the imperial regime of Emperor Hailesilassie I, and implemented communist-inspired economic policies. The second power shift occurred when a more market-oriented reform took place in the early 1990s with the overthrow of the Derg regime by the Ethiopian

Peoples Revolutionary Democratic Front (EPRDF). Broadly speaking, the economic reforms and the growth performance of the Ethiopian economy, as well as the MSME sector, can be viewed in terms of the three regimes that ruled Ethiopia since 1960.

The last decade of the imperial regime of Emperor Hailesilassie I (1965-1974) of Ethiopia was characterised by a liberal economic policy. The regime promoted relatively greater involvement of the private sector and international investors in terms of transferring capital and skills into Ethiopia, and free participation in the local economy (Kebede, 2002). As a result, direct foreign investment was attracted to sectors such as banking, insurance, transportation, textiles, manufacturing, education and agriculture. The share of foreign capital in manufacturing industries during this time amounted to about 41% of the total paid-up capital. Keller (1998) and Bekele (1995), on the basis of data from the Central Statistical Agency of Ethiopia (CSA), have reported that the economy achieved sustained steady growth between 1965 and 1974, during which time real GDP grew by an average of 4.4% per annum while per capita income grew at a rate of 1.5%. The rate of growth of the manufacturing sector increased from 1.9% in 1960 to 4% in 1974. Agricultural production increased at an average annual rate of 2.1% between 1965 and 1973, and these outcomes were much better than those achieved between 1975 and 1991, a period in which agricultural production increased at an average annual rate of 0.6% (Geda & Degefe, 2002).

During the early 1970s, for example, Ethiopia's economy not only grew fast, but also diversified into areas such as manufacturing and services. The share of the agricultural sector's contribution to GDP steadily declined, however, from nearly 70% in 1960 to about 50% in 1974 (Geda & Degefe, 2002). During this period, while the economy was being transformed structurally, small-scale firms received relatively little attention in terms of policy and support compared to large enterprises (John, 1979). The macroeconomic policy of the regime selectively favoured large enterprises as they were perceived to be more important in terms of contribution to GDP, job creation and growth in productivity. In fact, as has been the case in most Sub-Saharan African countries, interest in exploiting the full potential and synergy of MSMEs and commitment to promoting the MSME sector by using policy as an instrument was kept at a bare

minimum. There was no specific policy aimed at addressing the challenges of small enterprises in the country (Zegeye & Habtewold, 1995). As a result, the level of contribution from small enterprises to the national economy was insignificant due to lack of adequate policy support.

The Derg regime replaced the relatively liberal economic policies of the imperial era with a centralised economic policy that discouraged free market economy and private investment. Restructuring the economy through socialist development ideology and realising sustained economic growth in the country through public ownership of productive resources were the main objectives of the Derg regime (Ageba & Amha, 2004). The state accordingly nationalised domestic and foreign private medium- and large-sized enterprises, financial institutions, insurance companies and rural and urban land. Small farmers were forced to join farming cooperatives that were obliged to sell farm products to the government at discounted selling prices and to pay tax in kind (Rahmato, 2004; Kasahun, 2002). This ultimately resulted in a sharp decline in agricultural output, as well as a decline in other sectors of the economy, and the end of direct foreign and private investment in the local economy (Rahmato, 2004; Kasahun, 2002; Geda & Degefe, 2002).

During the Derg era, the Ethiopian economy was a heavily regulated economy. This regime imposed many cumbersome regulatory and legal requirements on MSME operators in the form of price controls, quota restrictions, excessive tariffs, restriction of the free movement of agricultural commodities, strict licensing, restriction on the import and export of foreign currency, and so forth. These policies constrained the growth of the small business sector (Zegeye & Habtewold, 1995). The state planned production targets and allocated productive resources in line with these command economy rules. Production of large-scale goods was almost entirely state owned. These interventions did not place the economy on a sustainable macroeconomic growth path, though. For instance, during the period 1974 to 1990, GDP declined by 5% in real terms, inflation soared by nearly 23%, the balance of trade deteriorated, unemployment remained high, and growth rate decelerated to 2.3% (Geda & Degefe, 2002). According to Kasahun

(2002), the overall structure of the Ethiopian economy remained more or less the same throughout the period, despite the various efforts to restructure its sectoral composition. When the Derg regime came to power in 1974, for instance, agriculture accounted for about 52.5% of real GDP, industry for 11.5%, and the services sector for 36%. During 1974 and 1990 the agricultural GDP contribution showed almost no growth, at 51.8%, while industry and the service sector respectively contributed 12.5% and 35.7%. In a similar manner, more than 85% of the population depended on agriculture for their livelihood, which also remained more or less the same during this period (UNDP, 1995). During this period, there was no stated MSME development strategy. MSME owners thus had to navigate their way through an adverse economic, legal and institutional environment not conducive to their growth and development.

The Ethiopian Peoples Revolutionary Democratic Party (EPRDF) came to power in May 1991, following the collapse of the Derg regime. The EPRDF focused on reorienting the economy through market reforms and structural adjustment, two policies backed up by the IMF and the World Bank. The new regime acknowledged the contribution of a robust MSME sector to employment, income and sustainable development. Accordingly, the state promised to respond favourably to the needs of this sector. According to Dercon (2002), the first set of reform measures included the reduction of the state's role in economic activity, liberalisation of foreign exchange markets, the reduction of tariffs, simplification of licensing requirements and procedures, liberalisation of foreign and domestic trade, privatisation of a few state-owned enterprises, and improvement in investment policies. However, the key constraints and challenges faced by the sector remain unresolved. Local MSMEs in Ethiopia were unable to produce competitive and technologically advanced goods and services in comparison with highly advanced and adequately resourced global competitors and low-cost producers. According to the International Trade Centre (ITC) (2000), specific support programmes were critically needed for promoting the growth and expansion of local MSMEs, due to the vastness and complexity of problems experienced by the sector.

4.3 Structural changes made to the Ethiopian economy

4.3.1 Agriculture

The structure of the Ethiopian economy is dominated significantly by subsistence agriculture in terms of GDP, export share and employment. The sector (including livestock and forestry) currently accounts for more than 43.2% of the country's GDP, about 65% of total export earnings, and is the source of employment and livelihood for 85% of the population (Ethiopian Economic Association (EEA), 2003/04; Ministry of Finance and Economic Development (MOFED), 2002). However, this low share of agriculture in GDP is primarily due to its low productivity (Berhanu, Abreham & Van Der Deijl, 2007).

With the Agricultural Development Led Industrialization (ADLI) policy, government aims to develop the agricultural sector (meaning farm productivity and incomes) and ensure food security. However, agricultural production technology in Ethiopia is primitive and output is mainly for subsistence. Land is ploughed with the use of cattle whilst harvesting is done manually. Where farmers do use modern machinery, these are generally under-utilised, which adds to the inefficiencies in the sector. Climate change significantly affects Ethiopia's economic growth as the country is almost entirely dependent on rainfall for sustaining agricultural production. Mammo (2008), Rahmato (2004) and Dercon (2002) have reported that food insecurity is still a major problem threatening a significant proportion of the Ethiopian population. Overall, the ADLI initiative has underperformed in terms of its goal to raise food security and farming employment over the period 1991 to 2001.

Table 4.1, below, shows that the contribution of the agricultural sector to GDP declined by 7.5% (National Bank of Ethiopia, 2003/04) between 1996 and 2001. Trend analysis of the share of contributions by the various economic sectors to overall economic growth and GDP reveal that the contribution of agriculture to the country's total GDP is declining. This decline is attributed to adverse climatic change, specifically during the prolonged drought and famine of 2001 (Hassan, 2006).

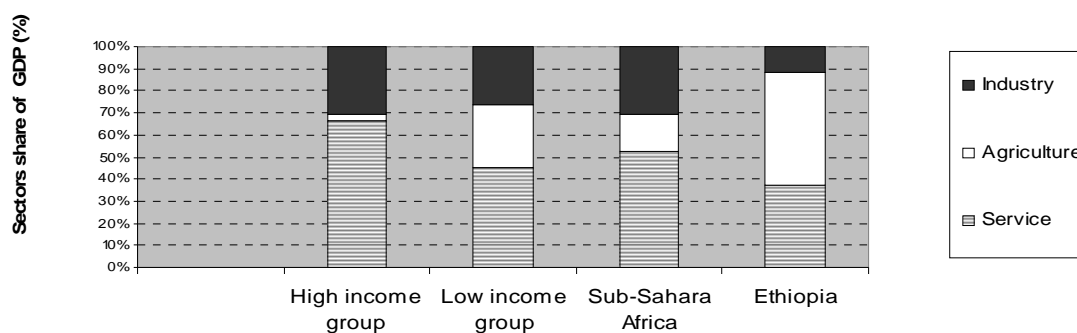
Table 4.1: Percentage contribution of major economic sectors to GDP between 1995 and 2001

| Sector | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-----------------------------------|------|------|------|------|------|------|
| Agriculture and allied activities | 50.9 | 45.9 | 44.9 | 43.6 | 45.1 | 43.4 |
| Industrial sector | 10.5 | 10.8 | 11.2 | 10.7 | 10.5 | 10.9 |
| Service sector | 38.6 | 43.3 | 43.9 | 45.7 | 44.4 | 45.7 |

Source: National Bank of Ethiopia, 2003/04

Evidence from developed countries indicates that all developed and highly industrialised nations of the world have had to structurally diversify their sources of GDP in order to achieve sustained economic and industrial development. In most cases, the share of agriculture was replaced by the industry and services sectors. Figure 4.1, below, shows that, in high income countries,¹ an average of 65% of the contribution to GDP comes from the services sector, whereas the contribution from the agricultural sector is below 10%. In contrast, the contribution of the agricultural sector to GDP in low income countries, including Ethiopia, is significantly high.

Figure 4.1: Percentage of average annual contribution to GDP of economic sectors (1990-2002)



Source: Ethiopian Economic Association, 2004

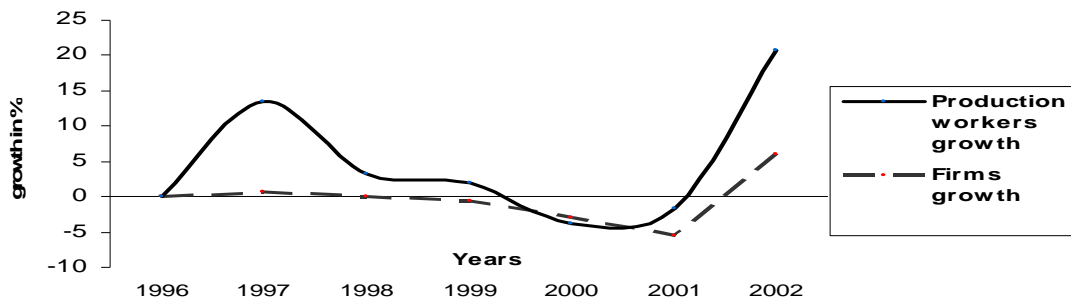
¹ Economies are classified according to GNI per capita, calculated by using the World Bank Atlas method. The groups are: low income (\$905 or less), middle income (\$906 to \$11,115), and high income (\$11,116 or more).

4.3.2 Manufacturing

According to the OECD (2006), the share of the industrial sector of Ethiopia to overall GDP was only 11.2% or one-fifth of the share of agriculture. The Ethiopian manufacturing sector is one of the least industrialised sectors in the world in terms of its structure, employment and technological content (EEA, 2003/04; Demeke, Adenew, Deiniger, Gebre-Selassie & Jin, 2003). The manufacturing sector is characterised by features that are peculiar to least developed economies of the world. Firstly, the sector produces non-durable consumer goods that have limited potential for competing in the global economy and for realising export earnings, due to the poor quality and quantity of outputs. Secondly, the sector is highly dependent on imported inputs, which means that the manufacturing sector has weak linkages with the rest of the economy. The majority (70%) of manufacturing firms produce non-metallic goods such as food and beverages, furniture, mineral products, leather and textiles (MOFDE, 2002).

The Ethiopian Economic Association (2003/04) has reported that the average value-added share of the sector to GDP declined from 11.4% in 1990 to 10.7% in 1999. Likewise, Demeke, Guta and Ferede (2003), on the basis of a Labour Force Survey conducted by the Ethiopian Central Statistics Authority in 2003, have shown that the number of jobs created by the manufacturing sector has declined on average by 0.6% per year since 1994. One major explanation is that new manufacturing firms do not operate at full capacity, or most firms are highly capital-intensive. Figure 4.2, below, shows the low employment elasticity of the manufacturing industry in Ethiopia. It can be seen from the figure that the rate at which new employment opportunities are generated is far below the rate at which new job-seekers enter the job market, except for the year 2000.

Figure 4.2: Distribution of manufacturing firms and production workers



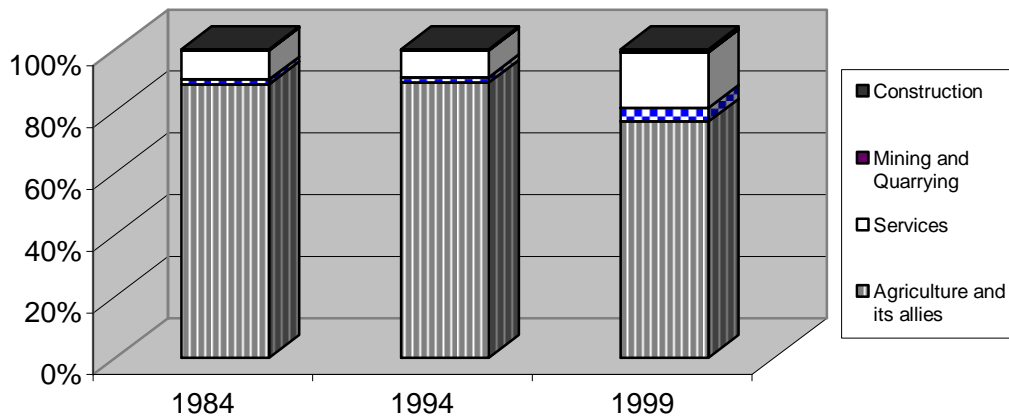
Source: Ethiopian Economic Association; Industrialisation and Industrial policy in Ethiopia, Vol. 3, 2003/04

4.3.3 Services sectors

In Ethiopia, the services sector is dominated by very small and informal establishments such as restaurants, hotels, hair saloons, repair services shops, internet cafes, grain mills, taxi operators, retailers, printing outlets, drug shops, pharmacies, bakeries, butcheries, flea markets, and the like. The cost of starting up a new business or expanding an existing firm is also relatively small. Demeke, Guta and Ferede (2003) have pointed out that the sector has the potential to make a significant contribution to GDP and job creation. For instance, between 1996 and 2001, the contribution of the services sector to GDP increased from 38.6% to 45.7% (National Bank of Ethiopia, 2003/04; Ethiopian Economic Association, 2003/04).

Figure 4.3, below, indicates that the capacity of the services sector in terms of creating new jobs has increased from 9.4% in 1984 to 18% in 1999. Although this figure suggests that enhancing the sector has potential for increasing employment in the sector and an even greater contribution to the overall economy, the growth of the services sector is constrained by lack of access to electricity, telecommunications, water, poor road and industrial infrastructure, low levels of technical skills and lack of support in terms of policy and regulation. The contribution of the construction and mining sector remained relatively low during the period.

Figure 4.3: Percentage contribution of economic sectors for employment



Source: Demeke, Guta and Ferede (2003)

4.4 Overview of MSMEs in Ethiopia

4.4.1 Defining MSMEs in Ethiopian Economy

There is no unique or universally accepted definition of MSMEs that can be applied to all the countries of the world (ITC, 2000). The definition of MSMEs significantly varies from country to country, depending on factors such as the country's state of economic development, the strength of the industrial and business sectors, the size of MSMEs and the particular problems experienced by MSMEs (Harabi, 2003). Even in Ethiopia, two types of working definitions exist, one used by the Ethiopian Ministry of Trade and Industry (MTI) and another by the Ethiopian Central Statistics Authority (CSA). According to the MTI (1997), the definition of MSMEs is based on the level of capital investment of the firm, while the CSA categorises sectors into different enterprises based on the number of workers employed in the firm and the level of automation of firms. Table 4.2 shows how the MTI and CSA define MSMEs.

Table 4.2: Definitions of MSMEs by the MTI and CSA

| Category | Capital investment (MTI) | Employees and level of automation (CSA) |
|----------------------------|--|--|
| Micro enterprises | Up to 2, 250 US\$ and excluding high tech consultancy firms and establishments | Up to 10 employees and using non-power driven machine |
| Small enterprises | 2, 250 – 56, 000 US\$ excluding high tech consultancy firms and establishments | Less than 10 employees using motor operated equipments |
| Medium & large enterprises | Above 56, 000 US\$ | Above 50 employees |

Source: Ministry of Trade and Industry (1997)

4.4.2 Recent MSME Development Policy in Ethiopia

In 1997, the Ethiopian government published a White Paper on a national strategy for the development and promotion of small businesses and enterprises. The release of the White Paper shows recognition of the MSME sector's importance to the overall economy by the government (MTI, 1997). In the White Paper, almost all major challenges faced by the MSME sector have been articulated fairly well. The main building blocks of the policy include fostering an enabling legal framework, improving regulatory and administrative burdens through reduction of sales tax, licensing laws, developing a culture of entrepreneurship, improving cooperation among MSMEs, encouraging graduation to a higher level, developing institutional capacity, improving access to finance through a micro-credit scheme of microfinance institutions (MFIs), providing export-related support, offering counselling and business skills training, improving access to technology, facilitating access to markets, and others.

The White Paper of 1997 was based on the need to provide a whole range of integrated services for the promotion of the MSME sector, so that the sector could contribute more to the national economy. Some of the specific objectives the policy hoped to achieve included the development of competitive and thriving MSMEs, the creation of sustainable employment and income opportunities to the economically active poor, the promotion of the linkage between MSMEs and other sectors of the economy, the

promotion of exports and entrepreneurial development, the facilitation of equitable regional developments, and others. The strategic framework of the White Paper was based on the conceptual and logical frameworks of the national economy, and clearly stated that the sector could not survive without adequate support from the national government. In fact, the vision behind the White Paper of 1997 was the same as the one behind the ADLI policy, in which the agricultural sector is expected to lead the expected economic growth and development. The same paper acknowledges the role that should be played by the MSME sector along with what needs to be done by the national government in terms of finance, technology, information, institutional support, facilitation of exports, attraction of foreign direct investment, marketing local products in the international market, the provision of skills-based training to MSMEs, etc. (MTI, 1997).

Wole (2004) and Addison and Geda (2001) have reported that the availability of support institutions that can provide financial and non-financial support to MSMEs is a key requirement for the sustainable growth and development of the MSME sector. In support of the above view, Tegene (2004) has pointed out that most aspects of the policy on MSMEs in Ethiopia are not relevant to the practical needs of small businesses and enterprises as they are not based on the specific needs and priorities of the sector. According to the author, the policy on MSMEs is based on inadequate information on the diversity, size, role and the main constraints of the sector. In addition to this, there is discrepancy between policy and practice with regard to the implementation of the White Paper (Ageba & Amha, 2006). Belay (2000) has argued that the level of commitment made by the national government towards supporting MSMEs in terms of tangible measures such as access to finance, skills development, marketing, infrastructure and technology seems to be grossly inadequate.

4.5 Brief Profile of MSMEs

The MSME sector in Ethiopia is highly dominated by micro and small-scale enterprises (based on the definitions in Table 4.2 above). A survey conducted by the Ethiopian

Central Statistical Authority (2003) shows that there are more than 1.5 million established MSMEs in the country, out of which micro and small enterprises with fewer than 10 employees account for 99.8% (53.9% micro and 45.9% small sectors) of all establishments in the country. The remaining 0.2% of the establishments account for medium and large enterprises. With regard to job creation, the same report shows that micro and small enterprises alone have 1.4 million operators engaged in the sector, which accounts for about 27% of the total labour force of the country. However, their contribution to gross value of output and value added is rather small in comparison with medium- and large-scale enterprises. Table 4.3 shows that micro and small enterprises jointly account for 28.2% of gross value of output and 29.8% of value added respectively, while medium and large enterprises account for 71.3% and 70.2% of gross value of production and value added respectively.

With regard to type of business, although MSMEs participate in all areas of economic activities, most of the businesses produce consumer products that largely target the domestic market. The report indicates that over 50% of small and 37% of medium-scale manufacturing enterprises are engaged in food and beverage manufacturing activities destined for local consumption only. These firms lack the capacity to produce goods and services of the quality (compliance with global standards) and quantity for export and a break into world markets.

Table 4.3: Percentage shares of establishments, percentage employment and value added in 2003

| Type of Enterprise | Establishments | Employment | Gross value of production | Value added |
|--------------------|----------------|------------|---------------------------|-------------|
| Micro | 53.9% | 46.3% | 21.0% | 6.2% |
| Small | 45.9% | 48.9% | 7.2% | 23.6% |
| Sub total | 99.8% | 95.2% | 28.2% | 29.8% |
| Medium & large | 0.2% | 4.8% | 71.3% | 70.2% |
| Total | 100% | 100% | 100% | 100% |

Source: CSA (2003): Report on small-scale manufacturing industries; Statistical Bulletin No. 172,174, 205, 282 and 321.

4.5.1 Micro enterprises

In the Ethiopian context, micro enterprises refer to home-based or individual establishments that are mostly operated only by the owners or immediate family members of the business. According to Gebeyehu and Assefa (2004), micro enterprises account for approximately 40.6% of all employees working in urban parts of Ethiopia. In most cases, employment in the sector is performed informally and wage rates are kept at a bare minimum. The majority of operators in the sector usually perform their activities without formal registration for fear of tax, over-regulation and the burden of administration. The contribution of micro enterprises is more pronounced at the community level in comparison with the national level. Although micro enterprises contribute to job creation, they are mostly embryonic or small-to-medium-sized enterprises, and a sizeable proportion of them lack the potential to achieve sustained growth and development. Ageba and Amha (2006) and the Ethiopian Central Statistical Authority (2003) have both reported that productivity in the sector is often low, and that income from most micro enterprises falls below the poverty line. As a result of numerous resource- and policy-related challenges, a sizeable proportion of them lack the means and potential to mature into viable businesses (MTI, 1997).

4.5.2 Small-scale enterprises

In the year 2003, the Ethiopian Central Statistical Authority (2003) report on small-scale manufacturing enterprises showed that there were about 681,008 small enterprises in the country in which 1,054,257 people were employed. Tesfayohannes (1998) had reported that the percentage share of urban small enterprises accounted for 51% of employment, 15% of locally manufactured goods, for which 51% obtained their material from local resources. The fact that 51% of the input resources in the sector are generated locally, clearly shows that the sector has great potential for the backward and forward linkage in the economy that is needed for stimulating the economy to further growth. Small-scale enterprises by and large share most of the attributes and constraints of the micro sector. However, unlike micro firms, small-scale enterprises suffer the burden of heavy taxes. Table 4.4, below, shows that the structural distribution of small-scale manufacturing

enterprises is dominated by the production of consumption goods such as textiles, food items and beverages. For example, textiles account for 45.2% of gross value of products and 46% of total value added. Food and beverages account for 40% of gross value of output and 34% of total value added. According to Gebeyehu and Assefa (2004), the higher concentration of production in this area is attributable to the fact that products and services are geared towards satisfying the needs of local markets.

Table 4.4: Structural distribution of small-scale industries in Ethiopia

| Industrial sector | No. of establishments | Jobs created | Gross value product in 1000 Birr | Value added in 1000 Birr |
|----------------------|-----------------------|--------------|----------------------------------|--------------------------|
| Food & beverages | 357,507 | 499,203 | 637,129 | 156,699 |
| Textiles | 298,378 | 484,718 | 718,453 | 209,407 |
| Leather | 1,825 | 22,251 | 61,499 | 20,351 |
| Wood | 11,973 | 14,947 | 7,175 | 2,352 |
| Paper & printing | 74 | 191 | 3,453 | 1,410 |
| Chemical | 100 | 179 | 1,656 | 469 |
| Non-metallic mineral | 151,361 | 198,709 | 30,778 | 14,835 |
| Metallic | 64,231 | 100,471 | 129,454 | 49,400 |
| Total | 895,450 | 1,320,668 | 1,589,597 | 454,922 |

Source: Gebeyehu and Assefa (2004)

Note: 1 USD = 8 Ethiopian Birr at the time of data collection

4.5.3 Medium-scale enterprises

Results from a survey conducted by the Ethiopian CSA (2004) on medium- and large-scale manufacturing enterprises show that there was a total of 965 manufacturing establishments in which 102, 202 people were employed in the year 2003. Table 4.5 shows that the total number of people employed in this sector over the 5-year period between 1999 and 2003 has gradually increased by only 7.6%. It is also reported that, in this group, male employees were dominant over female employees. There was a significant disparity among the five regions in the study with regard to the number of businesses established. As many as 59% of all established medium- and large-scale

enterprises were concentrated in Addis Ababa, where there is relatively better infrastructure, marketing and improved access to essential facilities and services. The medium- and large-scale manufacturing industry in Ethiopia is characterised mostly by a high concentration of food and beverage manufacturing industries involving items such as bread flour, edible oil, soft drinks, beer and alcoholic drinks. Based on the CSA employment classification and adapting, enterprises that employ between 50 and 100 people as medium size enterprises, the sector account for 42% of all medium and large size enterprises in Ethiopia. In addition, 38.3% of all medium-sized enterprises produce organic agricultural food products and beverages. Furniture manufacturing accounts for the activities of 26.4% of all medium-sized enterprises.

The sector has weak backward linkages to domestic input markets. Analysis of the sector's total imported raw materials shows that local manufacturing industries rely heavily on imported raw materials. Although imported inputs overall have shown a steady decrease over the past several years, they still account for almost 50% of all consumed raw materials at present. In addition to this, linkage in terms of subcontracting and outsourcing is quite limited. The ratio of gross operating surplus to gross value of production provides an approximate measure of the productivity of a firm. This ratio showed little fluctuation in the period between 1999 and 2003, and it can be stated that the productivity of firms did not improve significantly during the period of study.

