

**DETERMINANTS OF EARNINGS; POLICY AND
INSTITUTIONAL CHALLENGES OF SELECTED
INFORMAL RECYCLERS AND RECYCLABLE
ITEMS TRADERS:
THE CASE OF “CHID TERA”**

By

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*A Thesis Submitted to the School of Graduate Studies
Addis Ababa University in Partial Fulfillment of the
Requirements for the Degree of Master of Science in
Economics*

**School of Graduate Studies
Addis Ababa University
Department of Economics
Addis Ababa
July 2008**



**ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES**

**“Factors Determining Growth and Productivity of
the Informal Sector: The Case of Addis Ababa.”**

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Acknowledgments

I would like to express my deepest gratitude to Professor Teshome Mulat, who is my thesis advisor, for his incessant and dedicated assistance throughout the course of my thesis work. Undeniably, the study would have not been accomplished without his effort.

My special appreciation goes to heads and members of the “Bottle and Barrel Traders Share Company”, for their sincere cooperation and granting me access to invaluable information for the study during the field work.

I am also indebted to my friend Daniel G/Hiwot for his genuine advice, technical support and critical comments, and Melaku Begashaw for offering me unforgettable moral support. I wish to thank my mother Yeshimebet Debello, my wife Yalemabrihan G/Medhin and my daughter Heldana for their patience and continuous encouragement throughout my study.

I would like to acknowledge all those who have supported me in preparing this paper.

Abstract

The purpose of this study is to explore the determinants of income as well as policy which potentially affect the performance of the informal sector in Addis Ababa. The case study approach is followed and attempt is made to make policy recommendations based on the study results. The primary data was collected from 150 operators of the association using structured questionnaire. In addition, brief survey of the literature was conducted regarding institutional, legislative and other capacity building efforts made for the development of the informal sector. To carry out estimations, a standard earning equation was employed.

The result indicates that labor market experience, marital status and family sizes significantly influence earnings of metal recyclers and traders of recyclable metal, plastic and glass items. For recyclable items traders the principal determinants of income are education and own-capital. Informal metal recyclers, on the other hand, tend to invest higher capital and responded better to the contemporary micro and small scale policy. The study also shows that in general most informal sector operators lack tuned and essential supports like access to finance, working premise and market linkage for business development. It is also noted that government lacked the commitment and institutional capacity to provide continuous support and guidance to the sector.

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LIST OF ACRONYMS

AA - Addis Ababa
ADLI - Agricultural Development Led Industrialization
AETU -All-Ethiopia Trade Union
AFL-CIO -American Federation of Labor-Congress of Industrial Organizations
CELU- Confederation of Ethiopian Labour Union
CETU- Confederation of Ethiopian Trade Union
CPA- Central Personnel Agency
CSA -Central Statistical Agency
EATUO -Eastern Africa Trade Union Organization
EPRDF - Ethiopian People Revolutionary Democratic Front
ERRP - Economic Recovery and Rehabilitation Program
ETU - Ethiopia Trade Union
FEE - Federation of Employers of Ethiopia
FMSEDA- Federal Micro and Small-Scale Enterprises Development Agency
FMSES - Federal Micro and Small-Scale Enterprises Strategy
GDP – Gross Domestic Product
GNI - Gross National Income
HASIDA - Handicrafts and Small Scale Industries Development Agency
ILO – International Labor Organization
ICFTU-AFRO - International Confederation of Free Trade Unions - Africa Regional Organization
JASPA- Jobs and Skills Program for Africa
MCD - Ministry of Community Development
MOLSA - Ministry of Labor and Social Affaires
MSE - Micro and Small-Scale Enterprise
NGO - Non-Governmental Organization
OATUU- Organization of African Trade Union Unity
OECD - Organization for Economic Cooperation and Development
ORAAMP – Office for the Revision of Addis Ababa Master Plan

PASDEP - Plan for Accelerated and Sustained Development to End Poverty
PIC - Productivity Improvement Center
RMSEDA- Regional Micro and Small-Scale Enterprises Development Agency
RMSES - Regional Micro and Small-Scale Enterprises Strategies
SDPRP - Sustainable Development and Poverty Reduction Program
SNNPR- Southern Nations, Nationalities and People Region
TIDB - Trade and Industry Development Bureau
TVET- Technical and Vocational Education Training
WEP – World Employment Program



CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Urbanization is expanding in the world and particularly in developing countries, and it does so at an escalating rate. Two decades ago less than 29 percent of the population in the developing countries lived in urban areas. In the year 2000, this figure reached 40 percent, and by 2020, it is estimated that 52 percent of the population of developing countries will reside in urban areas (UNCHS, 1999). This rapid rate of urbanization undeniably calls for exorbitant funding of infrastructure development to provide for sustainable livelihoods of the growing mass of urban population.