Table 4.5: Contribution of large and medium enterprises to the Ethiopian national economy

| Type of contribution | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|--------|--------|--------|--------|---------|
| Employment | 94,142 | 95,708 | 94,310 | 98,986 | 102,202 |
| Ratio of imported to total consumed raw material costs | 0.536 | 0.515 | 0.454 | 0.452 | 0.435 |
| Ratio of value added to gross value of production | 0.265 | 0.280 | 0.281 | 0.274 | 0.285 |
| Ratio of operating surplus to gross value of production | 0.189 | 0.206 | 0.203 | 0.182 | 0.196 |

Source: Computed from a report by the Ethiopian CSA on large- and medium-scale enterprises (2004)

4.6 Constraints of the MSME sector of the Ethiopian economy

In Ethiopia, the MSME sector is exposed to a number of constraints related to policy, and structural and institutional problems that hinder sustained growth, development and long-term planning. Despite the landmark White Paper of 1997 that pledges full support to the MSME sector in terms of policy and basic necessities, the macroeconomic environment in which MSMEs operate, as well as the numerous key problems of MSMEs, are still unresolved. For instance, the proportion of credits allocated to the sector in 2003 amounted to a mere 5% of all credits that were advanced to the entire local economy of Ethiopia (Tegene, 2004). Contrary to what has been pledged in the White Paper, institutions that are essential for supporting the growth of MSMEs are still not in place. The few institutions that are in operation have a limited capacity in terms of fulfilling the requirements of MSMEs. Formal financial institutions such as commercial banks are unwilling to lend money to MSMEs because they consider lending money to small businesses as a typically high-cost transaction that is unprofitable and fraught with the risk of default and high loan administration and recovery cost. Although the number of private financial institutions that are operating in the economy has increased, they have limited capacity in terms of providing finance to small businesses and enterprises on favourable terms. In Ethiopia, commercial banks account for more than 80% of all assets owned by the banking sector (National Bank of Ethiopia, 2003/2004; Addison & Geda, 2001; Degefe, 1995). In view of the rather skewed distribution of assets in favour of commercial banks, several economists have criticised the prohibition of foreign microfinance institutions (MFIs) from entering the local market. Economists argue that the monopoly enjoyed by commercial banks must be broken so that reputable and adequately equipped MFIs from foreign countries could play their fair share in fostering competition as well as improved services to local MSMEs. Proclamation No. 40 of 1996 on MFIs by the National Bank of Ethiopia (1996) states that any MFI wishing to engage in microfinance activities must obtain an operating licence from the National Bank of Ethiopia; that it has to be owned by Ethiopian nationals; and that it must deposit a minimum capital of 200, 000 Birr (24, 000 US\$). In the eyes of potential foreign MFIs, this constitutes a stringent requirement.

Although Ethiopia's integration into the global economic system is essential in view of local MSMEs acquiring strategic benefits such as the transfer of badly needed technological skills and high value addition, there is also a general fear that globalisation may be harmful to local MSMEs, as they are not competitive enough by global standards (Wole, 2004; Wagner, 1999). At present, most MSMEs lack the necessary capital, business information and skills to compete with foreign competitors in terms of the quality and quantity of products. High quality products from foreign competitors have managed to penetrate the local markets by virtue of their lower cost, improved technology and mass production. In view of the local markets being flooded with cheaper and more efficient foreign products, local MSMEs have experienced real challenges as well as opportunities from international companies (Tegene, 2004; Buckley, 1989; Wagner, 1999). According to Porter (2000), globalisation has the potential to prompt local MSMEs to be more efficient, although a sizeable proportion of local MSME are bound to disappear due to failure to compete. In view of the fact that the majority of local MSMEs are vastly under-prepared, poorly resourced and ill-equipped, exposure of local businesses to foreign competitors must be considered carefully. One possibility would be to follow a phased approach in which local MSMEs are provided with adequate support before being exposed to foreign competitors. Failure to do so has the potential of causing the disappearance of several local MSMEs that are poorly resourced and ill-equipped.

Ageba and Amha (2004) have pointed out that poor internal efficiency is a key factor responsible for stifling growth in small businesses and enterprises. The authors point out that local MSMEs are unable to use their scarce resources efficiently due to lack of business skills and technology, and call upon the national government to intervene by providing skills-based training. This assessment is in agreement with similar findings from the study conducted by Wole (2004), in which the author cited reasons such as poor business plans, poor record keeping, poor skills in the management of finance, low level of formal education, lack of skills-based training opportunities, inability to effectively utilise loan monies, low level of technological use and the informality of the sector, etc., as the primary causes responsible for the collapse of local MSMEs. Many economists argue that the current lack of internal efficiency at firm level is attributable to a

macroeconomic policy that provides no preferential policy support based on the needs of MSMEs (Ageba & Amha, 2006; UNDP, 2003). In general, while the policy adopted by the government looks good on paper, the policy comprises a mixed bag in which not all aspects are helpful for the sustained growth and development of small businesses and enterprises. Some aspects of the policy have not been implemented with vigour, and are irrelevant to the practical needs of MSMEs. One key aspect is the issue of providing access to finance on favourable terms. There is discrepancy between official policy and actual practice. The White Paper of 1997 would have had a greater positive impact on the sustained growth and development of the MSME sector if it had been implemented wholeheartedly.

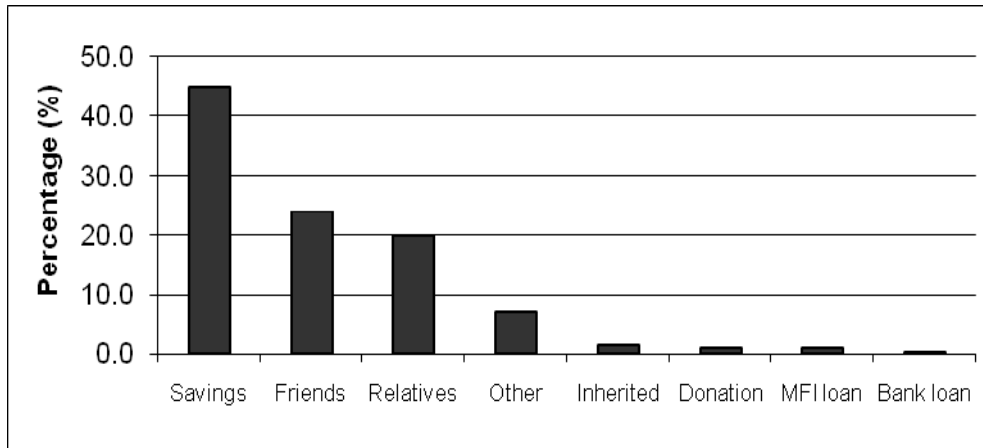
4.7 Financial institutions and the credit needs of MSMEs

Theoretically, firms may use internal and external sources of finance, with internal sources of finance consisting of own savings and retained earnings, whereas external sources include security finance and borrowing from formal and informal sources. According to the Industry Sector Analysis (ISA) (2000), the majority of MSMEs in Africa operate below capacity due to lack of access to external sources of finance. The problem has been exacerbated by the lack of capacity of MSMEs to raise collateral and the reluctance of formal financial institutions to assist small businesses in innovative ways. The stiff regulations imposed on foreign financial service providers have also added to the problem. There are several theories that explain why local MSMEs in Ethiopia are credit-constrained. Researchers have associated credit constraint with factors such as asymmetric information, low expected returns on loans provided to MSMEs, undesirable personal characteristics of potential borrowers, lack of collateral, poor business plans and financial record keeping skills of MSMEs (Scholtens, 1999; Kavanamur, 2002 and Stigilitz & Weiss, 1981). Banks supply credit on the basis of expected profit. The banks maintain that providing loans to small enterprises without adequate collateral is too risky. Thus, collateral is a way of reducing risk, shortening the screening process, and is seen as a mechanism for compensating for bad debts

(Alemayehu, 2006). It is difficult to recoup bad debt without adequate collateral (Brownbridge, 1998). According to Tesfayohannes (1998), more than 65% of MSMEs that applied for loans in 1998 were rejected due to asymmetric information. Findings from a survey conducted by the Ethiopian Central Statistical Authority in 2003 show that only 0.2% of small-scale operators were provided with loans by the Commercial Bank of Ethiopia at their start-up stage, while 45% were supported by own savings, 24% were supported by friends, and 20% were supported by their relatives (Ethiopian Central Statistical Authority, 2003). Only 0.8% of operators raised finance from MFIs, as shown below in Figure 4.4. This shows that the financial need of MSMEs has not been met with adequate response from policy makers. It is a paradox that the Commercial Bank of Ethiopia is allowed to accumulate an obscene amount of excess reserve at a time when the dire demand for finance by the MSME sector has not been met. It is equally puzzling that no intervention has been made by the national government.

Figure 4.4 shows that, although the primary objective of microfinance institutions is to provide financial services to MSMEs, the degree of support to small businesses and enterprises in Ethiopia has so far been quite minimal. MFIs in Ethiopia are characterised by high interest rates and stringent loan terms. Interest rates imposed by MFIs vary from 12.5% to 19.5%. As such, the rates are utterly unaffordable by the majority of small businesses and enterprises. In addition to this, most MFIs are limited in terms of financial capacity, and operate in the capital, Addis Ababa and the surrounding towns (National Bank of Ethiopia, 2004). The amount of money that MFIs can advance to a borrower is restricted to 5,000 Ethiopian Birr or 600 US\$ only. The loan repayment period varies from 24 months to 2 years only. Clearly, the loan amount is too small, the interest rate is high and the loan repayment period is rather short. As a result, the majority of MSMEs borrowing money from MFIs fail to make any meaningful use of their loans (Tegene, 2004). This is due to lack of financial capacity on the part of MFIs. At present, the proportion of MFIs that are adequately equipped for meeting the financial demands of MSMEs in a meaningful manner is quite small and MFIs at present only meet roughly 10% of the credit demands of MSMEs in Ethiopia (Amha, 2002).

Figure 4.4: Financial source of initial capital for MSMEs



Source: Ethiopian Central Statistical Authority (2003): Statistical bulletin No. 282.

4.8 Iqub as a credible form of social capital

4.8.1 Importance of iqub schemes to MSME performance

In Ethiopia, iqub schemes are highly popular indigenous self-help financial associations that are widely practiced among owners of small businesses and enterprises. The schemes are deeply entrenched at the grassroots level, and are a fully-fledged social and financial institution in their own right. The schemes are a commonly used source of finance for starting up new businesses. The majority of MSMEs in Ethiopia rely on iqub schemes in one way or another. Iqub associations provide financial and non-financial support to members, in addition to providing savings services. In the scheme, a group of individuals come together and make regular cyclical contributions to a common pool in which a lump sum is given to one member of the group in each cycle. Thus a member lends money to other members by making regular contributions based on mutual trust and solidarity. Iqub schemes help many MSMEs to efficiently manage their scarce resources and to convert profit into income-generating activities. Members of iqub schemes are under a constant obligation to keep up with their regular payments and honour their obligation to fellow members of the group. The constant sense of solidarity and obligation to other members of the group fosters the culture of saving money and discipline. In doing so, iqub schemes generate savings capital, mobilise local resources, and promote efficiency in small enterprises.

According to Pankhurst (2003), iqqub schemes in Ethiopia are as old and deeply ingrained as local towns. Although formal financial institutions such as commercial banks are growing in number, iqqub schemes are very popular and widely operational in all parts of Ethiopia. Historically, iqqub schemes have been synonymous with providing financial assistance and social recognition to poor members of the community who do not qualify for loans from formal banks (Marui, 1987; Baker, 1986). Nowadays, the schemes have become equally popular among the wealthy, the well educated and the ambitious. Big traders, for instance, often resort to raising sums of money from iqqub schemes as a means of raising large sums without having to meet the stringent requirements of commercial banks. According to Aredo (1993), iqqub schemes generated an average of half a million Ethiopian Birr (60,000 US\$) per month in major towns of Ethiopia in 1993. Results from this study show that iqqub associations were able to pay about 3,000 Birr (500 US\$) per week in 1993. Since 1993, the capacity of iqqub schemes has grown remarkably. Ageba and Ameha (2006), as well as Pankhurst (2003), have shown that iqqub schemes constitute a major source of finance for the majority of micro and small enterprises in Ethiopia at start-up and expansion phases.

Earlier studies considered iqqub schemes to be a form of Rotating Savings and Credit Association (ROSCAs) in which each member makes a regular payment into a pot weekly or monthly in order to receive one large sum at some point in one of the periodic draws of the cycle (Aredo, 1993). Net savers earn lower rates of return while net borrowers pay lower rates than rates charged by formal financial institutions, or when money is invested in interest-bearing ventures. Although members of iqqub schemes who have to wait long to collect their lump sum stand to lose interest, they do not mind supporting fellow members of the scheme, due to the overwhelming sense of solidarity and mutual trust. This clearly shows that solidarity and social capital by far outweigh financial gain. People prefer iqqub schemes due to their social capital nature in which mutual trust, solidarity and willingness to share business skills, resources and ideas are highly valued. This shows that traditional economic theories of benefits or returns on investment do not necessarily apply to iqqub schemes. Hence, benefits accrued from

social capital are worth investigating with the use of robust econometric tools and methods.

In most cases, iqqub schemes are organised by members who trust and know each other well. Such members share a common view, and are willing to make a sacrifice in order to achieve a long-term goal. Unless each member in an iqqub scheme pays regular contributions, no member can be given a lump sum. Hence, each member is expected to make regular payments promptly and show commitment toward fellow members of the scheme. Iqqub schemes utilise non-monetary punishment as a means of deterrent and defaulters stand to lose their social standing and dignity in the community. In iqqub schemes, one's personal standing and honour in the community by far outweigh financial gain, and are constantly at stake. When members default on repayment, peer pressure is applied to recover fees, and an investigation is made into why members defaulted. Defaulters are visited, and social sanctions are imposed on such members when there is a need to recover monies. Although members do default on repayment from time to time, the prevalence and incidence of defaulting have been quite negligible historically. In circumstances in which members default on repayment due to exceptional and genuine challenges such as death and natural disaster, fellow members go out of their way to write off monies owed to the scheme as a way of honouring their social obligation toward fellow members. Peer pressure and influence furthermore play a significant role in shaping opinion on important issues (Pankhurst, 2003). A review of the literature shows that iqqub schemes have rarely failed in the various communities of Ethiopia over the past several decades, and that they are part and parcel of the Ethiopian society. The schemes have been used to mobilise resources for development activities and issues that matter to ordinary people and have been used quite successful in overcoming the problems of asymmetric information in local credit markets.

4.8.2 Dynamism of iqqub schemes

Sometimes businesses do not have the capital needed for expansion or day-to-day operation or entrepreneurs may need to borrow money for starting up new ventures or for

expanding existing ones. Formal financial institutions in Ethiopia demand collateral as a requirement for providing credit along with a proven track record on loan repayment. Small businesses and enterprises cannot meet such requirements imposed on them by formal money lending institutions such as commercial banks. By using iqqub schemes as a mechanism for generating credit and for saving money, hundreds of thousands of Ethiopian entrepreneurs have managed to acquire vibrant businesses and break out of the bondage of poverty. According to Aredo (1993), non-interest-bearing credit facilities provided by iqqub schemes have provided significant advantages to impoverished members of society who would not have qualified for such assistance on the basis of the stringent requirements of commercial banks. In an attempt to ensure the best possible utilisation of credit, iqqub associations encourage fellow members to adhere to self-imposed compulsory saving, hard work and personal discipline. Hence, a member is constantly motivated to meet his or her obligation toward the next member of the scheme through genuine savings, vigorous discipline and a high sense of responsibility. Members who collect lump sums are expected to make the best possible use of the money loaned to them, and demonstrate exemplary dedication in terms of loan repayment. During the six-year-long period of investigations for the present study, the proper use of loan money was observed by almost all businesses who took part in the study, and the repayment rate of loans from iqqub schemes was shown to stand at almost 100%.

The historical high rate of loan repayment among members of iqqub schemes lends support to the assertion that individual members of iqqub schemes are extremely trustworthy and committed to honouring their obligations to fellow members. Membership of an iqqub scheme is often recommended to members of the community who have had limited economic success. Iqqub schemes encourage individuals to compete with and learn from more ambitious and innovative members of the community. Membership enables individuals to network with such innovative and creative members as a way of overcoming economic and social obstacles. Participation in iqqub associations therefore assists members with regard to sharing valuable experience and information, risk sharing, having access to finance, and supporting each other socially and psychologically. Members are restrained from wasting money and resources such as

time and are encouraged to work with vigour and discipline. In this respect, iqqub schemes contribute enormously to community development in areas such as job creation and the alleviation of poverty among the poorest of the poor. The schemes also reduce reliance on the national government for livelihood and jobs.

In Ethiopia, the Gurage people (the most enterprising and socially networked tribe in Ethiopia) owe their success in business to participation in iqqub schemes. Without iqqub schemes, the Gurage people would have become a permanent underclass. History also shows abundantly that iqqub schemes have played a critically important role in ensuring the survival of the MSMEs sector. However, as mentioned before, very little research has been focussed on investigating the link between the long-term survival of small enterprises and iqqub schemes as social capital, in spite of the numerous benefits of iqqub schemes in promoting small enterprise growth. In this regard, the current research project attempts to extend the existing literature by shedding light on the extent of the contribution made by iqqub schemes to mobilizing social network activities and promote efficiency in and long-term survival of MSMEs.

4.8.3 Structure of iqqub schemes

It is interesting to know what factors enable iqqub schemes to survive and provide important services to members. Some researchers regard the administrative effectiveness of institutions as a prerequisite for shaping the activities of individuals in networks (Di Ciaccio, 2005; North, 1990). For some others, culture is critical in enforcing contacts between individuals (Helmke & Levitsky, 2004). According to Onyx (2000) and Williamson (2000), culturally derived institutions are relatively permanent because interpersonal relations are not instrumental, but explained in terms of social relationships. In iqqub schemes, in order to minimise risk arising from uncertainty, new members of the schemes are often required to produce at least one known member of the scheme as a reference or personal collateral. For this reason, iqqub schemes possess

well-known features of social networks, norms and trust that enable participants to act together more effectively in order to pursue a shared objective.

Most iqqub schemes have by-laws that are more or less similar. The by-laws articulate the rights and obligations of the members of the scheme. However, individuals rely mostly on informal methods of enforcement in order to maintain a harmonious and productive economic relationship. They do not rely heavily on formal or legal procedures to enforce obligations or regulations. The key feature of iqqub schemes is that members show mutual trust, and are equally committed to honour their obligations to each other. The social pressure exerted on members is enormous. This fact makes formal law enforcement almost irrelevant. The schemes are often sustained for a long period of time, and members are very concerned about their reputation and social standing in society.

The relevant literature shows that the majority of micro operators in Ethiopia are members of iqqub schemes, and that it is possible to generate large amounts of savings for starting up new business ventures or for expanding existing firms. Local investors have been able to market their products and services to a significant proportion of the population through iqqub schemes. Hence, iqqub schemes need to be paid better attention.

There is a clear analogy between social capital and iqqub schemes. Table 4.6, below, presents the similarities between social capital and iqqub schemes, based on the relevant literature.

Table 4.6: similarities between social capital and iqqub schemes

| Author | Features of social capital | Similarity with iqqub schemes |
|---|--|--|
| Porter (1998) and Woolcock & Narayan (2000) | Social capital is defined as a collective action that affects the economic benefits fellow members. | Iqqub schemes facilitate interaction among members whereby the weak learn valuable lessons and skills from the strong, and succeed economically (Mogues, 2004; Pankhurst, 2003). |
| Putnam (1993) and Uphoff (2000) | Social capital refers to features of social organisations such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit. | Membership of iqqub schemes is based on the principle of trust, norms and reciprocal relationship, and results in mutual benefits such as borrowing and lending money (Mogues, 2004, Aredo, 1993). |
| Fukuyama (1999), Pretty and Ward (2001) | Social capital is the existence of a certain set of informal values or norms shared among members of a group that permit connectedness and cooperation among them. | Iqqub schemes constitute a set of mutually shared informal values, norms and sanctions that are essential for keeping the network going among members (Aredo, 1993). |

4.9 Summary

In the last four decades, Ethiopia has been switching between two economic models: firstly from a market-based economy to a socialist model, secondly a return to pro-market economic framework starting in the early 1990s. It is in the context of each of these models that we examined the status of MSMEs in the Ethiopian economy. During the imperial regime, real GDP grew by an average of 4.4% per annum and the economy was diversified, yet MSMEs received relatively little attention in terms of policy and support,

compared to large-scale enterprises. Government policy selectively supported large-scale enterprises as they were perceived to be more valuable enterprises in terms of contribution to GDP, job creation and improvement of sustained economic productivity.

Under the Derg regime (1974 to 1990), the Ethiopian economy was heavily regulated. In line with its socialist economic policies, the state promoted large-scale public enterprises and left little room for the development of the MSME sector. In consequence, the contribution of the small firms to the national economy remained insignificant, marginalised and often under-recorded. Moreover, the MSME sector was faced with an onerous and a cumbersome regulatory regime which did not give priority to its peculiar needs.

When a new regime came to power in May 1991, prospects started improving for the MSME sector. The government published a White Paper in 1997 which targeted sustained growth and development in the MSME sector. Although the White Paper clearly articulated what needed to be done in order to foster sustained growth in the MSME sector, there has been some discrepancy between the commitment made in it and the existing condition of MSMEs. Commitments made in the White Paper have not always been realised and the macroeconomic environment in which MSMEs currently operate needs to be overhauled in order to alleviate bottlenecks in the sector. Institutions that provide financial and non-financial support to the MSME sector are limited in capacity and number. For instance, the percentage of credit allocated to the MSME sector is only 5% of all credit advanced to the entire local economy of Ethiopia. Micro and small-scale enterprises in Ethiopia are poorly developed. With 99.8% of all establishments in Ethiopia employing fewer than 10 employees, the remaining 0.2% account for medium and large enterprises. The degree of linkage, subcontracting or outsourcing remains quite small.

At present, MFIs meet roughly 10% of the credit demands of MSMEs in Ethiopia. The high interest rate imposed by MFIs and the short duration of loan repayment makes MFIs less attractive to small businesses and enterprises. Iqub schemes are indigenous self-

help financial associations that provide badly needed finance to entrepreneurs in Ethiopia. The schemes are a form of social capital that is immensely popular with MSMEs in Ethiopia. Money raised from the schemes is used extensively for starting new business ventures and for expanding existing enterprises. Iqqub associations provide financial and non-financial support to MSMEs. The schemes operate on mutual trust, social capital and norms that enable individual members of society to borrow money, work hard, and pay back the money loaned to them. Members of iqqub schemes pursue a shared objective which is impossible to realise outside the schemes. The key feature of iqqub schemes is the mutual trust of members and their commitment to honouring their obligations to each other. The social pressure on members of iqqub schemes is enormous. Incidents of default on loan repayment are therefore quite negligible. This makes formal law enforcement almost irrelevant to iqqub schemes.

Chapter 5: Data and Research Methodology

5.1 Introduction

The purpose of this chapter is to explain the data gathering strategies and analytical techniques used to empirically explore the theoretical propositions developed in previous chapters.

As stated before, social capital and networking have undeniable benefits for MSMEs. However, empirical assessment of this connection poses a range of methodological challenges. Proxy variables (especially to ‘measure’ social capital) are not directly observable and are difficult to measure objectively. The existing reality in Ethiopia shows that, while the strategic importance of iqub schemes for the growth of MSMEs cannot be denied, the degree of contribution of the schemes to the long-term survival of the sector has not been adequately investigated on the basis of a large panel dataset. The majority of previous studies conducted on iqub schemes were undertaken by sociologists and anthropologists with a view to gather empirical information on the nature, operation and importance of iqub schemes. Such studies were based on descriptive and cross-sectional study designs, and were not suitable for assessing the long-term impact of iqub schemes on the survival of small businesses and enterprises.

In contrast to previous studies, the current study is based on a six-year-long panel of dataset gathered from a purposively stratified random sample of 500 small businesses and enterprises located in five geographical regions of Ethiopia. The study employs robust econometric methods of data analysis such as the Cox Proportional Hazards Model, Kaplan-Meier survival probabilities and logit regression, and uses hazard ratios as an econometric measure of effect for estimating the impact of participation in iqub schemes on long-term survival and viability. The study assesses the reliability of all fitted econometric models with the use of standard diagnostic measures.

In section two, econometric methods and materials used in this study will be discussed. The section will cover the sample size of the study, the sampling techniques and methods

of data collection. In section three, econometric methods of data analysis and diagnostic measures (tests that are used for assessing the degree of reliability of estimated statistical models) will be discussed. The key methods to be discussed in section three are Pearson's chi-square tests of association, binary logistic regression analysis, Kaplan-Meier survival probabilities, the log-rank test, the Cox proportional hazards model and hazards ratios. The final section provides a summary of the chapter.

5.2 Data Collection Methods

5.2.1 Sample size and data collection

Purposive, stratified random sampling was used for gathering data from a random sample of 500 small businesses and enterprises. Data was gathered on socio-economic and demographic variables that are known to affect the long-term survival and viability of small businesses and enterprises in Ethiopia. The 500 small businesses and enterprises were selected from five geographically representative regions of Ethiopia (Addis Ababa, Awassa, Bahirdar, Mekele and Nazeret). These regions were purposely chosen for the following reasons: Firstly, the five regions put together, account for the majority of small businesses in the country in terms of size and diversity. The cities account for a diverse range of MSME activities conducted over a long period of time in the country. Secondly, the cities encapsulate the typical socioeconomic environment within which small businesses and enterprises operate. Thirdly, the five major cities constitute predominantly urban areas in which reliable data is readily available. Hence, the 500 small businesses and enterprises selected for the study constitute a truly representative sample in terms of characteristics and problems experienced by MSMEs in Ethiopia. MSMEs in rural locations were excluded mainly because of the problem of obtaining reliable longitudinal data for the study.

Two basic approaches were followed for gathering data on individual, policy-related, structural, market and social capital attributes of business firms. The sampling frame (the list of all MSMEs used for data collection in each of the five major cities which were operational in the year 1996) was obtained from the Records Office of the Ministry of

Trade and Industry (MTI) of Ethiopia in Addis Ababa. The sample did not include businesses that had not been registered by the MTI. The sample size for the study was determined using the statistical package **nQuery Advisor version 4.0** using a level of significance of test (α) equal to 0.05, the proportion of “failed” businesses and enterprises varying between 10% and 15%, and a power of test ($1-\beta$) equal to 90% (Cochran, 1977). Using these values, the adjusted sample size of study came to include 500 MSMEs. A random sample of 100 MSMEs was selected from each of the five cities in the study, using simple random sampling, thereby providing an overall sample size of 500 MSMEs. In this study, the term “failed” as applied to businesses refers to businesses that ceased operating completely, and not those that switched to other business activities.

The questionnaire used in the study was translated into the local languages spoken in the various regions. It was then pre-tested for clarity and consistency before it was used for actual data gathering by trained data collectors. All participants in the study were willing participants. They were duly informed of their rights to drop out of the study at any time if they wished to do so. Responses obtained from respondents were kept confidential. In addition to gathering quantitative data by using questionnaires, focus group discussions and in-depth interviews were conducted with business owners and/or managers of businesses. Similar in-depth interviews were conducted with key officials working for the Ethiopian Ministry of Trade and Industry and microfinance institutions providing services to the MSME sector. Open-ended questions were used for assessing personal views on what needs to be done in order to improve the competitiveness of the MSME sector. Several records, documents and publications of the Ministry of Trade and Industry, the Ministry of Finance, various micro finance institutions, and other relevant institutions were checked in an attempt to verify the accuracy of facts.

5.2.2 Variables of the study

The variables of study selected in this research were based on a thorough literature review of differentials of survival that are known to affect small businesses and enterprises. Theoretical and empirical merits used for the selection of variables of study are discussed in previous chapters. They capture internal and external factors that affect

the survival of small businesses and enterprises, not only in Ethiopia, but in most Sub-Saharan African countries. Variables that affect the survival of businesses were categorised in four broad categories such as macro policy issues, access to social capital, internal efficiency, and access to micro credit (Details are shown in Appendix 5). Macro variables include variables related to economic policy that essential for promoting private investment in MSMEs. Social capital refers to participation in iqqub schemes, access to free labour from family members and networking with other businesses and enterprises as a result of participation in iqqub schemes. Micro variables refer to access to credit facilities and the cost of borrowing from the various sources. Internal efficiency refers to factors that affect the degree of effective utilisation of resources and opportunities at firm level. These four categories of independent variables account for most of the key predictors of survival affecting MSMEs in Ethiopia. While such variables have been used in previous studies, such studies have been based on descriptive and cross-sectional study designs. As such, findings from such studies were only suitable for making rapid assessment, and not long-term impact evaluation. By contrast, this study is based on a longitudinal study design in which robust econometric measures of effect such as hazard ratios, odds ratios and survival probabilities are estimated by using advanced models such as the Cox proportional hazards model, logit regression and Kaplan-Meier survival probabilities. The impact of social capital (participation in iqqub schemes) on long-term survival and viability is quantified, based on hazard ratios.

5.3 Methods of Data Analysis

Tsyliakus (2007) has reported that there are two major approaches that could be used for incorporating factors that affect the long-term survival of MSMEs into classical survival analysis models such as the Kaplan-Meier survival analysis model and the Cox Proportional Hazards Model. Both approaches are suitable for explaining the performances of MSMEs based on multivariate econometric modelling. The first approach proposed by Tsyliakus (2007) is based on the ideas of Jovanovic and MacDonald (1994) which are based on the assumption that small businesses and enterprises evolve through time, and the most competitive ones remain in business while uncompetitive businesses perish as part of technological and market related evolutionary

processes. This approach is also closely related to the ideas of Carroll and Hannan (1990) which focus on the analysis of endogenous factors such as the high rate of learning through experience, innovation activity and use of modern technology to reduce the likelihood of business failure. The second approach originates from studies of industrial dynamics and includes market conditions, the extent of scale economies and business-specific characteristics. Individual factors that are specific to businesses are considered exogenous factors that determine long-term survival.

According to Tsyliakus (2007), Hosmer and Lemeshow (2000) and Green (1997), the use of hazard ratios as an econometric measure of effect in survival analysis is theoretically the most reliable approach that should be used for the prediction of success or failure in business enterprises in cases where there is access to panel or longitudinal data gathered from individual businesses over time. Hazard and survival functions form the basis of analysis in econometric survival analysis, and are based on conditional probabilities or the likelihood of survival of firms depending on the impact of key determinants of survival over the period of study. Lancaster (2004), Lane et al. (1996) and Whalen (1991) have used the Cox Proportional Hazards Model approach to empirically predict business failures.

Similarly, Glogova, Halling, Hyaden and Hoyer (2005) and Henebery (1999) have used a Proportional Hazards Model to evaluate the predictive power of cash flow variables on the long-term survival and viability of business firms. The authors used a discrete logit model with survival time dummies that allow for time-varying explanatory variables and censored data. In survival analysis, predictor variables whose values change as a function of time are called time varying covariates. In this study, none of the predictor variables used for analysis was a time varying covariate. A model that consists of time varying covariates requires the use the extended Cox regression model.

This study employs two methods for identifying key predictors of survival. The first method is binary logistic regression analysis, and uses a dichotomous dependent or outcome variable of study. Binary logistic regression is inferior to the Cox Proportional

Hazards Model because it does not account for censored observations (businesses whose exact survival times could not be measured). In contrast to Binary logistic regression, Cox regression accounts for censored observations as well as time varying covariates. Binary logistic regression analysis was performed mostly for screening of predictor variables. Based on results obtained from binary logistic regression analysis, subsequent analysis was done using Cox regression. The econometric measure of effect in binary logistic regression analysis is the odds ratio. The econometric measure of effect in Cox regression is the hazard ratio. Although there is analogy between odds ratios and hazard ratios, hazard ratios are theoretically more reliable than odds ratios because the Cox model has the capacity to account for censored observations. As a result, the Cox model fits the data well, irrespective of the choice of parametric model.

Odds ratios arising from binary logistic regression analysis are estimated as based on the maximum likelihood estimation technique (Lancaster, 2004; Green, 1997). Survival analysis is used for data analysis in view of the fact that the study design is longitudinal, and some of the businesses in the study are censored observations (observations whose exact survival times cannot be measured precisely). To estimate the hazard ratio, the duration of survival of each of the 500 firms in the study had to be measured. However, it was impossible to measure the exact durations of survival for some of the businesses, due to administrative censoring. The use of Cox regression and Kaplan-Meier survival probabilities made it possible to estimate survival probabilities for all firms in the study, and to identify key factors that affected survival. In contrast to Cox regression, binary logistic regression analysis cannot handle censored observations. For this reason, the most suitable econometric method of data analysis is Cox regression. Hazard ratios from Cox regression are used for comparing successful businesses with businesses that failed with regard to key predictors of long-term survival or viability. In the sections below, these two models (binary logistic regression and Cox regression) will be discussed in detail.

5.3.1 Binary logistic regression analysis

The literature shows that the relationship between firm survival and predictor variables that affect a binary outcome variable of study, such as survival or failure, can successfully be explained by using the binary logistic regression model (Tsyliakus, 2007; Cramer, 2003; Braga, Bressan, Colosimo & Bressan 2003; Hosmer & Lemeshow, 2000; Lane et al., 1996). In this study, binary logistic regression analysis was done in order to identify variables that strongly affect the survival and viability of MSMEs. The dependent variable, Y , is dichotomous as it has only two possible values (survival or failure). Binary logistic regression is an extended form of the basic logit model. The logit model is a statistical regression model for binary dependent variables. The logit model is used quite extensively for the estimation of odds ratios in economic studies involving a dichotomous outcome (Glogova, Halling, Hyaden & Hoger, 2005; Cramer, 2003; Verbeek, 2002). Logit and probit regression procedures are theoretically equivalent and are used extensively to explain the non-linear relationship between a dichotomous dependent variable such as survival of business (yes, no) and several predictor variables that affect viability of business in one way or another. In logistic regression analysis, the econometric measure of effect is the odds ratio, an estimate that is readily available in logit regression. Although probit regression provides estimates for regression coefficients, it does not provide odds ratios directly. As a result, preference is given to logit regression in this and similar studies. In an attempt to identify differentials of survival that affect MSMEs facing similar challenging business environments, the study hypothesised that integration of social capital, internal efficiency and micro credit with favourable macro policy can significantly improve the chances of survival of MSMEs. Hence, the main objective of binary logistic regression analysis was to explain the relationship between the potential determinant factors and the survival of MSMEs.

Consider a dependent variable Y with 2 possible outcomes (1, 0). The expression $Y=1$ represents the event that a business has failed. The expression $Y=0$ represents the event that a business is successful. Binary logistic regression is an econometric analysis that is used for predicting the probability that $Y=1$ for known values of the predictor

variables X_1, \dots, X_k . The technique enables us to identify the most influential predictor variables affecting business failure ($Y=1$). The identification of influential predictor variables is done on the basis of odds ratios. In binary logistic regression analysis, influential predictor variables are characterised by odds ratios that are significantly different from 1, 95% confidence intervals of odds ratios that do not contain 1, and P-values that are smaller than 0.05, at the 5% level of significance. Logistic regression also allows us to assess the reliability of the fitted model (Gujarati, 1988).

In a multivariate model, the cumulative effect of several factors that affect survival is examined. The likelihood of failure is measured using the odds ratio. An odds ratio of 1 indicates that the independent variable X has no impact on the probability that $Y=1$. An odds ratio greater than 1 indicates that an increase in X results in an increase in the likelihood of $Y=1$. In this case, exposure to the X variable becomes harmful. An odds ratio smaller than 1 indicates that an increase in X results in a decrease in the likelihood of $Y=1$. In this case, exposure to X becomes protective of failure. To model the relationship between the likelihood of business failure and several predictor variables that affect business failure, the Maximum Likelihood Estimation (MLE) technique was used. The MLE method estimates odds ratios by minimising the error sum of squares where the error is the difference between the estimated value and the true value of parameters (Cramer, 2003; Hosmer & Lemeshow, 2000; Greenen, 1997). The MLE technique produces reliable estimates irrespective of the type of predictor variables used for regression (continuous or dummy variables).

Maximum likelihood estimation has many desirable properties, and is used for calculating logit coefficients. For observed values of predictor variables in the sample, the MLE method maximises the log likelihood function. The log likelihood function indicates how likely it is to predict values of the dependent variable of study based on observed values of the independent variables of study (the odds of $Y=1$). In addition to this, maximum likelihood estimates have several desirable properties: consistency, efficiency, asymptotic normality and invariance over continuous transformations. Logistic regression applies maximum likelihood estimation after transforming the

dependent into a logit variable. Logistic regression analysis is performed in order to predict the likelihood of business failure for known values of several independent variables that affect business failure or success.

Predictor variables that are used for binary logistic regression analysis were selected using the Pearson Chi-square test of association (Agresti, 2002). Continuous predictable variables had to be dichotomised to perform Pearson's Chi-square tests of association (Dawson & Trapp, 2004). For instance, the Pearson Chi-square test of association is used to test the null hypothesis that two factors such as social capital and survival of MSMEs are independent of each other against the alternative hypothesis that the two factors are significantly associated with each other. The Pearson chi-square test of association is used only for the screening of variables. The test becomes unreliable if the expected cell frequency in any of the cells falls below five. Moreover, by testing the strength of association between only two variables at a time, the test excludes the effects of other variables from analysis. This limitation of Pearson's chi-square test of association is the main reason why the test is used only for screening variables.

The limitation inherent in the Pearson chi-square test of association is addressed by using the more advanced logistic regression analysis. In binary logistic regression analysis, the dependent variable Y is defined as follows:

$$Y = \begin{cases} 1 & \text{if business firm has ceased to operate} \\ 0 & \text{if business firm is still operating} \end{cases}$$

Generally, the binary logistic regression of a dichotomous outcome variable Y on a combination of k discrete and continuous independent variables X_1, X_2, \dots, X_k is defined by the following logit function:

$$\log it(p_i) = \ln\left(\frac{p_i}{1-p_i}\right) = \hat{\beta}_0 + \hat{\beta}_1 X_1 + \dots + \hat{\beta}_k X_k \dots \dots \dots \text{Eqn(1)}$$

The probability that a business firm in the study ceases to operate is given by the following statistical expression:

$$\Pr(Y = 1) = \frac{1}{1 + \exp(-Z)} \dots\dots\dots \text{Eqn (2)}$$

where

$$Z = \hat{\beta}_0 + \hat{\beta}_1 X_1 + \dots\dots\dots + \hat{\beta}_p X_k \dots\dots\dots \text{Eqn (3)}$$

Using Eqn (3), the probability of Y=1 (the probability that a firm ceases to operate, given values of the predictor variables X_1, X_2, \dots, X_k , can be worked out for any randomly identified MSME in the study.

Interpretation of odds ratios

The odds ratio corresponding to the i^{th} explanatory variable X_i is equal to $\exp(\hat{\beta}_i)$ where $\hat{\beta}_i$ denotes the estimated regression coefficient corresponding to X_i .

Case 1:

If $\hat{\beta} > 0$, then $\exp(\hat{\beta}) > 1$. In this case, the odds of Y=1 are increased by a factor of $\exp(\hat{\beta})$.

Case 2:

If $\hat{\beta} < 0$, then $\exp(\hat{\beta}) < 1$. In this case, the odds of Y=1 are decreased by a factor of $\exp(\hat{\beta})$.

Case 3:

If $\hat{\beta} = 0$, then $\exp(\hat{\beta}) = 1$. In this case, the odds of Y=1 remain unchanged.

Goodness-of-fit test for binary logistic regression analysis

The adequacy of the fitted logistic regression model is assessed by using the classification table, the likelihood ratio test and the Hosmer-Lemeshow goodness-of-fit test (Cramer, 2003; Whalen 1991). The overall percentage of correct classification is a measure of how well the estimated logistic regression model fits the data. The likelihood ratio test is used for testing the null hypothesis that the variables constituting the fitted model are collectively inefficient in accounting for variability in the outcome variable of study. A small P-value ($P < 0.05$) shows that the variables constituting the fitted model are jointly efficient. The Hosmer-Lemeshow test is used for testing the null hypothesis that there is no reason to doubt the adequacy of the fitted model. For a fairly reliable fitted logistic regression model, the percentage of overall correct classification should be at least 75% and the fitted model must be adequately sensitive (50% or above) and specific (50% or above). Sensitivity is a measure of the ability of the fitted model to accurately predict businesses that fail, $P(Y=1)$. Specificity is a measure of the ability of the fitted model to accurately predict businesses that succeed, $P(Y=0)$. The P-value from the likelihood ratio test must be less than 0.05, and the P-value from the Hosmer-Lemeshow goodness-of-fit test must be greater than 0.05.

5.3.2 Survival analysis

The purpose of survival analysis (panel data analysis) is to identify factors that strongly affect the long-term survival of business firms in the study. Survival analysis is analogous to logistic regression analysis but follows a longitudinal or follow-up study design. Survival data analysis is performed by using the Cox proportional hazards model using the duration of operation of MSMEs as survival time (T) and the variable δ as an indicator of censoring for each of the 500 MSMEs in the study. The value of δ is 1 for all MSMEs that failed (businesses that ceased operation on or before the end of the study period). The value of δ is 0 for all MSMEs that were economically viable at the end of the study period. For each of the 500 MSMEs in the study, the exact date when operation started is known. However, measurement of survival time was stopped at the end of 2001 as the study was finally concluded. This shows that the exact survival times of MSMEs

has not been measured at the right-end of the study period due to administrative censoring. For this reason, the data set is called “right censored”.

The indicator of censoring, δ , is defined as follows:

$$\delta = \begin{cases} 1 & \text{if MSME is out of business} \\ 0 & \text{otherwise} \end{cases}$$

Survival analysis is suitable for comparing survivors and non-survivors as some of the MSMEs were still operational at the end of 2001 (the date when the data collection procedure was completed). MSMEs that were still functional at the end of 2001 are called “censored” observations. Censored observations are analysed using the Cox proportional hazards model (Cleves, Gould & Gutierrez, 2004; Kleinbaum, 1996; Lane et al., 1986). Using hazard ratios, failure and survival rates were obtained for several predictor variables that affect survival of business. The two groups of MSMEs in the study (those that were financially viable and those that were not) were compared using Kaplan-Meier survival probabilities.

5.3.2.1 Kaplan-Meier survival probabilities

Kaplan-Meier survival probability is a method of estimating the duration before the occurrence of an event such as failure. It is possible to distinguish businesses that survive long from businesses that survive briefly on the basis of Kaplan-Meier survival probabilities, hazard probability curves, survival probability curves, life tables and hazard ratios (Braga, Bressan, Colosimo, Bressan, 2006; Kleinbaum, 1996). The Kaplan-Meier survival probability curve is often illustrated graphically and compares the survival probability curves of two or more groups. In this study, Kaplan-Meier survival probability curves were used to compare the duration of survival of firms that used social capital with firms that did not. For firms that failed, survival time was measured from the date of establishment of the business up to the date of the business’ ultimate collapse. For firms that were still operational at the end of 2001 (censored observations), survival time was measured as the difference between their date of establishment and the end of 2001.

Businesses that survive long are characterised by large probabilities of survival while businesses that survive briefly are characterised by small probabilities of survival.

The log-rank test

Different categories of MSMEs have different probabilities of survival. The log-rank test (Kleinbaum, 1996) is used to compare successful and unsuccessful businesses with regard to important variables of study. The null hypothesis states that successful businesses are similar to unsuccessful businesses with regard to the variable of comparison. The alternative hypothesis states that successful and unsuccessful businesses differ from each other with regard to the variable of comparison. At the 5% level of significance, the null hypothesis is rejected if the P-value falls below 0.05. Otherwise, it is accepted at the same level of significance.

For example, it is possible to compare the chances of survival of businesses that participate in iqqub schemes with businesses that do not participate in iqqub schemes by using the log-rank test. The null hypothesis states that businesses that participate in iqqub schemes have the same probability of survival as businesses that do not participate in iqqub schemes. The alternative hypothesis states that businesses that participate in iqqub schemes do not have the same probability of survival as businesses that do not participate in iqqub schemes.

5.3.2.2 The Cox Proportional Hazards Model

In econometric studies, the most popular method of estimating hazard ratios is the Cox proportional hazards model (Cleves, Gould & Gutierrez, 2004; Lane et al., 1986; Whalen, 1991). This model helps to identify variables that strongly affect the survival of business firms through estimating hazard ratios for each independent variable included in the model. In the process, it generates a list of the most influential predictor variables that affect the survival or failure a firm. The model assumes that the magnitude of the hazard function associated with the Cox model is a constant during the entire period of study, and that it does not vary as a function of time. The extended Cox regression model can be

used for the estimation of survival probabilities and hazard ratios in situations where the predictor variables are a combination of fixed and time varying covariates. This combined model has strong appeal for economists interested in measuring survival probabilities of business firms like the ones used in this particular study.

In this study, a total of 19 predictor variables that strongly affect the survival of business firms were used for survival analysis. These variables were selected from among 112 variables based on Pearson's chi-square tests of association and binary logistic regression analysis with stepwise backward elimination as screening procedures. Although the odds ratios obtained from logistic regression are analogous to the hazard ratios obtained from Cox regression, results from survival analysis are more informative and reliable than corresponding results obtained from binary logistic regression analysis. This is mostly because Cox regression takes censored observations into account, whereas logistic regression disregards survival times of business firms. In econometric modelling, disregarding survival times constitutes a major limitation. Survival analysis is a suitable tool for identifying a handful of predictor variables (five or fewer) that most strongly influence the long-term survival of businesses. Hazard ratios are estimated for each predictor variable in the model. Identifying five or fewer highly influential predictor variables simplifies the task of interpreting results of analysis. It also makes recommendations and intervention significantly easier.

The hazard ratio is defined as the hazard for group 1 (businesses that fail) divided by the hazard for group 2 (businesses that survive). The two groups being compared can be distinguished by their values for the set of predictor variables, or the X's. For a predictor variable with values of (1, 0), the hazard ratio is estimated by $\exp(\hat{\beta})$.

The proportional hazards assumption of the Cox model is tested using log-minus-log plots. If log-minus-log curves are parallel, the proportional hazards assumption is said to be satisfied. If the curves cross each other, the proportional hazards assumption is said to be violated. The proportional hazards assumption must be satisfied for the fitted Cox regression model to be reliable (Appendix 6 shows mathematical expressions for the Cox Proportional Hazards Model).

5.4 Summary

Several studies based on descriptive and cross-sectional study designs have been conducted on small businesses and enterprises in Ethiopia. While such studies have pointed out a few factors that adversely affect the MSME sector, findings from such studies were not reliable enough for identifying key determinants of long-term survival in MSMEs. In contrast to previous studies, the current study is based on a longitudinal study design in which robust econometric methods such as the Cox proportional hazards model have been used for the estimation of highly reliable econometric measures of effect such as hazard ratios. Binary logistic analysis was used for the estimation of odds ratios. The technique is based on the regression of a dichotomous dependent or outcome variable of study on factors that affect survival. Subsequent analysis was performed using Cox regression on key predictors identified on the basis of binary logistic regression analysis. This shows that binary logistic regression analysis is, in effect, used for screening of variables only. Hazard ratios estimated from Cox regression are theoretically more highly reliable than odds ratios estimated from logistic regression.

In econometric studies, the most popular method of estimating hazard ratios is the Cox proportional hazards model. The Cox proportional hazards model estimates hazard ratios for each independent variable of study included in the model. One of the advantages of the Cox Proportional Hazards Model is that it does not require several assumptions about the distributional properties of the data being used for analysis. The extended Cox regression model accounts for censored observations, as well as time-varying covariates, in addition to doing what other models do. Results from Cox regression are theoretically more reliable than results from logit or probit models. In this study, Pearson's chi-square tests of association and binary logistic regression were used mostly for screening of variables. Major findings of this study are based on results obtained from Cox regression. Standard diagnostic procedures were used for assessing the reliability of all fitted models.

Chapter 6: Data Analysis and Synthesis of Results

6.1 Introduction

In Ethiopia, as the descriptive analyses have demonstrated in previous chapters, many MSMEs participate in social networks in order to alleviate some of their constraints and to expand their business operations. Therefore linking social capital with other factors such as internal efficiency, micro credit and the macro environment within which they operate, explains the survival differentials of firms much better. Participation in iqqub schemes is one of the factors that positively enhance the performance and resilience of MSMEs through alleviating the financial and non-financial constraints of the sector. The schemes follow typical social capital principles, and serve as a source of mutual cooperation among small firms. This chapter presents results obtained from descriptive statistics, Pearson's chi-square tests of association, binary logistic regression analysis and survival analysis. Data analysis was performed by means of the statistical package STATA Version 8. Overall, the analysis was conducted within the framework of a hazard duration estimation model.

The rest of this chapter is organised as follows: In the first section results from descriptive statistics such as frequency tables, summary statistics and Pearson's chi-square tests of association are presented. This is followed by results from binary logistic regression analysis and influential factors that affect the economic viability of MSMEs are identified. The third section presents results from survival analysis (Kaplan-Meier survival probabilities and the Cox proportional hazards model). In the second and third sections, statistical results are supplemented by goodness-of-fit tests that are used for assessing the reliability of estimated results. Finally, a summary of major findings of the study will be presented.

6.2 Descriptive statistics

6.2.1 Micro profile of MSMEs in the sample at firm level

The MSME sector constitutes the bulk of economic activities in Ethiopia, and plays a critical role in job creation, income generation and the alleviation of poverty. However, the degree to which the sector contributes to overall economic growth is dependent on the provision of adequate support to the sector. In this study, a closer look at the sector indicates that MSMEs in Ethiopia cover a wide range of business activities that are generally classified into four major categories (manufacturing, wholesale and retail trading, construction, and service sector activities). In this study, the service sector represents the majority (46.4%) of MSMEs, followed by the retail trading sector (40.0%), the manufacturing sector (9.2%), and the construction sector (4.4 %).

If firm size is measured on the basis of the number of employees and/or capital turnover, the majority of MSMEs in the sample fall under the small enterprises category. Micro enterprises account for 21.2% of all businesses, whereas small and medium enterprises account for 72.8% and 6% of businesses respectively. The relative share of employment of the sector shows that micro, small and medium firms account for 14.4%, 71.8% and 13.8% of employees respectively. This indicates that micro and medium enterprises jointly account for less than half (28.2%) of all jobs created, while the lion's share (71.8%) of employment opportunities is created by small enterprises. According to Belay (2000), 98% of business firms in Ethiopia are micro and small enterprises, of which small enterprises represent 65% of all businesses. The literature shows that the majority of new jobs created in small enterprises in most developing countries are produced by new start-ups, with the remainder coming from the expansion of existing firms (Paloma & Sergio, 2006). In this study, 91.4% of firms employed less than 10 employees (including non-salaried family support workers), and 83% of firms were managed by owners. In the case of start-up firms, 53% began as a one-person enterprise or self-employment enterprises. Only 42.3% of these firms grew sufficiently to employ at least one or more workers during the study period.

During the study period, 21.2% and 4.3% of jobs were lost due to the closure of 18.6% of firms and the reduction of workers in surviving firms respectively. On average, two jobs were lost per establishment. However, despite the job loss, the firms in the study created 1, 937 net employment opportunities during the period 1996 to 2001. With such a small increase in net jobs in relation to the current high unemployment rate of 23%, the employment goal of the sector can only be achieved if there is recognition on the part of the government that the sector needs a suitable promotional policy and practical support in terms of fulfilling the basic needs of the sector.

In terms of paid-up capital, 67.4% of manufacturing businesses, 76.5% of trading businesses, 82.7% of service providers and 88% of construction firms fall under the small-sized enterprise category. Table 6.1, below, shows that only 2.17% of manufacturing firms and 0.43% of service providers belong to the medium-sized enterprises category. The fact that the majority of enterprises in this sample are micro and small enterprises shows that firms find it difficult to grow to the next, higher level. The World Bank (2004) and Gebeyehu and Assefa (2004) have reported that small enterprises are usually more heavily regulated in terms of policy in poor countries such as Ethiopia, which is the major obstacle to their growth and expansion. According to the World Bank (2004), the heavy regulatory burden on MSMEs results in one of two options: compliance with regulation or operating in the informal sector. However, neither of the two options is strategically beneficial for small businesses and enterprises, as both options fail to meet the basic needs and requirements of small firms. Over-regulated enterprises that start out with very little capital and inadequate resources find it notably difficult to expand and employ more workers. In view of the fact that MSMEs in Ethiopia are over-regulated and under-resourced, compliance with existing regulations does not provide MSMEs with competitive market conditions, a critical requirement for long-term survival. The second option of operating in the informal sector denies MSMEs access to benefits from formal money-lending institutions such as commercial banks, business-related training, technical assistance and suitable business premises.