Rapid urbanization and limited employment possibilities were preceded by a virtual collapse of agriculture and urban-ward drift/migration of the rural people, which created a crisis of unemployment, poverty and underdevelopment. The labor market disequilibria manifested itself by an excessive and growing gap between the demand for and supply of labor. The traditional labor sponges, such as the informal economy, have been utilized to their limits, and the ability of government to redress these imbalances or restore labor market equilibrium appears to have escaped the realm of possibilities a long time ago.

Traditional coping mechanisms (such as credit associations, cooperation and sharing of common resources, mutual help societies, etc.) have virtually collapsed under the heavy weight of extreme deprivation and poverty of the people. Governments in much of Sub-Saharan Africa have so far failed to provide guidance and leadership, and failed also to identify niches that have potentials to reverse the slide toward impending crises and permanent disability.

Government development policy in Ethiopia has so far targeted the formal economy to the relative neglect of the informal economy. Perceptions about the informal sector are wide-ranging. Some view the informal sector as a battle ground between progress and backwardness, between enlightenment and ignorance, between collective action for the common good and selfish endeavors to better the individual at the expense of the collective. The informal sector is perceived as a geographical and an economic space where egoism overpowers altruism and where the law enforcement agencies expend the largest share of their budget allocation.

Some others view the informal sector as a sector of possibilities. The GDP share of urban output contributed by the informal sector in Ethiopia is assumed to be considerable and its employment share is believed to be over 60 percent of the total urban employment. Large numbers of households are engaged in activities such as catering, restaurant, production of local beers and liquor, small scale industrial manufacturing, small scale construction, dairy industry, provision of household labor services, etc. Large numbers of individuals live by offering skilled service in household maintenance as plumbers, carpenters, tailors, hairdressers, and the like.

Street vendors and small shop owners are visible everywhere in Ethiopian towns and villages and in larger towns a significant number of people make a living by hawking and brokerage. A visible sight in Addis Ababa these days is organized garbage collection, which is filling an important gap in the delivery of municipality service.

Many individuals receive apprenticeship training in household craft industries and repair and maintenance workshops. For example, old vintage vehicles, which long ago have ceased to operate in the streets of Europe and elsewhere, still perform well and are a common sight on Ethiopian roads and tracks. The creative endeavors of many garages and machine tools production shops of the informal sector have made this possible.

Although not sophisticated and operating at the scale of their counterparts in South and East Asia, many individuals are actively engaged in a wide array of sub-contracting activities. For

example, in the coffee sector small scale retail trading, coffee storage, packaging and transporting activities account for a large portion of the price build-up of exported coffee (Teshome, 1979: PP.51-68). Coffee exports constitutes a formal sector activity generally, although illegal trading is common and smuggling takes place through border outlets. These pre-export activities provide livelihoods for many people in the informal economy.

In addition, small-scale and craft industries of the informal sector provide wholesale traders and exporters with outputs of their industries including textile fabrics, jewelry, decorative items, etc.

At this juncture, it would be essential to support those informal sector activities which create added value and provide positive externalities to the employment and development effort in the economy. An attempt will be made in this study to identify and promote activities of the informal urban sector which meet this aforementioned attributes and investigate the institutional challenge and resource constraints which stand in the way of progress and productive employment growth.

1.2. Statement of the Problem

Over the past 30 years or so, Addis Ababa faced a trend of economic downturn and a precipitous drop in the standard of living of the population. This trend can be explained by the following important developments of the past twenty years or so. First, Excessive increase in labour supply, on the one hand, and constricted demand, on the other hand, not only account for labour market disequilibria but also explain the continued crisis of unemployment, poverty and underdevelopment. Street children, who were invisible two decades ago, now swarm the town in their hundreds of thousands. A major cause for the excessive growth of labour supply has been combined weight of a natural population growth, and the continuous migration of rural people and migrations from other cities towards the town. The collapse of agriculture, rural poverty, ethnic strife, loss of livelihoods, the failure of law enforcement in the rural villages and other cities, etc. constitute perhaps the most important “push factors”, which were evident especially during “regime change”.

Second, a large portion of what constitutes the “public economy” is located in Addis Ababa, and includes, inter alia, town administration, ministries and other government agencies and public enterprises. The public sector, which provided productive employment to a large portion of the urban population, was showing signs of saturation, inefficiency and decay since the 1970’s. The sector is characterized by low absorptive capacity and disguised unemployment. Labour productivity is low and possibly still declining. High rates of absenteeism, rampant corruption, delays, red-tapes and long queues are common place in all the public sector.

Third, the failure of the public sector reform program of the early 1990’s has contributed towards lack of a breakthrough in the unemployment–poverty-underdevelopment nexus in today’s Ethiopia.