Alemayehu (2006) and Wole (2004) have shown that firm dynamics in Ethiopia are largely constrained through lack of resources such as access to finance on favourable terms and rates. In addition to this, firm owners lack the necessary business and managerial skills to run business effectively. The number of medium enterprises in the sample is small, and this is consistent with the fact that the proportion of medium-sized enterprises in the country is also small, due to a wide array of personal, firm and external factors. The availability of opportunities such as good government policy, suitable market opportunities, technology, human capital and motivation of the owner influences firm growth. The literature indicates that MSMEs are not simply scaled down, but that they have characteristics that are different from those of large enterprises (Wole, 2004; Audretsch, 1991).

Table 6.1: Sector composition of MSMEs included in study (%)

| Activities | Micro (%) | Small (%) | Medium (%) | Total |
|---------------|-----------|-----------|------------|-------|
| Manufacturing | 30.4 | 67.46 | 2.14 | 100 |
| Retail | 22.58 | 77.42 | 0 | 100 |
| Service | 16.0 | 83.57 | 0.43 | 100 |
| Construction | 11.02 | 88.98 | 0 | 100 |
| Others | 20.0 | 0 | 0 | 100 |

The majority of failed firms in this study were in the early stages of development, with 50.6% of failed businesses ceasing to operate before their 3rd birthday, 89.3% of failed businesses ceasing operations before their 7th birthday, and 98.0% of failed businesses ceasing operations before their 10th birthday. Of all firms, 72% were in operation for less than 10 years, while 23% of firms had been in operation for between 10 and 20 years in 1996, at the time when this study was started. Only 5% of firms in this survey had been in operation for more than 20 years. One possible reason for the lengthy survival of these firms is that they were able to adapt themselves to changing market conditions and a changing business environment by virtue of being highly efficient. Only 37.4% of firms started as micro enterprises and migrated upwards to the size of small-scale enterprises. Only 9.2% of firms have down-sized since their start. The majority (53.4%) of firms

remained in the same category of firm size in which they started business. This fact indicates that small enterprises do not necessarily need to increase in size in order to remain in business. The majority of enterprises that ceased operation were in their early stages of development, and this shows that they lacked the ability to successfully compete against well established firms during their early stages of operation. Various factors contribute to the failure of newly established firms, but the key factor responsible for the demise of such firms is lack of access to finance (Chemeda, 2004; Tegene, 2004). This study shows that almost all small firms that went out of business started operation with insufficient working capital, and failed to gain access to finance from formal money-lending institutions such as commercial banks.

Table 6.2, below, shows the distribution of failed businesses by sector and duration of operation. This study shows that firms in the manufacturing and service sectors have the highest infant failure rate compared with other sectors. Firms in the construction and retail sectors have survived better in comparison with the other two sectors, with 4.54% of firms in construction, 17.5% of firms in retail, 20.25% of firms in service, and 21.73% of firms in manufacturing having failed during the six-year-long period of study. It was found that the rate of failure decreases with the age of the firm and duration of operation. For instance, 9.91% of service sector firms ceased operation during the first three years of operation, and only 2.15% of firms in the same sector ceased operation after seven years of operation. Similarly, in the manufacturing sector, 13.04% of firms failed before their 3rd year of operation, while only 2.71% of them ceased operation after seven years of operation. This indicates that, irrespective of differences in sector, new entrant firms in all sectors find it difficult to compete and survive through the first three years of operation. According to Chemeda (2004), Ethiopia has no solid entrepreneurial culture due to the unproductive educational system of the country and other constraints. Lack of proper support in terms of policy and marketing, inefficient production systems and poor quality of outputs, and ineffective business management reflect a low level of entrepreneurial practice, and this limitation is responsible for the high infant failure rate in Ethiopian MSMEs. Chemeda (2004) has pointed out that, although many African countries have attempted to set out small enterprise development initiatives on paper,

they have failed to implement them comprehensively and systematically enough to create vibrant MSME sectors in their economies. Part of the problem is that most of the policies in place are designed to support institutions rather than the MSME sector.

Table 6.2: Proportion of failed firms by sector and duration of operation

| Years in operation | Service (%) | Retail (%) | Manufacturing (%) | Construction (%) | Total failed firms (%) |
|--------------------|-------------|------------|-------------------|------------------|------------------------|
| Less than 3 years | 23(9.91) | 18 (9.0) | 6 (13.04) | 1 (4.54) | 48 (51.6) |
| 4 to 6 years | 19(8.18) | 14 (7.0) | 3 (6.52) | 0 (0) | 36 (38.7) |
| 7 years & above | 5 (2.15) | 3 (1.5) | 1 (2.17) | 0 (0) | 9 (9.7) |
| Sector total | 47(20.3) | 35(17.5) | 10 (21.73) | 1 (4.54) | 93 (100) |

6.2.1.1 Human capital characteristics of entrepreneurs

6.2.1.1. i Gender

The MSME sector provides employment and income opportunities to a sizeable proportion of the population. In this study the proportion of women entrepreneurs remains low in relation to male entrepreneurs. Female entrepreneurs account for 40.1% of MSMEs while male entrepreneurs account for 59.9%. Out of the 75.4% of women entrepreneurs involved with micro enterprise activities, 16.5% work from home. By contrast, only 32.6% of male entrepreneurs operate in micro-sized enterprises and only 6.4% of them work from home. In this study, the participation of women entrepreneurs in small and medium enterprises is low (24.6%), compared to 67.4% for their male counterparts. According to Gebeyehu and Assefa (2004), citing a study by the World Bank, the majority (70%) of businesses in the informal sector and micro enterprises are operated by women. In Ethiopia 65% of all micro enterprises owned and operated by women entrepreneur (Meles, 2004). Analysis of the marital status of women entrepreneurs shows that 50.1% of the women are married, 36.1% of them are single, and the remaining 13.8% are divorced, widowed or live together with male partners. The fact that women entrepreneurs participate in various business activities to secure their

livelihood regardless of marital status shows that MSMEs could be used for empowering women economically in Ethiopia.

The majority of women operate in less profitable micro enterprises, and this suggests that women face relatively more constraints than their male counterparts in terms of establishing, running and expanding businesses. According to Aregash (2005) and Mogues (2004), women are more disadvantaged than men, due to culture, religion and tradition. Women entrepreneurs face difficulty in raising credit finance from banks and borrowing via informal networking. The survey shows that female-headed firms started their businesses with an average capital of \$2,115 while male-headed businesses started businesses with an average capital of \$3,161. On average 5.5%, 10.5%, 10.5% and 7% of female-headed enterprises managed to get credit from banks, microfinance, iqqub schemes and personal donations respectively. The corresponding figures for male-headed firms were 12.7%, 8.4%, 13.7% and 4.6% respectively. This testifies to the fact that, although the gender-repressive 1960 Civil Code of Ethiopia has been replaced by the more progressive 1987 Civil Code, harmful traditional practices and gender discrimination are still practiced in various forms such as family laws, property ownership, and the assessment of applications for finance and personal loans from money lending institutions.

There is further differentiation between males and females in terms of prior work experience useful for starting and running businesses. In this study, male entrepreneurs on average have had at least twice as much prior work experience as women entrepreneurs. Hence it could be assumed that under-funding and lack of prior work experience in the sector have adversely affected the participation of women in small and medium enterprise activities, as well as their overall performance in the MSME sector. The simple proof is that female-headed enterprises have experienced a relatively higher percentage (58.20%) of failure than male-headed enterprises (41.8%). Female-headed firms that ceased operation reached an average lifetime of 3.2 years, while male-headed firms that ceased operation had an average lifetime of 3.9 years.

6.2.1.1. ii Education, training, and skills of entrepreneurs

Many studies favourably associate a higher level of human capital with good business performance and growth through enhanced productivity. The majority (88.56%) of MSME owners investigated in this study have had no formal education or have not attained high school level education. Only 11.44% of respondents had completed college or university level education. The acquisition of relevant formal education, technical training, business skills or on-the-job training is generally regarded as critically important for ensuring success in MSMEs. In this study, 71.4% of the non-operational firms had owners whose education level was below the secondary level. The low proportion of entrepreneurs involved in MSME activities who had attained secondary and tertiary levels of education could be attributed to the failure of the educational system to adequately prepare young graduates for MSME-related ventures. For instance, until recently, the high school curriculum for Ethiopian schools did not provide formal training in the acquisition of the basic business and technical skills needed for promoting successful MSMEs (Chemeda, 2004; Gebeyehu & Assefa, 2004; Ermias, 2001). The curriculum has placed little emphasis on self-employment as an option in the choice of a career. In addition to this, there is also a serious shortage of trainers and training institutions that provide on-the-job training with a view to MSMEs. In most cases, training opportunities are biased in favour of large-sized enterprises. Only 6% of owners of micro enterprises and 29.7% of those involved with small firms, for instance, received two to three days of business-related training during the period of this study. According to the MTI (1997), the range of relevant training programmes made available to micro and small business is quite minimal. The lack of training institutions adequately equipped for training MSME entrepreneurs constitutes one of the key reasons for the poor performance of the MSME sector in Ethiopia (Gebeyehu & Assefa (2004).

Only 39% of owners possessed some sort of business-related skills when they started the business; 23.2% of respondents were unemployed prior to engagement in MSMEs; and 12% were students who joined the sector without prior business experience. Shortage of skills was reported as one of the serious challenges responsible for lack of efficiency in

business operations by 66.60% of the respondents and the study found that 61% of failed businesses were run by owners who had no prior relevant experience. This shows that prior experience and on-the-job-training are crucial for the survival of MSMEs.

Most MSME operators struggle because of a low level of education, poor technical training and inability to acquire on-the-job training (Paloma & Sergio, 2006). The low level of investment in research and development and failure to adapt to new technology have contributed to the poor performance of the sector.

6.2.1.2 Internal efficiency

Firms that do not utilise resources efficiently are ill-equipped to compete in competitive markets and to survive. In situations where there is lack of access to finance, the importance of past savings for current investment and growth in productivity cannot be over-emphasised. In poor countries, the internal efficiency of MSMEs can be improved dramatically by using savings for investment at firm level (Alemayehu, 2006). In this study, 68.8% of MSMEs were shown to have been working at the break-even point of operation and/or at a low level of profit since their establishment; 43.04% of failed firms reported that they were forced to close down their operations due to lack of profit; 75% and 72% of micro and small enterprises respectively mentioned lack of access to credit as the main obstacle to growth.

The efficient utilisation of scarce resources and the reduction of operational cost enable firms to increase their returns from investment. The ability to make business decisions that improve production techniques, the purchase of inputs at minimal cost, and the efficient distribution of outputs are essential for reducing transaction cost and increasing revenue. Theoretically, a state of equilibrium is reached when marginal cost is equal to marginal revenue. Profit is realised when marginal revenue exceeds marginal cost. On the other hand, when the average cost of production of a firm exceeds revenue, net loss is incurred, as a result of which the likelihood of failure increases.

According to Fortune (2003), MSMEs often collapse due to inefficiency in financial management and lack of sound business plans. A sizeable proportion of MSMEs do not have the ability to produce plans for the efficient utilisation of business credit. As a result, finance is not used optimally, and resources are often abused. Among those investigated for this study, only 21.4% of respondents had business development plans. The majority (78.6%) of MSME owners indicated that it was difficult for small businesses to produce good business plans due to lack of technical and business skills. Financial intuitions often cite the inability of business owners and operators to produce sound business plans as the reason for declining requests for loans. Asymmetric information and moral hazard are major causes for the reluctance of financial institutions to provide credit to the MSME sector. Misuse of loan money by small businesses and enterprises also constitutes a well-recognized problem in the credit market. Moral hazard in financial markets involves the risk that the borrower engages in activities that are undesirable from the lender's point of view. Only 30.4% of MSMEs in this study have managed to convert savings (at least half of their surplus profit) back into investment in order to promote growth.

6.2.2 Macro perspectives and MSMEs

6.2.2.1 Level of policy support from the State

At present, the plight of the MSME sector in Ethiopia seems to be improving, but a lot more needs to be done. There are different ways in which the State can support MSMEs, but the most meaningful one appears to be the implementation of policies adopted by the State with sufficient commitment and adequate resources. The presence of an enabling macroeconomic environment and the liberalisation of stringent regulations are directly related to macroeconomic policy, and cannot be addressed without total commitment by the State. The State, for instance, could intervene to correct failure in financial markets, promote support services in areas such as the marketing of products, the provision of training opportunities with regard to business skills, the use of modern technology, ways

and means of improving internal efficiency, record keeping, the preparation of business plans, etc., to thereby make a contribution towards sustained growth in MSMEs (Gebeyehu & Assefa, 2004).

Legal and regulatory problems were mentioned as a major obstacle for efficient operation in the sector by 74% of respondents in this study. In this regard, respondents stated that bureaucratic registration requirements, excessive policy control, over-regulation, corruption, high tariffs, unfair taxation and lack of premises were major policy-related constraints that adversely affected the sector. Moreover, 43% of respondents indicated that the free market policy has exposed them to unfair international competition, a fact that has had a significant negative impact on vastly under-prepared and under-resourced local MSMEs. Lowrey (2005) has indicated that MSMEs flourish and operate at their full potential in countries where there is good macroeconomic policy. Conversely, in countries where macroeconomic policy is not favourable, MSMEs struggle to survive, and fail to play a prominent role in the national economy. The current government of Ethiopia has pledged to support the MSME sector with the publication of a White Paper in 1997. While the White Paper can be viewed as an expression of the commitment of the government to address the chronic constraints of the sector through the use of macroeconomic policy, pledges made to the sector have not been followed up with concrete action, a failure attributed to shortage of infrastructure, financial constraint and lack of political commitment (Chemed, 2004).

6.2.2.2 Physical Infrastructure

The presence of good physical infrastructure is an important requirement for reducing operational cost and the efficient utilisation of resources. Inadequacy in physical infrastructure results in unsatisfactory performance. MSMEs in Ethiopia are exposed to numerous problems related to poor infrastructure. For instance, the poor state of roads, unreliable supply of water and electricity to businesses, shortage of telephone lines, shortage of essential raw materials, shortage of business premises, etc. are commonly experienced by local businesses and enterprises. Poor infrastructure makes local goods

and services more expensive than corresponding goods and services provided by foreign competitors. In general, poor infrastructure is a key factor responsible for the poor quality of goods and services in Ethiopia, as poor infrastructure has rendered local products less competitive, and has limited their potential for growth. The development of business premises (shops, market stands), including the supply of electricity, water, telecommunication connections, sewerage systems, etc., are crucial for the growth and expansion of MSMEs. The majority of MSME owners included in this survey have pointed out that they have been adversely affected by the lack of efficient, reliable, safe and affordable infrastructure in one way or another.

Physical infrastructure needed by MSMEs is too poorly developed in Ethiopia to meet the growing demands of MSMEs. The majority of respondents in Awassa (76%), Mekele (74%), Bahirdar (69%), Addis Ababa (64%) and Nazareth (51%) have mentioned this as a major constraint; 17.34% of failed firms have indicated that they ceased operation mainly due to poor infrastructure or problems resulting from poor infrastructure and 69.4% of firms reported that they have problems related to business premises such as an increase in house rent, lack of telephone lines, shortage of electricity supply, poor sewerage and water services, etc. More than two-thirds of MSMEs conducted business in rented premises while 12.40% of MSMEs ran businesses from home, and 16.42% of businesses rented government premises for business operations. Businesses operating from premises owned by the government have shown a relatively better chance of survival and less mobility in comparison with businesses operating from privately owned premises. Changing the physical address of a business is associated with high relocation costs, inaccessibility to roads and utilities and frequently causes frustration to customers. Small businesses, however, are frequently faced with relocation and suffer enormously in consequence of this.

6.2.2.3 Marketing problems

In this study, marketing problems were cited as the most severe constraint threatening the MSME sector. That they have a major problem in marketing their goods and services was indicated by 63.2% of MSMEs. Demand is low; markets seem to be saturated with

similar products and services from foreign companies. The capacity of local markets is quite limited. However, most MSMEs do not seek new possibilities and opportunities outside the local markets due to lack of information. This has resulted in local markets being over-crowded with similar products and services. The level of competition among local producers of goods and services is intense, and the returns are fairly low. Results from this survey reveal that 27.9% and 79.9% of failed firms reported that stiff competition from local and foreign products and lack of market access respectively were the two main reasons for closing down their businesses. A persistent decrease in sales through time was reported by 47% of micro enterprises and 38% of small enterprises. Only 17% of micro enterprises and 33% of small enterprises reported an increased volume of sales at the end of the study period. Generally, 23% of firms indicated that there was no change in their sales and income. According to Gebeyehu and Assefa (2004), MSMEs need support in terms of business skills and information in order to enter new markets.

Due to globalisation, world trade is becoming intense and is moving rapidly. Countries with rich experience and efficient production and business information are able to export products to markets where their products are needed quite efficiently. In terms of price and quality, foreign products, goods and services are generally much more competitive than local products, goods and services. At present, there is no market information centre or system that furnishes market-related information to local businesses concerning price, high demand markets, sources of inputs, specific needs of consumers (Wole, 2004). Although some local businesses can compete favourably with foreign competitors, they lack access to lucrative markets and the appropriate marketing channels. Similar problems are experienced by foreign suppliers who have the potential to satisfy the needs of local businesses, but are unable to do so due to lack of information and suitable marketing channels.

6.2.2.4 Backward and forward linkages

The key challenge faced by the MSME sector is the efficient production of high quality products that are good enough for the global market. The sector is plagued by lack of modern technology, skills, finance, raw materials and infrastructure. In this regard, linkages with local or foreign partners have potential for providing badly needed relief to the struggling sector. Linkages by which they can acquire experience and skills, access to new markets, new technology, productive information, trade credit, and other benefits are an effective mechanism for MSMEs (Borchardet, 2001; Acs & Audretsch, 1990). Linkages facilitate co-operative ventures, thereby improving competitiveness in MSMEs. This, in turn, increases the ability of local MSMEs to compete successfully in national and international markets. However, lack of experience and the effects of economic stagnation in Ethiopia have discouraged the development of such joint ventures (MTI, 1997). The study found that most (87.5%) of the firms in this study do not have any proper linkage with more successful enterprises; 85.74% of respondents did not consider lack of linkages a serious constraint, while only 14.26% of respondents considered linkage essential for development. One possible reason for the low level of linkages in Ethiopia is the low level of capacity of the MSMEs in the country.

6.2.2.5 The tax burden

Some of the laws and regulations applicable to the MSME sector in Ethiopia are quite cumbersome and out of step with the current needs and requirements of small enterprises. Over-regulation and stringent tax rules are two well-known factors that adversely affect the growth and survival of small businesses and enterprises (Gebeyehu & Assefa, 2004). This study found that 58.67% of the 500 MSMEs in the study are duly registered taxpayers, while 68.2% of taxpayers cited over-taxation as a major barrier to expansion and growth in the sector. Tax on businesses is determined arbitrarily by local authorities. The assessment of tax is by and large subjective, and has to be made objective. Findings from this study show that the amount of tax levied on MSMEs does not rigorously assess

exact turnover and the size of business firms. Even if this problem partially results from the reluctance of MSMEs to provide accurate records showing details of all transactions related to income and expenditure, the government is ultimately responsible in the sense that it rarely conducts studies using a representative sample of small businesses and enterprises based on a suitable sampling technique and systematic data collection methods with regard to the sector. The classification of MSMEs in the country is also too ambiguous to draw a representative sample of firms for a baseline assessment. As a result, the majority of MSMEs in Ethiopia suffer from heavy tax burden. The high tax imposed on MSMEs can hugely reduce the profitability of MSMEs and incapacitate their growth potential. This, in turn, prompts small businesses to lower retention of profit and rely heavily on external financing.

6.2.3 Access to credit

Lack of access to affordable credit has been ranked as the primary constraint affecting the MSME sector. In the study, 79% of MSMEs indicated getting credit finance from formal financial institutions as a key problem. Wole (2004) has pointed out that, while encouraging strides have been made in liberalising the domestic financial sector, problems around access to finance still causes a bottleneck preventing rapid growth and development of the sector. It is obvious that inadequate access to credit limits the expansion of firms, choice of technology, hiring of suitable premises and the employment of skilled personnel. This hinders their potential to adequately meet the needs of consumers. Although financial issues are important to all firms, 75% and 72% of micro and small enterprises respectively ranked lack of finance as the main reason for their failure. By the end of the study, 86% of micro firms that were functioning (survivors), 75% of small firms, and 56% of medium-sized firms reported that lack of access to finance had been a major obstacle to their growth and expansion.

Access to credit on favourable terms is essential for initiating new business ventures, fulfilling working capital requirements, and for expanding existing businesses. In this regard, formal financial institutions are reluctant to avail credit facilities to the sector. According to Alemayehu, (2006) and Chemedda (2004), the legal and policy framework

for financial services in Ethiopia is less supportive to small borrowers than it is to big borrowers because loan requirements imposed by commercial banks are outside the scope and operational realities of MSMEs. Formal financial institutions such as commercial banks are reluctant to lend small amounts of money to small businesses because the cost of administering the loan exceeds benefits that accrue to them. Results from Pearson's chi-square tests of association have shown that the source of initial start-up capital ($P=0.040$) and the amount of start-up capital ($P=0.032$) are both significantly associated with the survival of business firms. The average amount of capital required for starting up a new business was about \$3,000 (this figure actually varies with the type of firm). This study found that 21.5% of firms that started up business with low start-up capital failed before completing their 3rd year of operation, mostly due to lack of access to finance on favourable terms.

Table 6.3, below, shows the principal sources of start-up capital for the 500 small businesses and enterprises investigated in this study. A large proportion (41%) of respondents started business with their own money and 43.4% of these started business with inadequate savings. This was followed by businesses starting up with financial help from relatives and friends (18%), iqqub schemes (11.8%), microfinance institutions (9.2%), commercial banks (8%) and private money lenders (7.2%). This indicates that, even if iqqub schemes are not a major source of start-up capital, their contribution is quite significant. According to Wole (2004), the high rate of interest imposed by microfinance institutions (which is higher than the lending rate of formal banks) and the small size of a loan (a maximum of 5000 birr = 400 USD) offered to applicants inhibit the effectiveness of microfinance institutions in addressing the financial needs of MSMEs. According to the Ethiopian Microfinance Institutions Development Review (AEMFI, 2004), the existing 21 MFIs have only managed to meet 10% of the demand from MSMEs, in spite of the fact that addressing the issue of financing the poor through the instrument of microfinance has demonstrated significant expansion since the mid 1990s. This clearly shows that MFIs are unable to meet the credit demands of small businesses and enterprises in Ethiopia adequately.

| Source | Micro | Small | Medium | Total (%) |
|--------|-------|-------|--------|-----------|
|--------|-------|-------|--------|-----------|

| | | | | |
|--------------------------------------|-------|-------|------|------|
| Banks | 1.9 | 14.8 | 33.7 | 8 |
| Microfinance | 17 | 7.4 | 3.3 | 9.2 |
| Iqqub schemes (social network) | 24.5 | 31.3 | 30.0 | 19.8 |
| Own saving | 40.6 | 36.6 | 19.3 | 41 |
| Donation | 5.7 | 3.0 | 13.7 | 4.8 |
| Moneylenders | 10.4 | 6.9 | 3.3 | 7.2 |
| Sector share out of the total sample | 21.2% | 72.8% | 6.0% | 100% |

Table 6.3: Principal source of initial capital of MSMEs

6.2.4 Social capital

6.2.4.1 Social network and family support

The use of formal financial credit by the majority of MSMEs is extremely limited. A large number (79%) of MSME owners reported that they were unable to secure loans from formal money lending institutions such as commercial banks. Due to lack of access to credit, the majority of small enterprises start business being small, due to liquidity constraints. The theoretical argument relevant to liquidity constraints experienced by new firms was introduced by Stiglitz and Weiss (1981). Small enterprises rely heavily on informal networks, linkages, and trust relationships to facilitate cooperation among fellow members of a group, and to mobilise financial and non-financial resources for mutual benefit. In credit markets, small enterprises use social capital as a substitution for physical collateral. This is because small enterprises are unable to raise physical collateral. This study found that 24.5%, 31.3% and 30% of micro, small and medium enterprises respectively raised their start-up capital from iqqub schemes. The proportion of micro and small enterprises that ever received loans from banks and MFIs is very small (Table 6.2 shows details). This indicates that social networks are very important to MSMEs in terms of alleviating their financial needs in Ethiopia. In this study, more than half (64%) of small businesses were able to raise money from iqqub schemes at least twice; 30.8% of them raised money from iqqub schemes more than four times during the

6-year study. In the same period 36% of MSMEs settled their debt by using money raised from iqqub schemes at least once. The majority (67%) of participants reported that iqqub schemes were the most popular source of finance as they charged no interest and transaction cost, were easily accessible, and secured additional social and knowledge-based benefits.

Table 6.4, below, shows that participants in iqqub schemes that raised money from the schemes at least four times during the study period were significantly protected from failure at a relative risk of 0.152, compared to non-users and occasional users (those owners who raised finance through iqqub schemes less than twice during the study period) who only used iqqub schemes in less than two instances during the 6-year study period. The study shows that the risk of failure among regular participants in iqqub schemes is six times less than the risk of failure among non-participants and occasional participants in iqqub schemes. Therefore, participating in iqqub schemes has indeed been crucially helpful for small businesses. Most of the successful businessmen and businesswomen in Ethiopia have benefited from participation in iqqub schemes (social capital) in the past. In view of the huge potential of iqqub schemes for mobilising credits and savings in a cost-effective way, it is logical to conclude that savings from iqqub schemes have potential for enhancing the performance and survival of MSMEs.

Table 6.4: Extent of use of iqqub schemes (social capital) and survival of firms

| Use of iqqub schemes | Number of failed firms | Number of survived firms | Total |
|---|------------------------|--------------------------|-------|
| Regular use of iqqub schemes | 6 | 148 | 154 |
| Non-users and occasional users (used iqqub <2 times) | 45 | 135 | 180 |
| Total | 93 | 407 | 500 |

Relative risk = 0.152; P-value = 0.002

6.2.4.2 Labour support from family members

The survey shows that labour support from family members in small enterprises is a vital resource. Immediate family members and people related to owners and/or managers of businesses provide labour support to businesses. Money is not a priority for such people as they regard themselves as part of the business. In so doing, they play a significant role in reducing operational cost and promoting the economic viability of businesses. Free/low paid family labour was used in 69% of micro enterprises and 54% of small enterprises investigated in this study. According to Marshal (2005), small enterprises use strategies that minimise the reward for labour, or else employ cheap labour from categories of workers such as children, women and immigrants. They also exploit workers by extending working hours. Soliciting cost-free services and support from family members and relatives has a huge impact on networking with ease at start-up, the effective utilisation of resources, skills development and the accumulation of human capital. In most cases, utilisation of family members provides a two-fold benefit to MSMEs: It promotes skills development and employment opportunities while contributing to the overall returns of the firm by reducing operational cost, although some profit is shared in rare cases. The main benefit of engaging in a family-owned business is the acquisition of vital business skills that could be used for operating similar businesses at a later stage when the opportunity arises. Small businesses often remain within families. Hence, the acquisition of business and managerial skills is valuable to the family members. Family members also often take over well established businesses as successors, and such business and managerial skills become an essential requirement for potential successors.

6.3 Results from binary logistic regression analysis

Binary logistic regression analysis was used to perform the regression of a dichotomous outcome variable on 19 dichotomous predictor variables (Appendix 5 shows the list of all variables used for binary logistic regression analysis). The outcome or dependent variable of study has only two possible outcomes (1 if business failed, 0 otherwise). Businesses

that failed during the study period are referred to as “failed” businesses. Businesses that were still operational constituted the second category of the outcome variable of study. The status of operation of a business firm has two possible values (1 or 0). The value 1 indicates that the business has failed or ceased operation. The value 0 indicates that the business was still operational. Results obtained from binary logistic regression analysis are shown below in Table 6.5

Table 6.5: Estimates obtained from binary logistic regression analysis

| Dependent Variable : Status of operation of firms (1, 0) | | | |
|---|-------------------|----------------|--------------------------------|
| Variables | Odds Ratio | P-value | 95% Confidence Interval |
| Education | 4.10 | 0.005 | 1.54 - 10.91 |
| Start-up capital | 2.98 | 0.018 | 1.95 - 4.12 |
| Competition | 2.10 | 0.117 | 0.83 - 5.29 |
| Investment | 6.80 | 0.000 | 2.36 - 9.56 |
| Management | 4.17 | 0.000 | 1.87 - 9.30 |
| Iqqub schemes | 5.96 | 0.014 | 3.04 - 8.10 |
| Profit | 4.49 | 0.000 | 2.12 - 9.49 |
| Bankrupt | 6.75 | 0.000 | 2.94 - 8.49 |
| Business type | 0.62 | 0.182 | 0.31 - 1.25 |
| Family labour contribution | 1.05 | 0.891 | 0.53 - 2.08 |
| Enabling environment | 2.08 | 0.036 | 1.95 - 4.55 |
| Institutional support | 1.02 | 0.968 | 0.49 - 2.10 |
| MFI credit | 1.12 | 0.071 | 3.45 - 4.75 |
| Access to market | 0.87 | 0.711 | 0.40 - 1.85 |
| Linkages | 0.22 | 0.197 | 0.02 - 2.20 |
| Customers | 0.73 | 0.544 | 0.26 - 2.04 |
| Inputs | 0.60 | 0.197 | 0.27 - 1.31 |
| Premises location | 4.72 | 0.000 | 2.35 - 9.49 |
| Plan | 1.87 | 0.185 | 0.74 - 4.73 |
| Number of observations | 489 | | |
| Adjusted R-Square | 0.7774 | | |
| Prob > chi2 | 0.0000 | | |
| LR chi2(19) | 212.81 | | |

In binary logistic regression analysis, influential predictor variables are characterised by odds ratios that are significantly different from 1; 95% confidence intervals of odds ratios

that do not contain 1; and P-values that are smaller than 0.05, at the 5% level of significance. Accordingly, 9 of the 19 variables used for logistic regression analysis are highly influential over survival. These 9 influential predictor variables are: investment, bankrupt, iqub, profit, business location, management, education, enabling environment, and start up capital, in a decreasing order of strength.

Being a client of an MFI credit institution was also an influential predictor variable on the survival of MSMEs at the 10% level of significance. According to the Association of Ethiopian Microfinance Institutions (AEMFI) (2000), the development of microfinance institutions in Ethiopia started very recently with the publication of Proclamation Number 40/1996, which legalises the establishment of microfinance institutions. However the microfinance industry in Ethiopia experiences constraints such as poor communication and infrastructure, weak legal systems, a poor banking sector and lack of technical capacity. Findings from the Microstart Project conducted by the United Nations Development Program (UNDP) (1999) shows that there are about six million economically active, needy people in Ethiopia who stand to benefit from services provided by microfinance institutions, and that only 8.3% of them have managed to secure loans from microfinance institutions. In addition to this, the microfinance institutions in Ethiopia are inadequately resourced, and cannot meet the diverse financial needs and demands of all potential beneficiaries in the country. The institutions provide small amounts of loans under rather stringent repayment conditions and relatively higher interest rates. Variables that are insignificant at the 5% level in Table 6.4 are potential confounding or effect-modifying variables that could distort interpretation of influential variables that affect survival.

Interpretation of odds ratios

The most influential independent variable over the survival of a business firm is the variable conversion. It has an estimated odds ratio of 6.80; a 95% confidence interval of (2.36, 9.56); and a P-value of 0.000. Experience of bankruptcy is the second influential variable with an odds ratio of 6.75 and a P-value of 0.000. Participation in iqub schemes

is the 3rd influential variable with an odds ratio of 6.0 and a P-value of 0.014. Interpretation is given for each significant odds ratio as shown below:

- (1) The odds ratio of the variable investment is 6.80. This indicates that the odds (risk) of failure of a business firm that converts to investment less than half of its profits (category 1 of conversion) are 6.80 times higher in comparison with a business that converts at least half of its surplus to investment (category 0 of conversion).
- (2) The odds ratio of the variable bankrupt is 6.75. This indicates that the odds of failure of a business firm that has experienced bankruptcy are 6.75 times higher in comparison with a business firm that has not experienced bankruptcy.
- (3) The odds ratio of the variable iqqu is 6.0. This indicates that the odds of failure of a business firm whose owner does not participate in an iqqu scheme regularly are 6.0 times higher in comparison with a business firm whose owner participates in an iqqu scheme regularly. In the binary regression result the fact that both investment and iqqu are among the top three influential variables of survival shows that participation in iqqu schemes (social capital) promotes the dynamism of MSMEs through enhancing own savings, the conversion of profits into investment and the provision of interest-free credit to members of the scheme.
- (4) The odds ratio of the variable profit is 4.49. This indicates that the odds of failure of a business firm whose profit is below breakeven point are 4.49 times higher in comparison with the odds of a business firm whose profit is above breakeven point.
- (5) The odds ratio of the variable business premises location is 4.72. This indicates that the odds of failure of a business firm whose location is not strategic enough is 4.72 times higher than that of a business whose location is strategic enough or conducive to business success.

- (6) The odds ratio of the variable business managing skill is 4.17. This indicates that the odds of failure of a business firm whose owner lacks business or managerial skills are 4.17 times higher in comparison with the odds of failure of a business whose owner has adequate managerial skills.
- (7) The odds ratio of the variable education is 4.10. This indicates that the odds of failure of a business firm whose owner lacks formal education are 4.10 times higher in comparison with the odds of failure of a business whose owner has adequate formal education.
- (8) The odds ratio of the variable business enabling environment is 2.08. This indicates that the odds of failure of a business firm that is operated in an unfavourable economic environment are 2.08 times higher in comparison with the odds of failure of a business that is operated in an enabling economic environment.
- (9) The odds ratio of the variable start-up capital is 2.98. This indicates that the odds of failure of a business firm whose start-up capital is below average for the sector are 2.98 times higher in comparison with the odds of failure of a business whose start-up capital is at least the average for the sector.

Diagnostic measures for binary logistic regression analysis

The adequacy of the fitted logistic regression model is assessed using the following methods: the classification table, sensitivity and specificity tests, the likelihood ratio test and the Hosmer-Lemeshow goodness-of-fit test.

The classification table

The classification table is used to compare the degree of discrepancy between predicted and actual values. Reliable fitted models are characterised by low discrepancy between the number of predicted and actual values, and an overall percentage of correct

classification of 75% or above. Table 6.6 shows the classification table obtained from binary logistic regression analysis. The table shows that 53 non-survivors (failed businesses) and 298 survivors (successful businesses) were accurately classified by the fitted logistic regression model, whereas 40 non-survivors and 20 survivors were misclassified by the same fitted model. The overall percentage of correct classification was 85.40%, a figure that is well above 75%. This shows that the fitted binary logistic regression model is highly reliable, and that it is good enough for making predictions.

Table 6.6: Classification table for estimated binary logistic regression model

| Measure of predictive reliability | Actual number of failures | Actual number of survivors | Total |
|--|----------------------------------|-----------------------------------|--------------|
| Predicted number of failures | 53 | 20 | 73 |
| Predicted number of survivors | 40 | 298 | 338 |
| Total | 93 | 318 | 411 |
| Overall percentage of correct classification | | | 85.40% |
| Percentage sensitivity | | | 56.99% |
| Percentage specificity | | | 93.71% |

Sensitivity is a measure of the ability of the fitted model to accurately predict MSMEs that are not financially viable (failed businesses). Specificity is a measure of the ability of the fitted model to accurately predict MSMEs that are financially viable as successful MSMEs. The fitted model is moderately sensitive (56.99%) but highly specific (93.71%).

The likelihood ratio test and the proportion of explained variation

The P-value from the likelihood ratio test is equal to $0.0000 < 0.05$. This shows that the 19 predictor variables constituting the fitted logistic regression model were jointly efficient in explaining the survival or failure of the 500 small businesses and enterprises in the study. The proportion of explained variation by the fitted model was equal to 77.74%. This figure is above 75%, and shows that the fitted model is reliable.

The Hosmer-Lemeshow goodness-of-fit test

Logistic model for died, goodness-of-fit test

```
number of observations =      411
number of covariate patterns =    337
Pearson chi2(320) =      232.10
Prob > chi2 =      0.1909
```

The P-value from the Hosmer-Lemeshow goodness-of-fit test was $0.1909 > 0.05$. This P-value is above 0.05. Hence, there is no reason for doubting the adequacy of the fitted logistic regression model at the 5% level of significance.

6.4 Survival analysis

6.4.1 The Cox proportional hazards model

Panel data (survival) analysis was done using the Cox proportional hazards model. Survival time was measured based on the duration of operation of the 500 MSMEs in the study. Businesses that were still operating at the end of the study are referred to as censored observations due to the fact that their actual survival times have not been measured. Businesses that were out of business at the end of the study are referred to failed businesses. The exact survival times of all failed businesses have been measured. Cox regression was performed by regressing survival time on 19 key predictor variables that affect the viability and long-term survival of MSMEs. The key outputs from Cox regression are estimated hazard ratios.

Descriptive measures of survival

\bar{T} and \bar{h} measured the average survival time and the average hazard rate of the 500 businesses in the study respectively. Total survival time (person time) was the sum total

of the durations of survival of the 500 businesses in the study. The total duration of survival of the 500 businesses in the study was equal to 3537 years. Number of failures is the number of businesses that failed during the study period. During the 6-year study period, 93 businesses failed. These figures are used below for the calculation of average survival time and average hazard rate. The average hazard rate is the same as the incidence rate of failure.

Average survival time

$$\bar{T} = \frac{\sum_{i=1}^n t_i}{n} = \frac{\text{Total survival time}}{\text{number of MSMEs}} = \frac{3537}{500} = 7.08 \text{ years}$$

The average survival time of the 500 MSMEs in the study was calculated as 7.08 years.

Average hazard rate (incidence rate of failure)

$$\bar{h} = \frac{\text{number of failures}}{\sum_{i=1}^n t_i} = \frac{93}{3537} = 0.0262935$$

The incidence rate of failure of the 500 MSMEs in the study was 0.0262935 or 2.63%.

Table 6.7: Incidence rate of failure by region

| Region | Time at risk | Incidence rate | No of subjects |
|-------------|--------------|----------------|----------------|
| Addis Ababa | 661 | .0287443 | 100 |
| Awassa | 795 | .0213836 | 99 |
| Baherdar | 667 | .0314843 | 100 |
| Mekele | 777 | .019305 | 100 |
| Nazareth | 637 | .032967 | 100 |
| Total | 3537 | .262935 | 499 |

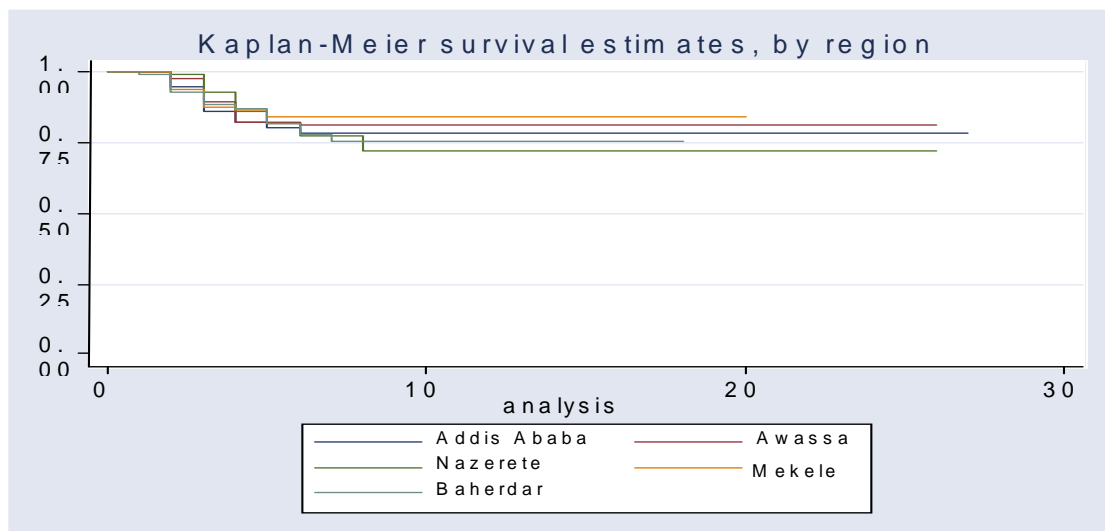
Table 6.7, above, shows the incidence rate of failure by region. The table shows that businesses in Mekele had the lowest incidence of failure (0.019 = 1.9%) while businesses

in Nazareth had the highest incidence of failure ($0.033 = 3.3\%$). The relatively high failure rate of businesses in Nazareth could be associated with the high rate of involvement of businesses in the black market or informal businesses in an attempt to avoid tax payment.

6.4.2 Kaplan-Meier survival probabilities and life tables

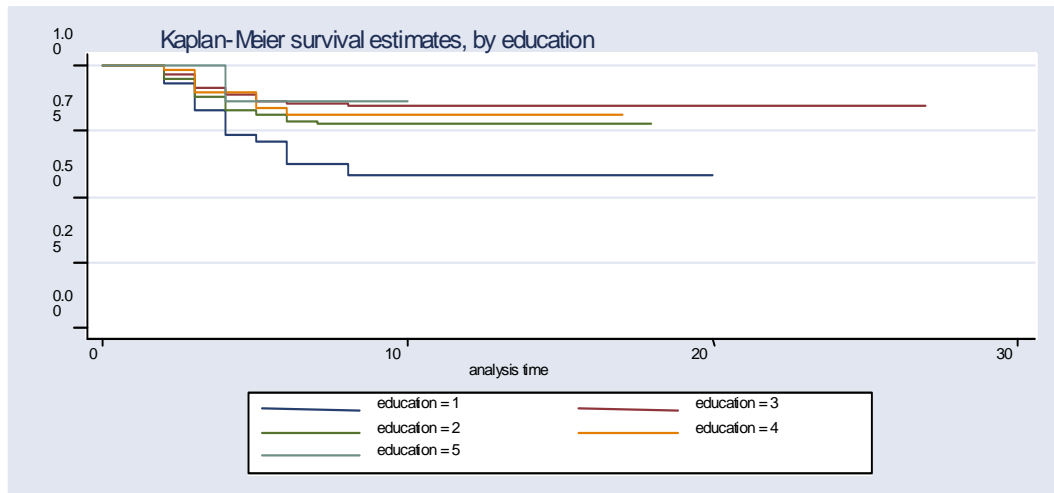
Kaplan-Meier survival probability plots are used to compare the survival probabilities of MSMEs with regard to some variables of interest such as geographical region, level of education, gender of owner, participation in iqqub schemes and type of sector. The plot in Figure 6.1, below, is a Kaplan-Meier survival probability curve that shows that MSMEs in Mekele had the highest survival probabilities in comparison with the other four geographical regions in the study. The plot also shows that MSMEs in Nazareth had the smallest survival probabilities relative to the other four regions.

Figure 6.1: Kaplan-Meier survival estimates by region



The plot in Figure 6.2, below, is a Kaplan-Meier survival probability curve that shows that MSMEs owned or run by people who acquired university level education, or better, had the highest probability of survival while MSMEs owned or run by illiterate people had the smallest probability of survival.

Figure 6.2: Kaplan-Meier survival probability curves by level of education

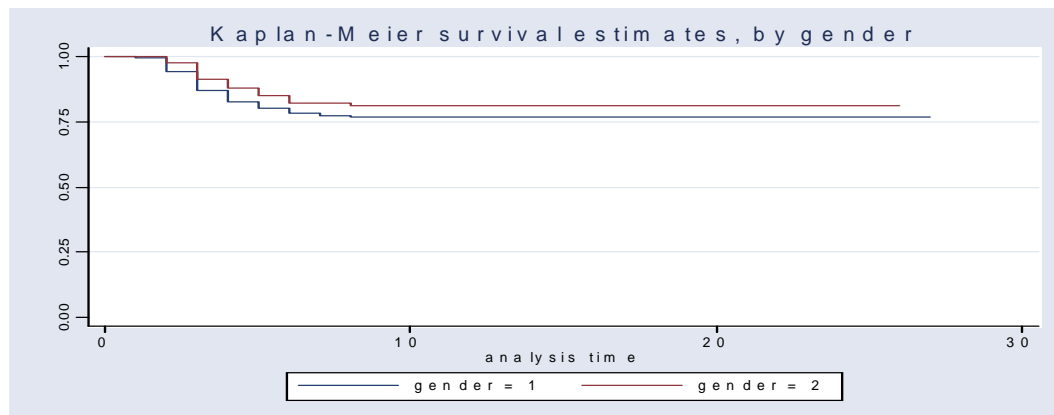


Key for level of education:

- 1: Illiterate
- 2: Less than Grade 8
- 3: Between Grades 8 and 12
- 4: Diploma level education
- 5: University level education or above

The plot in Figure 6.3, below, is a Kaplan-Meier survival probability curve that shows that MSMEs owned by males had a higher probability of survival than MSMEs owned by females.

Figure 6.3: Kaplan-Meier survival probability curves by gender of owners

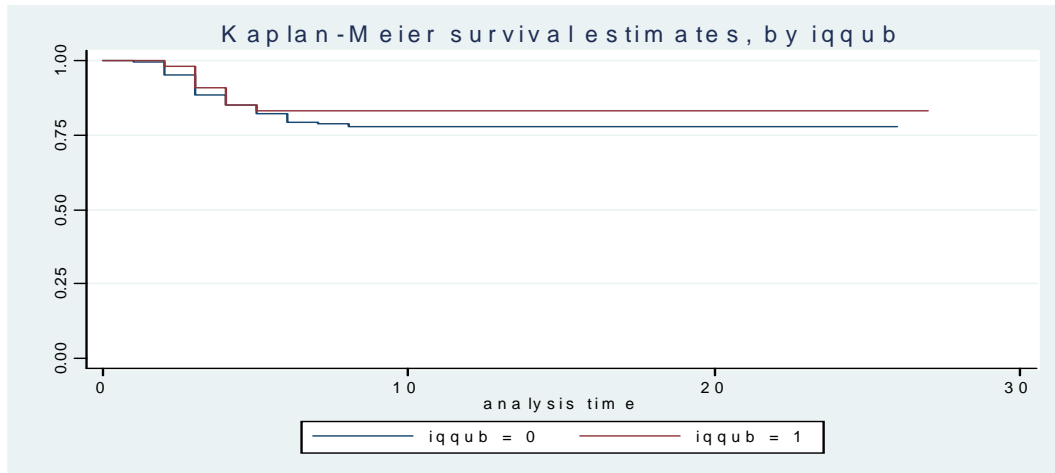


Key for gender

- 1: Male
- 2: Female

The plot in Figure 6.4, below, is a Kaplan-Meier survival curve that shows that businesses that regularly participated in iqqub schemes (four times or more) had a larger probability of survival compared to businesses that did not participate in iqqub schemes regularly.

Figure 6.4: Kaplan-Meier survival estimates by participation in iqqub schemes



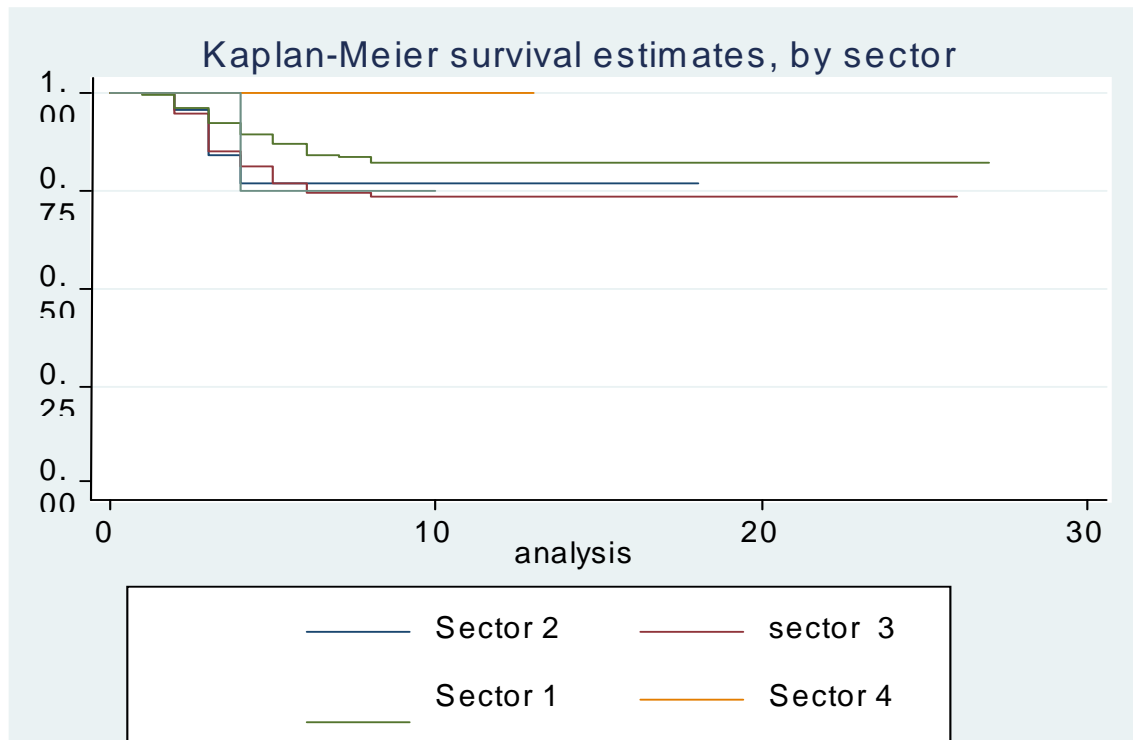
Key for participation in iqqub schemes

1= regular participation in iqqub schemes (at least four times in the study period)

2 = Non-users or occasional users of iqqub schemes (respondents who used iqqub schemes less than twice in the 6-year study period)

Figure 6.5, below, show the Kaplan-Meier survival estimates by sector. The Kaplan-Meier survival probability curve shows that Sector 4 (construction) has the highest probability of survival. The second highest survival probability is that of Sector 1 (manufacturing sector). The third highest survival probability is that of Sector 2 (commerce). The fourth highest survival probability is that of Sector 3 (service sector).

Figure 6.5: Kaplan-Meier survival estimates by sector



The log-rank test

The log-rank test is used to compare survival probabilities of different categories of MSMEs with each other. At the α level of significance, a P-value smaller than α shows that the survival probabilities of the categories being compared differ significantly from one another. For example, the following log-rank test compares MSMEs that converted profit back to investment with MSMEs that did not do the same at the 5% level of significance:

failure_d: died (died=1 for non-survivors, died=0 for survivors)

analysis time_t: lifetime

Log-rank test for equality of survivor functions

| | Events | Events |
|------------|----------|----------|
| conversion | observed | expected |
| 0 | 5 | 29.45 |
| 1 | 88 | 63.55 |
| Total | 93 | 93.00 |

chi2(1) = 31.15

Pr>chi2 = 0.0000

The P-value from the above log-rank test is $0.0000 < 0.05$. The small P-value shows that the survival probabilities of the two categories of the variable conversion were significantly different at the 5% level of significance. Hence MSMEs that converted profit back into investment had significantly larger probabilities of survival than MSMEs that did not do the same.

Life tables by region

In survival analysis, life tables are a commonly used method for comparing various categories with regard to survival and hazard probabilities. Survival probabilities are used to measure the likelihood of survival. By contrast, hazard probabilities are used to measure the likelihood of failure. Survival probabilities and hazard probabilities are inversely related with one another. A decrease in one implies an increase in the other, and vice versa. MSMEs that do well have relatively higher survival probabilities and smaller hazard probabilities, whereas MSMEs that struggle have relatively smaller survival probabilities and larger hazard probabilities.

Appendix 1 shows a life table that shows probabilities of survival for each of the five regions in the study at intervals of four months. The life table shows that businesses in

Mekele had the highest probability of survival (and the smallest hazard probabilities) at all intervals, while businesses in Nazareth had the smallest survival probabilities (and the largest hazard probabilities) at all intervals.

6.4.3 Results from Cox regression

Cox regression is a popular method for identifying factors that affect the survival (viability) or failure of business firms. In this study the outcome or dependent variable of study is the survival of businesses. The outcome variable has two possible outcomes, survival or failure. Cox regression enables us to identify and rank important predictor variables that affect the survival or failure of small businesses.

Cox regression is different and more advanced than multiple linear regression and logistic regression analysis. In multiple linear regression analysis, the dependent variable of study is continuous. However in this study, the dependent variable of study is not linear. The dependent variable of study is dichotomous, a variable that can only have two possible outcomes (survival or non-survival). Hence, multiple linear regression analysis is not suitable for performing survival analysis. The relationship between a dichotomous dependent variable and a set of predictor variables cannot be analysed with the use of multiple linear regression analysis. Although binary logistic regression is suitable for regressing a dichotomous outcome variable on a set of predictor variables, the method has a major limitation in that it does not distinguish between censored and uncensored observations. In this study, as mentioned before, censored observations are businesses whose exact survival times could not be measured. In this data set we have censored observations in the form of businesses that were still functioning at the end of the study period. For this reason the ideal choice of model in which survival analysis could be performed was the Cox proportional hazards model (Cleves, Gould & Gutierrez, 2004).

The fulfilment of the proportional hazards assumption in Cox regression was verified in this study with the use of log-minus-log plots. None of the predictor variables of study varied as a function of time. Hence, the extended Cox regression model did not have to

be used for analysis. The extended Cox regression model is designed to handle both fixed and time-varying covariates in the same regression model. The measure of effect in Cox regression is the hazard ratio. The hazard ratio corresponding to a predictor variable that affects the survival of an MSME is equal to $\exp(\hat{\beta})$ where $\hat{\beta}$ is the estimated regression coefficient of the predictor variable obtained from Cox regression. At the 5% level of significance, influential predictor variables are characterised by hazard ratios that differ from 1; P-values that are smaller than 0.05; and 95% confidence intervals of hazard ratios that do not contain 1. Table 6.8, below, shows that results obtained from Cox regression are fairly similar to corresponding results obtained from Weibull regression.

Table 6.8: Comparative results from Cox and Weibull regression analysis

| Dependent Variable : Status of operation of firms (1, 0) | | | | | | |
|---|---|----------------|--------------------------------|---|----------------|--------------------------------|
| Variables | Results from Cox regression analysis | | | Results from Weibull regression analysis | | |
| | Hazard Ratio | P-value | 95% Confidence Interval | Hazard ratio | P-value | 95% Confidence Interval |
| Constant | 5.68 | | | 5.68 | | 0.82 - 1.13 |
| Education | 3.42 | 0.03 | 2.24 - 8.42 | 2.82 | 0.03 | 1.14 - 7.67 |
| Start up capital | 2.32 | 0.02 | 1.74 - 3.13 | 2.12 | 0.02 | 1.64 - 4.08 |
| Competition | 2.05 | 0.11 | 0.15- 7.58 | 2.16 | 0.71 | 0.15 - 7.27 |
| Investment | 5.25 | 0.00 | 3.45 - 7.65 | 5.30 | 0.00 | 3.45 - 7.44 |
| Management | 3.19 | 0.00 | 1.86 - 11.31 | 3.22 | 0.00 | 1.86 - 11.32 |
| Iqqub | 3.25 | 0.01 | 3.05 - 7.55 | 3.26 | 0.02 | 4.05 - 7.32 |
| Profit | 3.25 | 0.00 | 2.25 - 0.54 | 3.24 | 0.00 | 2.25 - 10.21 |
| Bankrupt | 3.66 | 0.02 | 3.33 - 8.54 | 3.70 | 0.01 | 3.33 - 8.23 |
| Business type | 1.62 | 0.14 | 0.55 - 1.25 | 1.45 | 0.18 | 0.54 - 1.15 |
| Family labour | 2.01 | 0.58 | 0.53 - 2.18 | 2.21 | 0.48 | 0.53 - 2.90 |
| Enabling environment | 2.01 | 0.04 | 1.70 - 5.65 | 2.13 | 0.03 | 1.43 - 5.70 |
| Institutional support | 2.02 | 0.65 | 0.54 - 4.02 | 2.21 | 0.68 | 0.51 - 2.02 |
| MFI credit | 1.15 | 0.41 | 0.54 - 3.56 | 1.43 | 0.02 | 0.39 - 3.46 |
| Access to market | 0.84 | 0.25 | 0.65 - 2.65 | 0.24 | 0.28 | 0.23 - 2.56 |
| Linkages | 0.22 | 0.16 | 0.01 - 3.52 | 0.32 | 0.19 | 0.02 - 3.54 |
| Customers | 0.75 | 0.65 | 0.21 - 4.36 | 0.79 | 0.62 | 0.22 - 5.00 |
| Inputs | 0.58 | 0.48 | 0.55 - 1.25 | 0.63 | 0.41 | 0.52 - 1.45 |
| Business location | 2.57 | 0.02 | 2.54 - 8.49 | 2.12 | 0.26 | 2.12 - 8.68 |
| Plan | 2.65 | 0.15 | 1.87 - 5.66 | 2.63 | 0.21 | 1.72 - 5.46 |
| Number of observations | 496 | | | 496 | | |
| Log likelihood | 146.08 | | | 212.75 | | |
| Prob > Chi2 | 0.00 | | | 0.00 | | |

In survival analysis, Cox and Weibull regression provide fairly similar hazard ratios. However, since ensuring the fulfilment of the proportional hazards assumption was an essential requirement of this study, preference was given to hazard ratios estimated from Cox regression.

Based on hazard ratios estimated from Cox regression, the survival of MSMEs in this study was most strongly affected by 9 of the 19 predictor variables used for Cox regression, at the 5% level of significance. For each of the 9 influential predictor variables, the P-values were smaller than 0.05; the estimated hazard ratios were significantly different from 1; and the 95% confidence intervals for the true hazard ratio did not contain 1.

Table 6.9, below, shows that the most influential predictor variable that affects the survival of MSMEs in this study was investment. Its estimated hazard ratio was 5.25, its P-value was 0.000, and the 95% confidence interval for its true hazard ratio was (3.45, 7.65). This confidence interval did not contain 1. This confirmed that investment (the ability of businesses to convert profit back into investment) was the most influential variable affecting the survival of small businesses, based on results obtained from the Cox proportional hazards model.

Table 6.8 shows that, based on results obtained from the Cox Proportional Hazards Model, the long-term survival or viability of small businesses and enterprises was influenced by the ability to convert profit back into investment, prior experience of bankruptcy, level of education, participation in iqub schemes (social capital), ability to make profit, prior managerial experience, suitability of business location, source of start-up capital, and the availability of an enabling business environment, in decreasing order of strength.

Table 6.9: Order of strength of influential variables affecting survival

| Variable | Hazard ratio | P-value | 95% CI | Rank |
|----------------------|--------------|---------|---------------|------|
| Investment | 5.25 | 0.000 | (3.45, 7.65) | 1 |
| Bankrupt | 3.65 | 0.000 | (3.33, 8.54) | 2 |
| Education level | 3.42 | 0.000 | (2.24, 8.41) | 3 |
| Iqqub schemes | 3.25 | 0.000 | (3.05, 7.55) | 4 |
| Profit | 3.25 | 0.000 | (2.25, 10.54) | 5 |
| Management | 3.19 | 0.001 | (1.86, 11.31) | 6 |
| Business location | 2.55 | 0.001 | (2.54, 8.49) | 7 |
| Start up capital | 2.32 | 0.021 | (1.74, 3.12) | 8 |
| Enabling environment | 2.01 | 0.036 | (1.70, 5.65) | 9 |

6.4.3.1 Interpretation of hazard ratios of top six influential variables

Hazard ratios were interpreted for the top six influential variables that affect the survival of MSMEs as shown below:

1. MSMEs that did not have the capacity to invest or convert part of their profit back into investment were 5.25 times more likely to fail in comparison with MSMEs that had the capacity to convert part of their profit back into investment.
2. MSMEs that had experienced bankruptcy before (as a result of failure to meet debt obligations to lenders) were 3.65 times more likely to fail in comparison with MSMEs that had not experienced bankruptcy before.
3. Business owners whose level of education was below the 6th grade were 3.42 times more likely to fail in their business operation in comparison with owners whose level of education was the 6th grade or higher.

4. Business owners who did not participate in iqqub schemes regularly were 3.25 times more likely to fail in comparison with business owners who regularly participated in iqqub schemes. Hence, regular participation in iqqub schemes (social capital) promoted the survival of businesses by a factor of 3.25.
5. Businesses that were unable to generate profit (the cost of operation was in excess of revenues generated) were 3.25 times more likely to fail in comparison with businesses that were capable of generating profit.
6. Businesses that were managed by individuals who did not have good managerial ability were 3.19 times more likely to fail in comparison with businesses that were managed by individuals who had good managerial ability.

Goodness-of-fit tests for the Cox proportional hazards model

The theoretical reliability of the fitted Cox model is assessed with the use of standard diagnostic measures such as the likelihood ratio test, log-minus-log plots for ensuring the fulfilment of the proportional hazards assumption, and AIC (Akaike's Information Criterion).

The likelihood ratio goodness-of-fit test

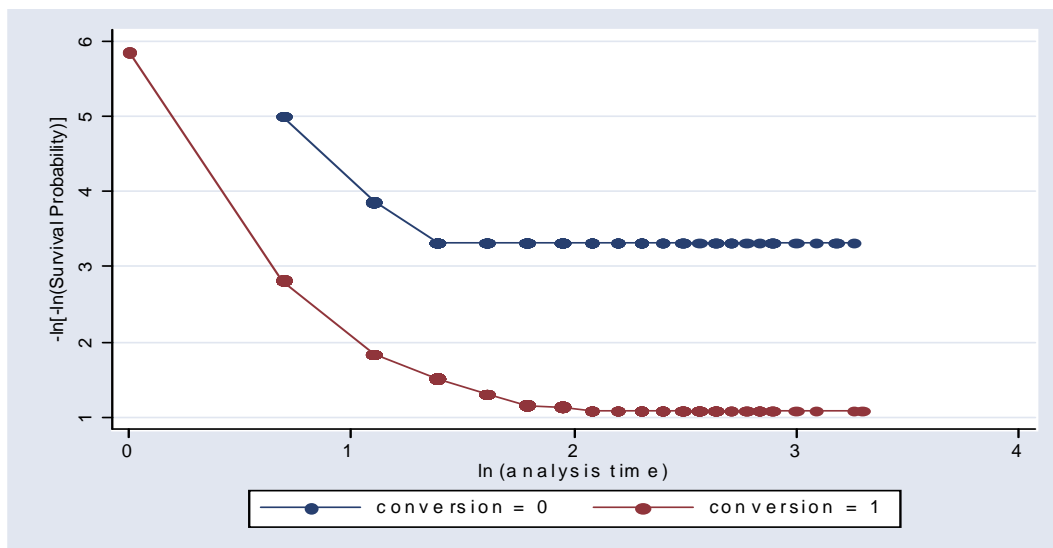
The likelihood ratio test is used to test the null hypothesis that the predictor variables constituting the fitted Cox model are jointly efficient in explaining variability in survival. The null hypothesis states that the predictor variables are jointly inefficient, while the alternative hypothesis states that they are jointly efficient. At the 5% level of significance, the null hypothesis is rejected if the P-value is smaller than 0.05. In this particular case, the P-value obtained from the likelihood ratio test was equal to $0.0000 < 0.05$. Since the P-value was less than 0.05, the variables that constituted the fitted Cox regression model were jointly efficient in explaining the survival of businesses in this

study. Hence, the fitted model fits the data fairly well, and is theoretically reliable, based on the likelihood ratio test.

Testing the proportional hazards assumption

Log-minus-log plots are used to find out if any of the key predictor variables of study varies as a function of time. The tests showed that none of the predictor variables used for Cox regression varied as a function of time. That is, the proportional hazards assumption was satisfied for each of the predictor variables of study used for performing Cox regression. Figures 6.6 and 6.7, below, show how the fulfilment of the proportional hazards assumption was tested for two of the predictor variables of study with the use of log-minus-log plots.

Figure 6.6: Log-minus-log plot for the variable conversion



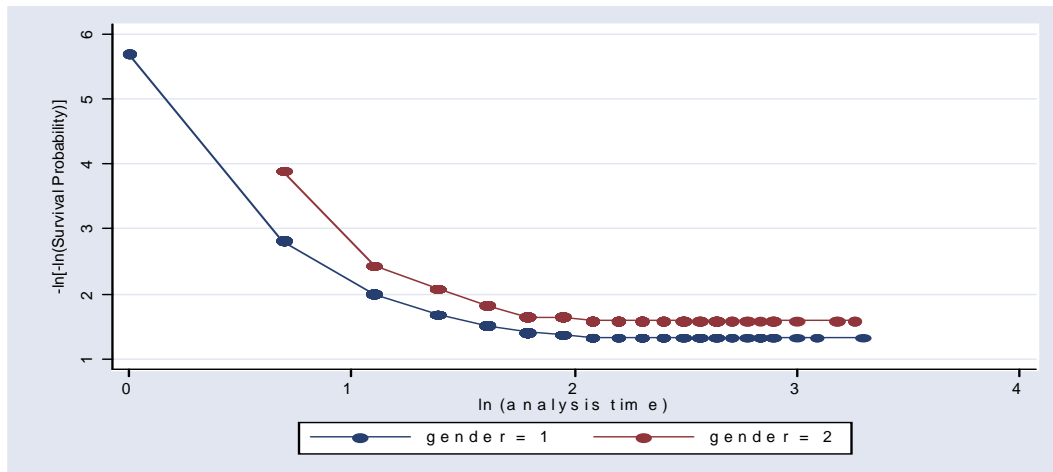
Key for variable conversion:

Conversion = 1: MSMEs that do not convert profit back into investment

Conversion = 0: MSMEs that convert profit back into investment

In the above figure, the curves corresponding to the two categories of the variable conversion do not cross each other. This shows that the variable conversion is not a time-varying covariate, and that it satisfies the proportional hazards assumption.

Figure 6.7: Log-minus-log plot for the variable gender



Key for variable gender:

Gender = 1: Male owners of MSMEs

Gender = 0: Female owners of MSMEs

In the above figure, the curves corresponding to the two categories of gender do not cross each other. This shows that gender is not a time-varying covariate and that it satisfies the proportional hazards assumption.

Akaike’s Information Criterion (AIC) as a goodness-of-fit test

The AIC statistic is a measure of discrepancy between the fitted Cox regression model and the true model explaining the survival of businesses. Large AIC values imply that the fitted model is not a reliable estimate of the true model, whereas small values of the AIC statistic imply that the fitted model is a fairly accurate estimate of the true model. In this study, the magnitude of the AIC statistic was small (12.38), thereby showing that the discrepancy between the fitted and true models was insignificant.

Results from the log-normal distribution

In addition to performing Cox and Weibull regressions, survival analysis was also performed using the log-normal model, a model in which the logarithmic transformation

is used to obtain a normal distribution. The log-normal model is similar to the Cox and Weibull models. Results from Cox regression and Weibull regression are theoretically similar to results obtained from log-normal regression. Appendix 2 shows estimates obtained from log-normal regression. Based on results obtained from the log-normal model, the variables bankrupt, conversion, iqqu, and enabling are among the top influential variables that affect the survival of MSMEs. This result is slightly different from results obtained from the Cox and Weibull models.

6.5 Empirical analysis using multiple linear regression analysis

It is known that the amount of profit earned by any business firm depends on different factors that affect the outcome variable (earnings). In this study, techniques of multiple linear regression (Kleinbaum, Kupper, Muller & Nizam, 1998) were used to construct empirical models that explain the relationship between net average earnings and four predictor variables (human capital, social capital, business characteristics and personal characteristics) that strongly affect earnings. The logarithmic transformation of earnings was regressed on the four predictor variables to fit a multiple linear regression model.

General assumptions

In the empirical modelling, the following general assumptions and statements were made. All MSMEs are established with the objective of generating an income which is the main source of income for the family. Revenues generated from MSME activities essentially constitute the family livelihood. In addition to generating income for the family, MSMEs are also expected to grow and further expand their business. To achieve this goal, MSMEs need access to finance and external credit. MSMEs are subjected to credit constraint. Where possible, MSMEs prefer to save in order to ease the financial problems they frequently encounter. Although hoarding of money is one possible way of saving money, it is not as efficient as raising finance from iqqu schemes. This is because money from iqqu schemes is put to use immediately and imposes a sense of financial discipline on the individual who gets the lump sum. Participation in iqqu schemes

promotes genuine savings due to peer pressure. Hence, the likelihood of defaulting in iqqub schemes is much reduced compared to taking loans from commercial banks. Since participants of iqqub schemes are committed to helping each other by saving their own money regularly and with great determination, members of the scheme support one another, and can be treated as members of the same team. The team spirit of iqqub associations clearly makes them much more efficient and less risky than ordinary socio-economic relationships.

Iqqub has a mechanism of compensating those members who receive lump sums at the end of the cycle. The luckiest member of the scheme is the one who gets the lump sum first. The least lucky member of the scheme is the one who collects the lump sum at the end of the cycle. Continuously run iqqub schemes have a way of balancing out unfair advantages arising from chance. This is done by ensuring that the first-served person in a particular cycle is made the last-served person in the next cycle, provided that all other factors remain unchanged. This compensation procedure reduces the pressure and burden on members who get their share at the end of the cycle. Since defaulters are less prevalent in iqqub schemes, money collected can immediately be awarded to the deserving member of the scheme without wasting time. The speed with which money is handed to winners in cash saves a great deal of time as well as resources. Members of an iqqub association are equally affected by the overall business-working policy environment. Iqqub schemes do not allow preferential treatment, and all members are treated equally. The collection and administration of iqqub funds are consistent. The rules and regulations are simple to follow and are well known. Winners are determined at random. There is no prejudice in the drawing of ballot papers. All members save with the mutual understanding that they are part of the team. Members support each other financially and non-financially.

Since the objective of this research was to measure empirically the benefit of participating in iqqub associations by using a logarithmic transformation, a standard human capital multiple linear regression model augmented with iqqub effects was initially specified. This strategy was employed as a starting point for assessing growth in

earnings and the viability of MSMEs. The typical mathematical representation of human capital accumulation is:

$$Y_i = \alpha + \beta_1 H_i + \beta_2 S_i + \beta_3 F_i + \beta_4 P_i + \xi_i \dots\dots\dots \text{Eqn (15)}$$

In Eqn (15), the subscript i denotes information obtained from the i^{th} MSME and its owner. ($i = 1, 2, \dots, 500$).

Y_i = the logarithm of the net average earnings of the i^{th} MSME, $i = 1, \dots, 500$.

H = set of human capital variables

S = social capital characteristics

F = firm characteristics

P = personal characteristics

ξ_i = error term

To estimate Y, each of the four variables (H, S, F and P) first had to be estimated. Once these four variables were estimated, the relationship between Y and the four variables was determined using multiple linear regression. In Eqn (15),

H = f (Level of skills, level of education, past experience, level of training received)

S = f (Social capital benefits, peer pressure, and psychological support from members)

F = f (Amount of start-up capital, source of start-up capital, lifetime, competition)

P = f (Age, gender, enjoyment of type of work, motivation, family size, marital status)

Appendix 3 shows the list of dummy variables that were used for performing multiple linear regression analysis.

Before estimating the desired regression equations, it is necessary to explain the variables human capital, iqgub schemes as social capital, as well as business and personal characteristics. This study assumed that the amount of income of an MSME is influenced by the above four factors and a number of additional factors such as the amount of contribution and the length of time taken for a member to be given a lump sum. The

general description of the empirical equation for estimating the amount of income attained by an MSME is given as follows:

$$Y = f (H, S, P, F)$$

Each of the above four independent variables has direct and indirect effects on earnings and the survival of MSMEs. Human capital, “H”, has direct and indirect effects on MSME earnings due to its influence on productivity. Any additional investment in MSMEs generated from iqqub schemes also contributes to the MSME stock as a direct investment. The relationship between business firms and other personal characteristics follows a similar pattern. Higher levels of personal motivation for work, initial source of capital and amount of start-up capital have direct and indirect effects on productivity, efficiency and the survival of MSMEs.

Human capital evolves according to the following relationship:

$$H = f (\text{Level of education, past experiences, level of skill, level of training received})$$

Money raised from iqqub schemes (I) can be expressed as follows:

$$I = f (\text{Consistency in participation, savings amount, level of productive information gained, peer pressure, level of psychological support from members})$$

Firm characteristics (F) can be written as a function of several key variables:

$$F = f (\text{Amount of start-up capital, source of start-up capital, lifetime and competition})$$

Personal characteristics of the owner (P) can be expressed mathematically as follows:

$$P = f (\text{Age, gender, enjoying type of work, level of motivation, family size, marital status})$$

Each of the above regression models could be used to make an inference about the relationship between participation in iqqub schemes and the survival of MSMEs. The relative levels of H, S, F and P were separately determined with their explanatory variables since it was assumed that all variables could affect the outcome. Particular attention was given to participation in iqqub schemes as a predictor of the survival of MSMEs. Clearly, some variables such as initial source of capital, amount of capital, past debt and level of income could influence the current level of participation and savings amount. However, past earnings still provide a useful comparative measure. However, in our case, interest was focused on measuring the association between participation in iqqub schemes and the survival of MSMEs. Small businesses that saved money by participating in iqqub schemes were more successful in saving money than those that did not. Clearly, including additional predictor variables related to MSMEs may change results significantly.

The multiple linear regression of the dependent variable Y on the explanatory variables H, S, P and F produced the following multiple linear regression estimates:

Number of obs = 483
 Prob > F = 0.0000
 R-squared = 0.8674
 Adj R-squared = 0.8498

| Y | Coef. | Std. Err. | t | P> t | [95% Conf. Interval] | |
|-------|-----------|-----------|--------|-------|----------------------|-----------|
| H | 2.725074 | .6807967 | -7.07 | 0.014 | 1.062791 | 3.612643 |
| S | 2.060515 | .0062743 | -5.04 | 0.030 | 1.115815 | 3.018436 |
| P | 1.7540495 | .0005648 | -9.97 | 0.003 | 1.295659 | 2.980560 |
| F | 2.2337207 | .0354648 | -10.59 | 0.000 | 1.303409 | 3.164344 |
| -cons | 10.256564 | .0447018 | 229.44 | 0.000 | 10.168723 | 10.344427 |

Based on the estimates shown above, the estimated line of regression is expressed as shown below:

$$Y = 10.26 + 2.73(H) + 2.06(S) + 1.75(P) + 2.23(F)$$

The fitted line of regression consists of five variables. Given any four of the five variables, it is possible to determine the value of the fifth variable.

The value of R-squared was as high as 86%. This shows that the fitted line of regression explained 86% of the total variability in the dependent variable Y. All P-values were smaller than 0.05, and none of the 95% confidence intervals of the regression coefficients contained 0. This shows that each of the four explanatory variables used for regression was important in predicting the values of the dependent variable Y.

6.6 Summary

Micro, small and medium enterprises are an integral part of the Ethiopian economy. However, the MSME sector in Ethiopia is dominated by small firms (72.8%) which are often characterised by a low level of employment and a high failure rate. The majority (94%) of MSMEs involved in the study were operating with fewer than ten employees. Only 42.3% of firms grew large enough to employ at least one worker during the period of study. The findings also show that 50.6% of failed firms ceased operation before they reached their 3rd year of establishment. Based on the key findings of this study, the survival of MSMEs is threatened by various factors including unfavourable legal and regulatory conditions, infrastructural problems, poor internal inefficiency, inadequate access to credit and competition from foreign firms. The study has revealed that cumbersome and bureaucratic legal requirements, high levels of policy control, over-regulation, corruption, high tariffs and unfair tax are key major policy-related constraints that adversely affect the performance of the MSME sector. The acute lack of business-related training opportunities in the sector has resulted in inefficient firms that often end up in bankruptcy or closure.

Due to lack of access to finance, the majority (41.2%) of the 500 MSMEs in this study were obliged to raise the initial capital needed for starting the business from sources such as own savings and relatives, with an average start-up capital of \$300. For most of the

owners (79%) of MSMEs, accessing credit from formal financial institutions was a major problem. The majority (64%) of MSMEs raised money from iqqub schemes at least twice over the 6-year period of the study in order to start or expand business ventures. Results from this study have shown that participation in iqqub schemes has a protective effect against failure, and that finance obtained from iqqub schemes carries no interest. The failure rate among MSMEs that regularly used iqqub schemes was six times lower than that of non-users of iqqub schemes. Participation in iqqub schemes promotes the dynamism of MSMEs through enhancing own savings, conversion of savings to investment and sharing of knowledge/skills, and provides interest-free credit to members. This indicates that iqqub schemes have a robust positive impact on the survival of MSMEs. Therefore, the integration of the internal efficiency of businesses and the availability of micro credit and social capital with a favourable macroeconomic environment has a critical positive impact on the growth and development of MSMEs.

CHAPTER 7: MAJOR FINDINGS, CONCLUSION & RECOMMENDATIONS

7.1 Major findings

Neo-classical economists, Schumpeterians and Marxists have traditionally maintained that the contribution of smaller firms to national economies is marginal due to their small size, poor capacity, inherent inefficiencies and low survival rate. Results from this study and other empirical research challenge this proposition. MSMEs usually operate in a hostile environment, yet they often survive and contribute to job creation and economic welfare. The firms investigated in the study, for instance, created 1, 937 net employment opportunities during the period 1996 to 2001. This implies that MSMEs that receive better institutional support could do more to improve the national economy.

The study has identified four determinants that strongly influence the growth and survival of MSMEs. These variables are: participation in iqub schemes (social capital), internal efficiency, micro credit, and the availability of an enabling environment. Each of these four predictor variables was identified as highly influential with regard to the viability and long-term survival of the MSMEs in the study. In this section, a brief discussion on each of the four influential determinant factors that affect the efficiency and survival of MSMEs is presented.

7.1.1 Participation in iqub schemes

Iqqub schemes are popular among MSMEs in Ethiopia. The accessibility and absence of interest rates in these schemes motivated the majority of participants (64%) in this study to use iqqub schemes for raising money as well as settling debts (36%). Participation in iqqub schemes continues to grow, partly stimulated by asymmetric information and market failure in credit markets and partly due to the numerous additional non-financial benefits provided by iqqub schemes. This study has shown that there is a significant and positive relationship between participation in iqqub schemes and the survival of MSMEs. MSMEs that regularly make use of iqqub schemes (at least four times during the study period) enjoyed six-fold protection from failure in comparison with MSMEs that did not make use of iqqub schemes. Therefore, the presence of such a robust and positive relationship between participation in iqqub schemes for social capital and the survival of MSMEs has a strong policy implication with regard to designing appropriate support strategies for MSMEs. Iqqub schemes not only contribute financial viability, but also provide access to productive information, skills and social support from fellow members of the iqqub scheme. The literature reveals the importance of indigenous institutions in economic development (Uphoff, 2000; Howels, 1997). Drawing from both economic theory and practical experience in this study, it is possible to generalise that iqqub associations could be of more help with regard to the survival and development of MSMEs if the national government of Ethiopia recognised such schemes by means of specific policy.

Iqqub schemes can be empowered financially to enable them to provide better service to MSMEs. Creating links between iqqub schemes and formal and semi-formal financial institutions would create potential for generating mutual benefit to both parties by alleviating the credit constraints of MSMEs in a sustainable manner. Iqqub schemes can significantly reduce the asymmetric information and the associated adverse selection and moral hazard in credit markets. Hence by integrating the two sectors, it would be possible to broaden the market base of banks while increasing the capacity of iqqub associations to satisfy demand for finance from all members of the association, or at least to reduce the waiting period for receiving a lump sum of money. Such partnerships would create a win-win situation as the collective collateral guarantee of iqqub associations reduces the

risk of default and high costs of advancing separate small amounts of credit. Supporting the promotion of iqqub schemes therefore would not be a matter of ensuring the survival of MSMEs only, but also a significant effort for fostering economic growth by increasing mutual cooperation among actors in the economy.

7.1.2 Micro credit

Small enterprises, new or existing, often face financial problems with regard to fixed capital investment for the enterprise and working capital for running costs. Many economists view MFIs as correcting agents for credit market failures because of their role in addressing the demand for credit by small enterprises. In Ethiopia, approximately 23 legally established MFIs are currently engaged in micro credit delivery programmes in rural and urban areas. These MFIs have delivered financial services to about 500,000 low-income, self-employed and vulnerable clients. In the country, MFIs have limited capital and low geographical coverage, and are only accessible to a small portion of MSMEs. Reports indicate that the existing MFIs are only able to meet 10% of the potential demand for loans in the country (Amha & Ademassie, 2004). Only 9.2% of participants investigated in this study were able to borrow credit from MFIs and 84% of borrowers stated that the credit given to them was minimal. In addition, almost all MFI clients in the study indicated that MFIs charge high interest rates, a fact which makes their aid unaffordable for the majority of MSMEs. Under such circumstances, the institution needs to revise some of its implementation strategies in order to provide cost-effective and accessible financial services to MSMEs in need of credit. For instance, reducing the relatively high administrative costs could be dealt with through administering and managing loan operations in mass, an action that could offset the cost of administering a large number of tiny loans.

In comparison with the rest of Sub-Saharan Africa, the Ethiopian MFI sector is the most underdeveloped, both in terms of the number of clients, geographical distribution, amount

of capital and the number of participating MFIs. Indeed, MFIs should be financially viable in order to serve the credit needs of clients in a sustainable and adequate manner. By creating a moderately developed capital market, MFIs could generate their major part of credit from these sources at a reasonable rate. However, as the country does not have a developed capital market, and in view of the fact that NGOs are not allowed to participate in the credit market, MFIs in Ethiopia are themselves constrained in terms of finance, experience and policy. Hence, there is a dire need for the national government to create a micro credit environment that is user-friendly and capable of assisting small businesses and enterprises with regard to credit.

7.1.3 Internal efficiency

One of the more influential factors that affect the competitiveness of MSMEs is the internal efficiency of owners/managers. The entrepreneurs involved in this study varied significantly in terms of internal efficiency and effective resource utilisation. Business environments reward efficient managers while penalising inefficient ones. Internal inefficiency negatively affects the survival of newly established business firms by exposing MSMEs to bankruptcy. In many low-income economies, the majority of MSMEs start their operations with borrowed money, often inadequate with regard to the amount and attached to stringent conditions of loan repayment. Incompetent owners of MSMEs consequently are often trapped in a vicious cycle of debt and bankruptcy as a result of borrowing more money than is actually needed for the operation and unwise utilisation of such money. In most cases, this occurs as a result of a lack of sound business planning and irresponsible spending of money and resources. The fact that this has been a cause of failure in 31.10% of the businesses that ultimately failed indicates that the majority of Ethiopian business owners are not concerned enough about managing their businesses efficiently, and in accordance with a sound business plan. An inefficient manager wastes scarce resources, thereby making products more expensive and less competitive in the market. The study has found that managerial ability was among the top factors that influenced the survival of MSMEs. In fact, in the current climate of globalisation, firms should exercise restructuring, rationalisation, hard work, discipline,

cost cutting, innovative marketing, skills training and prudent saving strategies in order to remain competitive in the market.

A business development plan is another crucial need to guide entrepreneurs in undertaking their activities in a planned and calculated manner. The results of the current study have indicated that businesses that ceased operation had a track record of inefficient utilisation of resources. The findings showed that 70.60% of respondents in the study did not have a business plan; 21.25% of businesses that failed did not own accounts; and 58.8% did not have proper financial records showing their daily earnings and expenses.

Firms with good resource planning and management can benefit from converting part of their profit to investment to protect themselves from financial constraints and future debt-related problems. Studies have shown that the financial problems faced by MSMEs are worsening due to lack of adequate collateral on the part of owners of firms as well as lack of financial intermediaries in the country Basic Education System Overhaul (BESO, 2004; Weston & Brigham, 1981). However, firms with good planning will be able to provide tangible assets to serve as collateral (Jordan et al., 1998). Thus, regardless of how profitable small businesses may be, they need to have good business planning in order to convert a certain portion of their profit back into investment. Greater capacity means greater ability to diversify products and improve the efficiency of production. This study has found that only 30.4% of MSMEs converted their profit back into investment, whether wholly or partially. Hence, in order to achieve sustained growth in the MSMEs sector, sound business planning should be promoted. Obviously, this task requires the active participation of the national government.

In addition to the above, other factors that are important for the successful operation of MSMEs involve the status of the owner of the firm with regard to human capital, the level of education, years of experience, level of skills and the characteristics of the person who started the MSMEs. A shortage of the skills required for routine business activities results in unnecessary expense, reduced productivity, reduced efficiency and sluggishness

at work. Shortage of skills was reported by 66.60% of the respondents in the study as one of the serious challenges in their business operations. With regard to failure, the distribution of firms according to the level of education of owners shows that 71.4% of non-operational firms in the survey were started by owners whose level of education was below the secondary school level. In general, it can be stated that the success of a firm largely depends on the managerial ability of the owner/manager of the firm, educational level, skills and motivation to identify and utilise opportunities that maximise business performance and success. Efficient entrepreneurs often reveal enhanced resource management, achieve maximum turnover and expand their businesses.

7.1.4 Enabling macro environment

An enabling environment is at the heart of every free market economy. MSMEs that operate in the absence of a well-functioning macro environment often struggle to remain competitive and expand. The study shows that an un-enabling macro environment is ranked among the top factors hindering the survival of MSMEs in Ethiopia. The study has found that the failure of MSMEs is attributed mainly to problems perceived to stem from macroeconomic policy, such as the lack of appropriate promotional institutions; unfavourable legal and regulatory conditions; and poor infrastructure. It follows that the restrictive policy that prevents participation of foreign financial institutions in the local market is the main reason for lack of competition. Lack of competition, again, is the main reason why local moneylenders are reluctant to be innovative and address the credit needs of MSMEs. While the private sector in Ethiopia experiences credit constraints, state-owned banks, especially the Commercial Bank of Ethiopia, is characterised by 165% of excess liquidity (Alemayehu, 2006). An economy in which the financial sector is not functioning well is unable to generate the rate of growth and investment needed to create jobs and alleviate poverty. In addition to improving the legal and regulatory environment in which MSMEs in Ethiopia operate, institutions that can foster better service and greater competitiveness and innovation in the sector should be supported. In Ethiopia however, factors of support are either partially or completely absent.

In addition to this, the MSME sector has not been given adequate institutional support, for instance through business-related training and consultation. This lack of support has reduced the capacity for growth and for attracting foreign partners. This study has found that only a few MSMEs have managed to network with other partners, while 43% of MSMEs reported that competition and the free market policy has crippled their growth and expansion. It has to be noted that globalisation can be an opportunity or a threat to MSMEs, depending on the effort made to increase the competitiveness of local MSMEs. The literature has shown that the operational efficiency of MSMEs can be maximised through increasing collaboration among MSMEs and between large enterprises (Tegene, 2004). However, in order to participate in such backward and forward linkages, the current infrastructural, managerial and financial problems should be alleviated through consistent institutional and regulatory support. Close integration between small businesses and large enterprises could promote the efficient utilisation of resources, and improve the balance of payment of the country. Therefore, if the MSMEs in Ethiopia have to be efficient and competitive in the current era of globalisation, the national government has to intervene by removing bottlenecks that hinder their operation.

7.2 Conclusion

A number of studies have been conducted in recent years to investigate the efficiency and survival of small enterprises. Although much has been learnt, the significant contribution of social capital to the survival and dynamism of small enterprises, particularly in developing countries, still needs to be explored in the literature. In Ethiopia, which is one of the poorest African countries, social capital is extensively utilised by the poor, especially in the business environment, to overcome the financial market's failure to satisfy the multiple needs of the sector. This study has shown that social capital makes a significant contribution to the performance and survival of MSMEs. Based on the survival analysis and standard econometric procedures, the study has shown that the integration of three independent micro variables, namely social capital, micro credit and internal efficiency, as well as the existence of a favourable macro policy in the economy could significantly improve the efficiency and survival of MSMEs.

This study has provided empirical proof that iqqub schemes, by providing social capital, have a direct and positive impact on the survival of MSMEs. Results obtained by applying the Cox Proportional Hazards Model, have shown that MSMEs that regularly participated in iqqub schemes (social capital) have managed to survive better (by a factor of 6) than MSMEs that did not participate in iqqub schemes. Social capital contributes to the growth and expansion of MSMEs through facilitating access on favourable terms to financial and non-financial assistance for the entrepreneur. An additional advantage was identified in that enterprises that regularly participated in iqqub schemes were able to convert part of their profit back into investment. This ultimately resulted in a sharp increase in turnover. Hence, based on concrete findings of this study, the null hypothesis that social capital does not affect efficiency and the rate of growth of MSMEs is utterly rejected. Nevertheless, it must be noted that social capital alone can neither boost start-ups of firms nor guarantee their survival.

Results from this study have shown that the presence of a favourable macroeconomic policy aimed at creating an enabling business environment is crucially needed for the growth and expansion of small businesses and enterprises. Policy-related and institutional support from the government for MSMEs is one of the significant determinants of survival. Where there are well-defined business laws and property rights, the likelihood of survival is quite high. Removing trade barriers and enhancing competition and entrepreneurial activities would be helpful for creating and improving vibrant MSMEs and their contribution to socioeconomic growth in the country. MSMEs investigated in this study have performed well over periods when the country maintained macro stability. Hence, the null hypothesis that suitable macroeconomic conditions do not affect MSMEs is also rejected on the basis of concrete findings of the study. Again, the presence of a favourable macroeconomic policy alone would not guarantee success for the MSMEs.

This study has found that there is a significant relationship between internal efficiency and firm survival. Firms owned by owners/managers who have good managerial ability in terms of job satisfaction, number of hours spent on the job and the efficient and effective utilisation of scarce resources were found to perform relatively better than

others by a factor of 3.19. Owners who possessed relevant past experience as wage workers or managers in the same line of work prior to establishing their own firms were also found to achieve significant success. In addition to the above-mentioned determinant factors, access to micro credit and the efficient utilisation of resources are crucial to the survival of MSMEs. Hence, the null hypothesis that internal efficiency does not affect the survival of business firms is rejected. Based on these findings, it can be concluded that the integration of social capital, internal efficiency, micro credit and the presence of an enabling macroeconomic environment is critical for the growth and viability of MSMEs in Ethiopia.

Findings from this study have a policy implication that can be applied to several economies similar to that of Ethiopia. In countries where the MSMEs sector faces financial problems and the formal financial sector is reluctant to provide finance to MSMEs, there is no option other than to rely on social capital in order to meet the basic survival needs of small businesses. It is true that iqqub schemes in Ethiopia have limitations, but it is prudent and wise to address those limitations and use iqqub schemes as a vehicle to support and promote small businesses.

7.3 Recommendations

This study presents a unique outcome on the contribution of iqqub schemes to the survival and viability of MSMEs in Ethiopia. MSMEs in Ethiopia suffer from a chronic shortage of finance. Formal financial institutions are reluctant to lend money to MSMEs as a result of adverse selection and moral hazard resulting from asymmetric information in the credit market. Up to the present, the large gap in terms of access to finance has been filled partially by iqqub schemes, but much more needs to be done in order to alleviate the financial problems faced by small businesses and enterprises. Although iqqub schemes are available for help, their capacity is highly restricted. They can only satisfy one member of the scheme at a time. By the time the last member in the scheme is assisted, a number of opportunities may have been missed due to lack of capacity.

Based on the findings of this study, the following recommendations are made to the Ministry of Trade and Industry of the Government of Ethiopia, so that, where possible, remedial action can be taken with a view to assisting small businesses in the country:

1. The Ministry of Trade and Industry of Ethiopia should set up a comprehensive database of all viable iqqub associations currently operating in the various parts of Ethiopia. The immediate needs and limitations of iqqub associations in the entire country should be assessed. The government should sponsor large-scale scientific studies on iqqub associations and the results of such studies should be made available to developmental economists working for the World Bank so that better planning can be done.
2. The Ministry of Trade and Industry should integrate iqqub schemes in Ethiopia with formal money-lending institutions such as the commercial banks and MFIs. The proliferation of poorly resourced and badly administered iqqub associations must be curbed.
3. Provision of micro credit services to MSMEs is critically important for the growth and development of the sector. Banks should allocate some resources and develop innovative ways of lending to small businesses and enterprises by following the landmark example of the Grameen Bank of Bangladesh. In doing so, the limited financial capacity of iqqub schemes could be alleviated. Competition among financial sectors should be encouraged and non-governmental organisations should be allowed to enter the money lending business. Hence the government needs to revise its policy on the financial sector in order to foster growth and increase competition in the sector. This is because MSMEs in Ethiopia could benefit enormously from access to easy finance at affordable rates and with less bureaucratic involvement.
4. The MSME sector needs to be clearly defined and demarcated on the basis of its economic and social conditions in order to diminish constraints that hinder

growth. In this regard, the national government needs to support and promote researchers and academic institutions so that intervention can be informed by concrete findings from research. At present, not enough research is being conducted, and not much real information is available. Factual information must come from a comprehensive and dedicated database of all MSMEs. This is critically important for supporting the sector in terms of determining tax amounts, levies, licensing fees and monitoring and evaluation activities.

5. Rules and regulations applicable to small businesses should be liberalised so that small businesses can realise their full potential with minimum inconvenience. Tax exemption should be allowed to the majority of MSMEs operating in the agricultural sector with the view of promoting value addition in primary products.
6. The Ministry of Education should develop a curriculum that equips young graduates with the social, entrepreneurial, industrial and commercial skills that are essential for small and medium businesses. The educational system should give attention to skills-based training to enhance self-employment in the MSME sector.
7. Government should promote and implement programmes that facilitate local and cross-border business activities, helpful linkages, strategic partnerships, skills-related networking and the outsourcing of activities among MSMEs and large enterprises.
8. The Ethiopian government is heavily dependent on the agricultural sector. It is essential to diversify investment in the direction of sectors other than agriculture. In this respect, particular attention should be given to sectors such as industry, manufacturing and services. Doing so will have potential for uplifting the status and role of MSMEs in the economy.

9. The development of the MSME sector primarily depends on the presence of favourable macroeconomic policies. Appropriate macroeconomic policies should be implemented in areas related to local and international trade, attraction of foreign direct investment, finance, information property rights, maintaining peace and stability in the country, etc. In this regard, land ownership should be liberalised with a view to attracting large-scale investment in the agricultural sector.
10. Globalisation has introduced both opportunities and threats to MSMEs in Ethiopia. At present, Ethiopian MSMEs do not have the capacity to compete with foreign businesses and enterprises because they are poorly equipped and under-resourced. Hence, the government should use macroeconomic policy as a tool to assist local MSMEs in terms of capacity building, infrastructure, access to finance and technology as a matter of urgency. Failure to do so may result in the elimination of the majority of local MSMEs.
11. Women constitute the majority of operators in the micro enterprises sector. They face more challenges than males operating in the sector at present. Therefore the government should promote the effective participation of women in all MSME-related activities through eliminating gender-related policy biases and constraints in the economy.
12. Finally, economic growth and development policies should place emphasis on the mobilisation of domestic capital resources in order to fill the gap between savings and investment.

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Appendix 1: Life table of MSMEs by region

| Interval | | Beg. | | | Std. | | |
|-------------|----|-------|--------|------|----------|--------|------------------|
| | | Total | Deaths | Lost | Survival | Error | [95% Conf. Int.] |
| ----- | | | | | | | |
| Addis Ababa | | | | | | | |
| 0 | 4 | 100 | 13 | 12 | 0.8617 | 0.0356 | 0.7738 0.9172 |
| 4 | 8 | 75 | 6 | 37 | 0.7702 | 0.0475 | 0.6603 0.8485 |
| 8 | 12 | 32 | 0 | 20 | 0.7702 | 0.0475 | 0.6603 0.8485 |
| 12 | 16 | 12 | 0 | 9 | 0.7702 | 0.0475 | 0.6603 0.8485 |
| 16 | 20 | 3 | 0 | 1 | 0.7702 | 0.0475 | 0.6603 0.8485 |
| 20 | 24 | 2 | 0 | 1 | 0.7702 | 0.0475 | 0.6603 0.8485 |
| 24 | 28 | 1 | 0 | 1 | 0.7702 | 0.0475 | 0.6603 0.8485 |
| | | | | | | | |
| Awassa | | | | | | | |
| 0 | 4 | 100 | 10 | 9 | 0.8953 | 0.0313 | 0.8141 0.9422 |
| 4 | 8 | 81 | 7 | 34 | 0.7974 | 0.0447 | 0.6922 0.8699 |
| 8 | 12 | 40 | 0 | 17 | 0.7974 | 0.0447 | 0.6922 0.8699 |
| 12 | 16 | 23 | 0 | 12 | 0.7974 | 0.0447 | 0.6922 0.8699 |
| 16 | 20 | 11 | 0 | 6 | 0.7974 | 0.0447 | 0.6922 0.8699 |
| 20 | 24 | 5 | 0 | 2 | 0.7974 | 0.0447 | 0.6922 0.8699 |
| 24 | 28 | 3 | 0 | 3 | 0.7974 | 0.0447 | 0.6922 0.8699 |
| | | | | | | | |
| Baherdar | | | | | | | |
| 0 | 4 | 100 | 7 | 7 | 0.9275 | 0.0264 | 0.8539 0.9647 |
| 4 | 8 | 86 | 12 | 45 | 0.7522 | 0.0503 | 0.6367 0.8356 |
| 8 | 12 | 29 | 2 | 16 | 0.6806 | 0.0663 | 0.5315 0.7911 |
| 12 | 16 | 11 | 0 | 5 | 0.6806 | 0.0663 | 0.5315 0.7911 |
| 16 | 20 | 6 | 0 | 5 | 0.6806 | 0.0663 | 0.5315 0.7911 |
| 24 | 28 | 1 | 0 | 1 | 0.6806 | 0.0663 | 0.5315 0.7911 |
| | | | | | | | |
| Mekele | | | | | | | |
| 0 | 4 | 100 | 12 | 6 | 0.8763 | 0.0334 | 0.7924 0.9278 |

| | | | | | | | | |
|----|----|----|---|----|--------|--------|--------|--------|
| 4 | 8 | 82 | 3 | 34 | 0.8358 | 0.0392 | 0.7413 | 0.8982 |
| 8 | 12 | 45 | 0 | 29 | 0.8358 | 0.0392 | 0.7413 | 0.8982 |
| 12 | 16 | 16 | 0 | 10 | 0.8358 | 0.0392 | 0.7413 | 0.8982 |
| 16 | 20 | 6 | 0 | 5 | 0.8358 | 0.0392 | 0.7413 | 0.8982 |
| 20 | 24 | 1 | 0 | 1 | 0.8358 | 0.0392 | 0.7413 | 0.8982 |

Nazeret

| | | | | | | | | |
|----|----|-----|----|----|--------|--------|--------|--------|
| 0 | 4 | 100 | 11 | 5 | 0.8872 | 0.0320 | 0.8055 | 0.9359 |
| 4 | 8 | 84 | 10 | 47 | 0.7405 | 0.0501 | 0.6268 | 0.8243 |
| 8 | 12 | 27 | 0 | 20 | 0.7405 | 0.0501 | 0.6268 | 0.8243 |
| 12 | 16 | 7 | 0 | 6 | 0.7405 | 0.0501 | 0.6268 | 0.8243 |
| 16 | 20 | 1 | 0 | 1 | 0.7405 | 0.0501 | 0.6268 | 0.8243 |

Appendix 2: Estimates from log-normal regression analysis

Log-normal regression -- accelerated failure-time form

No. of subjects = 496
 Number of obs = 496
 No. of failures = 93
 Time at risk = 3520
 LR chi2(17) = 212.75
 Log likelihood = 143.48319
Prob > chi2 = 0.0000

| _t | Coef. | Std. Err. | z | P> z | [95% Conf. Interval] |
|--------------|----------|-----------|-------|-------|----------------------|
| educationcat | 2.621121 | 1.221331 | 2.19 | 0.022 | 1.200391 7.901879 |
| startcap | 2.198991 | .876534 | 1.42 | 0.032 | 1.599087 4.028947 |
| competition | 2.197543 | .399800 | 1.31 | 0.702 | .199032 7.193905 |
| conversion | 5.398006 | 3.912344 | 1.98 | 0.000 | 3.198006 17.118469 |
| management | 3.223498 | 1.997800 | 2.76 | 0.002 | 1.907971 11.167897 |
| iqqub | 3.244566 | 4.673218 | 3.91 | 0.019 | 4.090632 7.128900 |
| profit | 3.239899 | 1.598762 | 1.10 | 0.002 | 2.001879 10.112095 |
| bankrupt | 3.799087 | 3.876599 | 4.11 | 0.016 | 3.099847 8.217890 |
| bustypecat | 1.498233 | 1.321156 | -2.13 | 0.174 | .595809 1.199008 |
| contributi~t | 2.229887 | .219899 | 0.31 | 0.465 | .509482 3.002987 |
| enabling | 2.121123 | 5.029899 | 1.90 | 0.036 | 1.990212 5.918176 |
| supportcat | 2.897900 | .499890 | 0.98 | 0.770 | .687895 2.109231 |
| mficredit | 1.456543 | 3.299870 | 5.45 | 0.024 | 0.393900 3.462610 |
| accessmarket | .349000 | .899765 | -1.12 | 0.280 | .234455 2.555433 |
| linkage | .391653 | .911234 | 0.44 | 0.190 | .0213456 3.543444 |
| customerscat | .798907 | .498000 | 0.78 | 0.623 | .219866 4.998765 |
| inputcat | .662890 | .198799 | -0.66 | 0.412 | .516578 1.450988 |
| location | 2.239831 | 1.689098 | 1.99 | 0.262 | 2.120021 8.678990 |
| plan | 2.989221 | .696789 | 2.23 | 0.212 | 1.721230 5.456789 |

| | | | | | | | |
|---------|--|----------|----------|-------|-------|----------|----------|
| _cons | | 5.678092 | .738291 | 7.69 | 0.000 | 4.105661 | 7.313200 |
| ----- | | | | | | | |
| /ln_sig | | -.035643 | .0808877 | -0.44 | 0.659 | -.19418 | .122893 |
| ----- | | | | | | | |
| sigma | | .964984 | .078055 | | | .8235096 | 1.130764 |
| ----- | | | | | | | |

Appendix 3: List of dummy variables used for multiple linear regression analysis

| Variable | Proxy or categorical variables | Coded dummy variables | |
|------------------------------|--|------------------------|-----------------|
| | | 1 | 0 |
| Human capital (H) | Education level | Illiterate | Literate |
| | Experiences at start of business | None | Some experience |
| Participation in iqqub | Business training | Never received | Received |
| | Participation | No | Yes |
| | Information acquired from iqqub scheme members | Not useful | Useful |
| | Changes in capital | Decreased or no change | Increased |
| | Peer group effects | Not affected | Affected |
| Personal characteristics (P) | Age category | > 45 years | ≤ 45 years |
| | Motivation for working hard | No | Yes |
| Firm characteristics (F) | Family size | 7 or above | < 7 |
| | Gender | Female | Male |
| | Participation in iqqub schemes | No | Yes |
| | Enjoying MSME work | No | Yes |
| | Hours spent at work | 6 hrs or less | > 6 hrs |
| | Amount of start-up capital | \$ 2000 or less | > \$ 2000 |
| | Life time | 5 years or less | > 5 years |
| Source of start-up capital | Loan | Others | |

Appendix 4: Questionnaire administered at business level

Part A. Socio-economic and demographic questions related to head of household

Respondent number _____

Name of the household _____

Postal address _____

Telephone number _____

Physical address _____

Date of interview _____

1. ID number of respondent

2. Region

3. Gender
 1. Male
 2. Female

4. Age in years

5. Ethnic group
 1. Tigrie
 2. Amhara
 3. Southern (Gurage, Sidama, Wolayita, Kemabata, Hadiya & Others)
 5. Oromo
 6. Others

6. Marital status
 1. Single
 2. Married
 3. Divorced
 4. Widowed
 5. Living together

7. Educational status
1. Illiterate
 2. Elementary or below
 3. Secondary level
 4. Diploma level
 5. University degree or above

8. Business sector
1. Manufacturing
 2. Commerce
 3. Service provider
 4. Construction
 5. Others

9. Business type_____

10. Year of establishment of business

11. If your firm has been out of business previously, when did that happen?

12. Are you the sole owner of the business?

1. Yes
2. No

13. Estimated size of firm in Ethiopian Birr (1Birr = 1 Rand)

1. Less than or equal to 20, 000 Birr
2. Between 20,001 and 40,000 Birr
3. Between 40,001 and 60,000 Birr
4. 80, 001 and 100, 000 Birr
5. Above 100, 000 Birr

14. Your previous job experience (What did you do before starting this business?)

1. I operated another business firm of my own
2. I was employed as a wageworker at another business firm
3. I provided services free of charge
4. I was unemployed
5. I was studying at a formal school
6. Others

15. Physical location of business

1. Commercial business district of town
2. Formal market place (tax paying)
3. Informal market place (does not pay tax: Example: hawker)
4. Street
5. Home or residential property
6. Others

16. How was the business started?

1. Purchased from previous owner with own money
2. With loan money
3. With inherited money or capital
4. From scratch, with own money
5. Others

17. What motivated you to start this business?

1. A basic need for livelihood or financial survival
2. Absence or shortage of employment opportunities
3. Family or peer influence
4. Business seen as an opportunity to make wealth
5. To generate income during retirement
6. Others

18. Did you have a business plan for your business?

1. Yes
2. No

19. Does your earning from the business make an essential part of the family daily budget?

1. Yes
2. No

20. On average, how many hours per day do you spend on your business?

1. Less than 4 hours
2. Between 4 and 6 hours
3. Between 6 and 8 hours
5. More than 8 hours

21. What proportion of your surplus do you regularly convert to investment?

1. Almost all my surplus converted
2. At least half of my surplus converted
3. Less than half of my surplus converted
4. No surplus converted

22. Do you enjoy the nature of business you do?

1. Yes
2. No

23. How many people do you support with your income?

24. How large is the estimated total contribution of the people you support to the household per day in Birr?

25. Do you pay government tax regularly?

1. Yes
2. No

26. If you pay tax regularly, is the amount of tax you pay fair?

1. Yes
2. No

27. Do you face stiff competition from imported goods?

1. Yes
2. No

Part B. Questions related to the business firm

Respondent number _____

Name of business firm _____

Postal address _____

Telephone number _____

Physical address _____

Date of interview _____

1. Original operating capital in Ethiopian Birr (1 Birr = 1 Rand)
2. What was your principal source of capital for starting business?
 1. Own savings
 2. Loan from relatives or friends
 3. Loan from a major bank
 4. Donation
 5. Loan from a formal micro financial institution
 6. Loan from informal moneylenders
 7. Loan from iqqub scheme
3. How large is your current operating capital in Birr?

4. Have you ever taken a bank loan since start-up?

1. Yes
2. No

5. If you have taken a bank loan, how large was the amount in Birr?

6. What was the interest rate on your loan?

7. How long was your repayment period in months? _____

8. How favourable were the terms of loan repayment?

1. Excellent
2. Very good
3. Good
4. Satisfactory
5. Problematic
6. More problematic

9. What did you use as collateral to obtain your bank loan?

1. Private fixed property such as home
2. Private mobile property such as vehicle
3. Personal income such as salary
4. Personal savings such as retirement fund
5. Letter of guarantee from employer or association
6. Others

10. Have you ever taken a loan from other institutions before?

1. Yes
2. No

11. If yes, how many times did you take loan?

12. If yes, where did you take your loan from?

1. A lending association such as the micro finance institution
2. An iqqub association
3. An individual moneylender
4. Others

13. How favourable were your terms of loan repayment?

1. Very good
2. Moderately good
3. Below average
4. Poor

14. Please complete the following table for each of the years from 1996 to 2001

(Longitudinal assessment of firm over a 6-year period)

| | Variable of study | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|-------------------------------------|------|------|------|------|------|------|
| 1 | Gross yearly income | | | | | | |
| 2 | Gross yearly operating expense | | | | | | |
| 3 | Yearly loan from banks or elsewhere | | | | | | |
| 4 | Rental fees | | | | | | |
| 5 | Number of employees | | | | | | |
| 6 | Gross yearly salary expenditure | | | | | | |
| 7 | Gross yearly capital expenditure | | | | | | |
| 8 | Gross technical expenditure | | | | | | |
| 9 | Money obtained from iqqub schemes | | | | | | |

| | | | | | | | |
|----|-----------------------------|--|--|--|--|--|--|
| 10 | Gross yearly tax paid | | | | | | |
| 11 | Gross interest paid on loan | | | | | | |
| 12 | Gross donation | | | | | | |
| 13 | Net yearly revenue | | | | | | |

15. Do you keep a separate record of business and other household income?

1. Yes
2. No

16. How has your net annual profit been over the past 5 years?

1. Increasing
2. Decreasing
3. Constant

17. In your view, how helpful are the banks or formal lending institutions to small businesses such as yours?

1. Very helpful
2. Moderately helpful
3. Less than helpful
4. Totally unhelpful

18. In your view, how helpful are informal lending associations such as iqqub schemes to small businesses such as yours?

1. Very helpful
2. Moderately helpful
3. Less than helpful
4. Totally unhelpful

19. If your net profit has increased over the past several years, what do you think is the reason for the increase?

1. Expansion of enterprise
2. Increase in demand for goods or services

3. Development of skills of workers
4. Improvement of working environment
5. Other reasons
6. Question not applicable

20. How has your net saving been since you started operating?

1. Increasing
2. Decreasing
3. Constant

21. Do you regularly pay all your employees on time each month?

1. Yes
2. No
3. Question not applicable to respondent

22. Have you ever-defaulted on repayment of any loan?

1. Yes
2. No

23. What percentage of your annual expenditure is spent on each of the following?

(Please fill in the percentages in the spaces provided)

| Item | Salary and wages | Consumption | Investment | Loan repayment | Others |
|------|------------------|-------------|------------|----------------|--------|
| % | | | | | |

24. In the following table, please assign ordinal scores varying from 1 to 5 to each of the 20 questions asked. The questions are related to constraints or challenges experienced by your firm over the past year. The score 1 means no problems were experienced by your firm, whereas the score 5 means severe problems were experienced by your firm.

- 1: No problems were experienced at all
- 2: Minor problems were experienced

- 3: Commonly expected problems were experienced
- 4: Moderately challenging problems were experienced
- 5: Severely challenging problems were experienced

| # | Problem or constraint | 1 | 2 | 3 | 4 | 5 |
|----|----------------------------------|---|---|---|---|---|
| 1 | Legal and regulatory environment | | | | | |
| 2 | Access to market | | | | | |
| 3 | Raising initial finance | | | | | |
| 4 | Lack of business information | | | | | |
| 5 | Securing business premises | | | | | |
| 7 | Managerial skills | | | | | |
| 8 | Access to appropriate technology | | | | | |
| 9 | Infrastructure | | | | | |
| 10 | Discriminatory practice | | | | | |
| 11 | Supply of raw material (input) | | | | | |
| 12 | Dalliance in bank transfer | | | | | |
| 13 | Competition from rivals | | | | | |
| 14 | Lack of supporting intuitions | | | | | |
| 15 | Low level of business skills | | | | | |
| 16 | Corruption | | | | | |
| 17 | Inflation | | | | | |
| 18 | Street crime | | | | | |
| 19 | Harmful traditional culture | | | | | |
| 20 | Un-enabling working environment | | | | | |

25. Have you received any business development training since start up?

- 1. Yes
- 2. No

26. If you have received any business-related training during this past year, please indicate the types of training(s) that helped you the most to develop your business along with the name of the organization that provided you with the training.

| No. | Type of training given | Organized by | Was it tailored to meet your needs? (yes/no) | Year training given |
|-----|------------------------|--------------|--|---------------------|
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |
| 4 | | | | |
| 5 | | | | |

27. What type of training would you like to receive?

1. Management training
2. Technical or production training
3. Marketing training
4. Bookkeeping training
5. Business planning training
6. Others
7. Non-applicable

28. Who are your main customers?

1. Manufacturers
2. Individuals
3. Wholesalers
5. Retail traders
6. Others

7. One or other

29. Were you given any financial assistance by a commercial bank this past year? If so, did the bank provide you with an approved credit at full level?

- 1. Yes
- 2. No
- 3. Question not applicable

30. Have you ever invested loaned money in an income generating activity?

- 1. Yes
- 2. No
- 3. Non-applicable

31. Have you ever used any portion of your bank loan for any of the following activities?
(Please tick the applicable box)

| | To buy food or clothes | To buy a vehicle | To buy furniture | To pay for medical expenses | To pay back outstanding debt | To buy or build a house |
|-----|------------------------|------------------|------------------|-----------------------------|------------------------------|-------------------------|
| Yes | | | | | | |
| No | | | | | | |

32. Were you given any loan by a microfinance institution this past year? If so, did you manage to fulfil your objectives with the loan given to you?

- 1. Yes
- 2. No
- 3. Question not applicable

33. If your objective has been fulfilled, in what respect was that done?

- 1. Staff employment
- 2. Increasing profit
- 3. Increasing savings

4. Investing more
5. In growing scale of economy or capacity
6. In the repayment of outstanding loan
7. Others
8. Question not applicable

34. Do you need to improve any further?

1. Yes
2. No
3. Question not applicable

35. If you need to improve further, in what respect do you intend to do so?

1. Income
2. Savings
3. Functional skills
4. Sales
5. Employment
6. Quality
7. Others
8. Question not applicable

36. What type of raw materials do you regularly use for production of goods and services?

1. Predominantly local
2. Semi-local
3. Predominantly imported

37. Do you buy your inputs in larger quantities?

1. Yes
2. No

38. Allocate scores to each of the following support programmes on the basis of relevance to your basic needs. The numbers 1 and 5 denote the lowest and highest need respectively. (Please tick the appropriate box)

| | 1 | 2 | 3 | 4 | 5 |
|---------------------------------|---|---|---|---|---|
| Financial issues | | | | | |
| Training on business management | | | | | |
| Entrepreneurial support | | | | | |
| Marketing | | | | | |
| Advice | | | | | |
| Tax reduction | | | | | |
| Information | | | | | |
| Input | | | | | |
| Premises | | | | | |
| Interest rate reduction | | | | | |

39. What proportion of the stated goals of your business has been met?

1. Almost all goals have been met
2. Above average
3. Average
4. Below average
5. Little or nothing has been achieved

40. How is the financial situation of your firm at present?

1. Profitable and doing exceptionally well
2. Doing well
3. Surviving as expected
4. Struggling
5. Almost bankrupt
6. Non-applicable

41. Have you ever-participated in iqqub schemes?

1. Yes
2. No

42. If you are a member of an iqqub scheme, have you ever settled a bank debt using money from iqqub savings?

1. Yes
2. No
3. Question not applicable

43. Would you like to make a comment?

Part C. Questions related to MSMEs

Respondent number _____

Name of the organization _____

Postal address _____

Telephone number _____

Physical address _____

Date of interview _____

1. How important is the MSME sector in Ethiopia? And in what way?
2. Are there sector development strategies for MSMEs? If so, what are the principal priorities?
3. In your opinion to what degree is the selector strategy policy linked with the national development and poverty reduction agenda?
4. Is the MSME sector operating as expected from the sector?
 1. Yes

2. No.

If your answer is no, please indicate the reason why.

5. In your opinion what are the major causes for the high failure rate of MSMEs?

6. Please list down and rank major problems that the SMME sector is facing in general.

7. What are the strong points of MSME policies?

8. What are the weak points on MSME policies?

9. How can the level of support provided to MSMEs be strengthened?

10. Do you agree that shortage of finance is the number one problem for the majority of MSME s?

1. Yes

2. No

11. Do you believe that savings from iqqub schemes can play a role as an alternative financial source for the MSME sector?

1. Yes (If yes, why?)

2. No

12. What will be your organization's role in promoting the sector?

13. Is there any weakness from the owner's side with regard to financial management?

14. What are the main weaknesses from the creditor's side? Please explain.

15. Do you have any comment or suggestion?

Part D. Questions related to participation in iqqub schemes

Respondent number _____

Name of the iqqub association _____

Postal address _____

Telephone number _____

Physical address _____

Date of interview _____

1. Name of iqqub scheme and year of establishment _____
2. The current membership size _____
3. Gender composition: Female _____ Male _____
4. Date of regular contribution _____
5. Amount of contribution per person in Birr _____
6. Total Amount of collection per iqqub scheme in Birr _____
7. Criteria for membership _____
8. How stable is the iqqub membership? 1. High 2. Low
9. Number of defaulters in your iqqub scheme since establishment _____
10. Why do people prefer iqqub savings to formal banks?
11. In your opinion why do people join iqqub schemes?
12. Is there a positive relationship between participation in iqqub schemes and the use of household assets for debt settlement? 1. Yes 2. No
13. Do you think that iqqub schemes can be an alternative source of finance for MSME s?
 1. Yes
 2. No
 3. Iqqub schemes can serve as a complement to other financial sources.
14. If you have answered yes to (13) above, how best can this be done?
15. Is it possible to link iqqub schemes (informal financial institutions) with the formal financial sector (Banks and microfinance institutions?)
 1. Yes
 2. No
16. What kind of support do you need from the government or a non-governmental organization in order to realize your vision?

17. Is there any other assistances that iqqub schemes can provide to members?

18. Does your iqqub scheme have any bylaws?

19. How long do you think this iqqub scheme will continue?

20. Do you have any other suggestions on the workings of your iqqub scheme?

Appendix 5: List of important predictor variables

| <i>No</i> | Description of predictor variable |
|-----------|--|
| <i>1</i> | <i>Business failure (died):</i> Is defined as the closure of a business after staying for at least one year in business. It is an undesirable result, and is caused by a number of adverse internal and external factors to the firm. Survival in business indicates the |

| | |
|---|---|
| | continuous operation of business and sustained viability. Hence, the terms survival and viability are used interchangeably throughout the study. |
| 2 | <i>Gender:</i> The triple role of women gives them less time to properly manage their business. Due to these and other impediments it is assumed that the majority of MSMEs headed by women are expected to fail sooner than those headed by their male counterparts. |
| 3 | <i>Age of the firm:</i> Age of a firm is based on period of operation. Firms with 5 or fewer years of operation are treated as Young firms. |
| 4 | <i>Family size:</i> In most cases, large family size has a negative impact on the development and efficiency of MSMEs. An increase in family size is strongly associated with an increase in social and economic needs that are often met by diverting financial resources out of income generated by firm. |
| 5 | <i>Education level:</i> A high level of education is assumed to be a significant factor in increasing the operational efficiency and profitability of business firm success through helping the owner to make strategically important business decisions by accepting a reasonable and calculated risk. |
| 6 | <i>Job experience:</i> In order to run any business successfully, the possession of minimum relevant skills is essential. Skills are often derived from past experience. Experience enables business operators to find ways and means of survival in difficult circumstances. |
| 7 | <i>Training:</i> Small businesses have a high failure rate at their initial stages. Training opportunities minimize the risk of failure. The provision of training to entrepreneurs who want to start new businesses gives businesses a better chance of survival and expansion. |
| 8 | <i>Firm size:</i> Business survival varies among MSMEs by firm size. As firm size increases, productivity, survival and profitability also increase. Firm size and viability are often positively associated. |
| 9 | <i>Motivation:</i> MSMEs can be started for various reasons. In running businesses, some owners are less motivated than others. High motivation and survival are often |

| | |
|----|--|
| | positively associated. Motivation is crucial for high performance and survival of MSMEs. |
| 10 | <i>Hours spent:</i> The longer the number of hours spent on doing business, the more becomes the profit generated. Spending more time at business contributes significantly to managing firm activities better. By the same token, the less the time spent at business, the smaller becomes the likelihood of success. |
| 11 | <i>Managerial ability:</i> Business owners often manage their MSMEs. Managerial ability has a significant influence on operating businesses profitably. Such ability means an efficient utilization of scarce resources that are crucial for the continued growth of businesses. |
| 12 | <i>Finance:</i> All businesses require access to finance for maintaining growth and expansion. Firms that are started with own financial source have better survival chances than others. |
| 13 | <i>Premises:</i> Many MSMEs operate out of rented premises. Rented premises are often highly costly, and could easily affect business growth. Some premises are located ideally, while others are located at the wrong place. The availability of suitable premises is crucial for the viability of MSMEs. |
| 14 | <i>Infrastructure:</i> Infrastructural growth has a positive effect on the viability of MSMEs and their dynamism by reducing their cost of operation. Good infrastructure contributes to the development and growth of small businesses, and enables them to contribute to the overall economy. |
| 15 | <i>Iqqub savings:</i> Iqqub is a financial scheme that provides access to finance. The lump sum received from iqqub schemes is interest free, and comes with no stringent conditions. Businesses that participate in iqqub schemes generally survive better than those that do not. |
| 16 | <i>Tax rate:</i> A high tax rate is an obstacle to MSMEs operators. High tax rate affects small businesses negatively, and limits their growth potential. It is believed that a modest tax rate gives an impetus to the growth and survival of MSMEs. |
| 17 | <i>Competition:</i> Most MSMEs suffer over-crowdedness. The more the number of competitors, the fewer is the number of participants who benefit from participation. |

| | |
|----|--|
| | The more the number of MSMEs providing similar products and services, the less becomes viability. This is because the domestic market is often limited in capacity. |
| 18 | <i>Business plan:</i> A good business development plan guides the entrepreneur to undertake activities wisely. It is the backbone of successful business operation, and ensures long-term survival and viability. |
| 19 | <i>Conversion of profit to investment:</i> MSMEs need to set aside a certain portion of their profit for future business development and expansion. Conversion of profit at least partially gives momentum to firm growth and survival. |
| 20 | <i>Technology:</i> Access to improved technology and research findings is crucial for efficiency, profitability and sustained growth. Appropriate technological findings of MSMEs will help them to produce new products and services that strengthen their capacity to compete better and to survive in the free market in an era of globalisation. |
| 21 | <i>Raw material:</i> The majority of MSMEs use domestic inputs for their production while others partially or entirely depend on imported inputs. Availability of raw materials in domestic markets is crucial for profitability and growth of MSMEs. |
| 22 | <i>Sources of initial capital:</i> Different sources of finance are available for MSMEs, with different cost conditions. Firms that are started with own capital are assumed to perform and survive better than those started with borrowed initial capital. |
| 23 | <i>Profitability:</i> Sustainable and good level of profit not only helps MSMEs to achieve the next level of growth, but also gives them the potential to stay in business. Financial loss indicates difficulties of firms. |
| 24 | <i>Enjoy:</i> Enjoying the nature of business done by the MSME is crucial for long-term success. Discontent results in business failure. |
| 25 | <i>Bankruptcy:</i> A severe shortage of finance and lack of profitability leads to bankruptcy. Bankruptcy results in negative equity and forces owners to give up business operation. |
| 26 | <i>Recording:</i> Keeping accurate and up-to-date business records helps firms to evaluate their degree of success objectively. The practice of keeping business |

| | |
|----|--|
| | records is crucial for successful business operation. |
| 27 | <i>Working environment:</i> The presence of a favourable working environment enables growth of business and expansion. It improves competitiveness, stimulates efficiency and increases further growth and innovation in the sector. |

Appendix 6: Mathematical expressions for the Cox Proportional Hazards Model

The probability that a business firm in the study ceases to operate is given by the following statistical expression:

$$\Pr(Y = 1) = \frac{1}{1 + \exp(-Z)} \dots\dots\dots\text{Eqn (1)}$$

where

$$Z = \hat{\beta}_0 + \hat{\beta}_1 X_1 + \dots\dots\dots + \hat{\beta}_p X_k \dots\dots\dots\text{Eqn (2)}$$

Using Eqn (3), the probability of Y=1 (the probability that a firm ceases to operate given values of the predictor variables $X_1, X_2, \dots\dots, X_k$ can be worked out for any randomly identified MSME in the study.

The Kaplan-Meier product limit technique is the recognized approach for calculating survival curves in such studies. Suppose that the survival times after entry to the study (ordered by increasing duration) of a group of n MSMEs denoted by t_1, t_2, \dots, t_n are given. The proportion, p, of MSMEs surviving beyond any follow up time (t) is estimated by the Kaplan-Meier technique as:

$$\hat{p} = \prod_{i=1}^n \frac{r_i - d_i}{r_i} \dots\dots\dots\text{Eqn (4)}$$

In Eqn (4),

\hat{p} is the proportion of MSMEs surviving beyond any follow up time t

r_i is the number of viable MSMEs just before time t_i (the ith ordered survival time)

d_i is the number of MSMEs that failed at time t_i

The standard error of \hat{p} is given by:

$$SE(\hat{p}) = \sqrt{\frac{\hat{p}(1 - \hat{p})}{n'}} \dots\dots\dots\text{Eqn (5)}$$

In Eqn (5), $n' = n -$ number of MSMEs lost to follow up before time t

= Effective sample size at time t

When there are no censored survival times, $n' = n$.

A $100(1-\alpha)\%$ confidence interval for the true survival proportion P at time t is given by:

$$P \in [\hat{p} \pm Z_{1-\frac{\alpha}{2}} \times SE(\hat{p})] \dots\dots\dots \text{Eqn(6)}$$

The Cox model hazard function

The Cox model hazard function is given by $h(t, X)$ in the expression shown below:

$$h(t, X) = h_0(t) \exp\left(\sum_{i=1}^p \beta_i X_i\right) \text{ where } X = (X_1, \dots, X_p) = \text{a collection of } p \text{ explanatory variables that affect survival time.} \dots\dots\dots \text{Eqn (7)}$$

The Cox model uses survival times and censoring for the estimation of parameters. By contrast, the logistic regression model uses a dichotomous dependent variable (0, 1) as an outcome variable, and ignores survival times.

The econometric measure of effect in survival analysis is the hazard ratio, which involves only the β 's. Estimates of the β 's are maximum likelihood estimates.

$h_0(t)$ is the baseline hazard function. It involves t, but not the X variables. For the Cox proportional hazards model, $h_0(t)$ is obtained by replacing all X variables by zeros in the expression for $h(t, X)$.

The proportional hazards assumption requires that the hazard rate is constant over time, or equivalently, that the hazard for one individual is proportional to the hazard for any other individual and that the proportionality constant is independent of time.

$\exp\left(\sum_{i=1}^p \beta_i X_i\right)$ involves the X (predictor) variables, but not the time, t. The X variables do not depend on the time t.

The Cox proportional hazards model is non-parametric because $h_0(t)$ is unspecified. The estimated Cox model survival function is given by:

$$\hat{S}(t, X) = \hat{S}_0(t)^{\exp\left(\sum_{i=1}^p \beta_i X_i\right)} \dots\dots\dots \text{Eqn (8)}$$

In Eqn (8),

$\hat{S}_0(t)$ is the estimated baseline survival function

$\hat{\beta}_1, \hat{\beta}_2, \dots, \hat{\beta}_p$ are the estimated regression coefficients

Survival curves can be derived from the Cox proportional hazards model.

Properties of the Cox proportional hazards model

- a) It is possible to estimate the hazard ratio without needing to know $h_0(t)$.
- b) It is possible to estimate $h_0(t)$, $h(t, X)$ and survivor functions even if $h_0(t)$ is not specified.
- c) The expression $\exp\left(\sum_{i=1}^p \beta_i X_i\right)$ ensures that the estimated hazard is non-negative.
- d) The Cox model is robust because it usually fits the data well no matter which parametric model is appropriate.

The likelihood function is denoted by $L(\beta)$ = joint probability of observed data.

L is a partial likelihood function that considers probabilities only for those subjects who fail. L does not consider probabilities for subjects that are censored.

L_j denotes the likelihood of failing at the j th failure time, given that the subject has survived up to this time. The set of individuals at risk at the j th failure time is called the risk set, and is denoted by $R(t_{(j)})$. This set gets smaller in size as the failure time increases.

L_j = Proportion of L for the j^{th} failure time given the risk set $R(t_{(j)})$.

$$L = L_1 \times L_2 \times \dots \times L_k = \prod_{j=1}^k L_j \dots \dots \dots \text{Eqn(9)}$$

To obtain maximum likelihood estimates, we solve the following expression:

$$\frac{\partial L}{\partial \beta_i} = 0; \quad i = 1, \dots, p = \text{number of parameters}$$

STATA solves the above equation by iteration.

The hazard ratio (HR)

In the Cox proportional hazards model, the hazards ratio is estimated by

$$HR = \frac{\hat{h}(t, X^*)}{\hat{h}(t, X)} = \exp \left[\sum_{i=1}^p \hat{\beta}_i (X^*_i - X_i) \right] \dots \dots \dots \text{Eqn (10)}$$

$$= \exp \left[\hat{\beta}_1 (X^*_1 - X_1) + \hat{\beta}_2 (X^*_2 - X_2) + \dots + \hat{\beta}_p (X^*_p - X_p) \right] = \theta \quad \dots \dots \text{Eqn (11)}$$

In Eqn (11), θ is a constant. This fact makes the Cox proportional hazards model suitable and convenient for panel data analysis. Note also that the expression for the hazard ratio does not involve the time t , because the baseline hazard has cancelled out.

$$HR = \frac{\hat{h}(t, X^*)}{\hat{h}(t, X)} = \theta \quad \dots\dots\dots \text{Eqn (12)}$$

$$\hat{h}(t, X^*) = \hat{\theta} \hat{h}(t, X) \quad \dots\dots\dots \text{Eqn(13)}$$

$\hat{\theta}$ is a constant of proportionality, and does not depend on the time t.