Fourth, Multifaceted approach to problem solving is considered as the best strategy for overcoming the adverse effects of persistent disequilibria in the labour market and improving the prospects of productive employment and welfare of the working population. In this

regard, the pivotal role of the informal sector needs to be emphasized. It is important that the formal-informal sector link is properly defined and the problems of the informal economy properly diagnosed and addressed in order to exploit effectively its full employment and economic potentials.

Despite the high potentials and contributions of the sector in providing income and employment opportunities, its development has been constrained by a number of factors ranging from direct action related problems such as lack of working premises and capital to lack of transparent and effective government policies, regulations and coordinated institutional arrangements (CSA, 2003; ORAAMP, 2001).

Diagnostic studies which identify the problems and issues constraining the development of the informal economy have not been carried out successfully. The study attempts to fill this gap by means of a case study approach which focuses on the informal recycling and recyclable items trading segment. This sub-sector of the informal economy has a constructive impact on the environment through traditional recycling activities, generating employment opportunities for many and making foreign exchange savings through import substitution as it mostly employs indigenous inputs and means of production.

In addition, the study will review the effectiveness of the legal, regulatory and institutional factors that affect the economic performance of the sub-sector with a view to making policy recommendations to improve sectoral performance.



1.3. Objectives of the Study

The study is focused on the informal sector development of Addis Ababa. It aims to explore, by means of a case study approach, determinants of income as well as policy, regulatory and institutional factors which potentially affect the performance of the informal sector in Addis Ababa in order to provide effective policy tool for the development of the sector.

The specific objectives of the study include:

1. Analysis of institutional, legislative and other capacity building effort in post World War II Ethiopia.
2. By means of a case study method, analyze the working, issues and problems of the informal economy.
3. Taking the above in to account, make policy recommendations.

1.4. Data and Methodology

Both primary and secondary data are used in this study. The primary data comprises a structured questionnaire on 165 members of a selected informal recycling and recyclable items trading association, which is located in Addis Ababa city. The secondary data was collected from sources such as the Central Statistical Agency, Addis Ababa Trade and Industry Development Bureau, and different publications of Ethiopian Economic Association. Moreover, both published and unpublished information available at national and international level were utilized for the study on a need to do basis.

Regarding methodology, both qualitative and quantitative methods are utilized to analyze the data. Use is made, among others, of multivariate analysis to test some hypothesis.



1.5. Significance of the Study

The findings of this study could have important implications for the development of micro and small scale enterprises in the country. In addition to filling some research gap, the study also makes contributions to database development and to the policy debate and formulation of sectoral development strategies.

1.6. Scope and Limitations

One informal sector association, Barrel and Bottle Traders Share Company, is the centerpiece for the case study approach and the study focuses on examining determinants of the informal sector income and policy related constraints. While workable policy recommendations can be made from the analysis, nevertheless, the study is faced with limitations and constraints in the form of inadequate coverage and data lacuna regarding specific variables in the study.

CHAPTER TWO: SURVEY OF THE LITERATURE

2.1. History of the Informal Sector in the International Context

Despite a considerable debate on the “informal economy” (to be defined later), many analysts agree that its popularization has its roots in the attempt to explain the causes and cures of the rampant unemployment growth in the developing countries. Although incomes (approximated by Gross National Income, GNI) and investment had unprecedented growth in many developing countries, in the 1960’s unemployment (especially urban unemployment) remained output/income and investment inelastic.

Classical, Keynesian as well as Marxian solutions to the unemployment problem are all coached in income growth. It was observed in the 1960’s that although GNI was growing at two digit numbers for consecutive years in a number of fast developing countries such as Brazil, Mexico and Argentina, the rate of unemployment growth at the same time was too high and the International Labor Organization (ILO), among others, was reporting unfolding unemployment crisis in all these countries. It is this crisis in the making and its similar global characteristics, transcending ideological and territorial boundaries, that precipitated the First World Summit in 1969 and its outcome, the World Employment Program (WEP), which was spearheaded by the ILO (Teshome, 1991; Bangasser, 2000).

The World Employment Program, in its drive to implement a global mandate to tackle the unemployment crisis in the developing countries, organized employment missions to member states and in the case of Africa established within its regional ILO office, the Jobs and Skills Program for Africa, JASPA (Teshome, 1979; ILO, 2001; ILO/JASPA, 1974).

Both within the framework of the ILO exploratory and comprehensive employment missions and JASPA, attempt was made to explore the potentials of the informal economy with a view to mitigating the crisis of unemployment and poverty.

2.2. Conceptualizing the Informal Sector

The antecedent of the informal sector is to be found in the works of Doring and Peiore (1986) and their labor market segmentation theory and, as relating to Africa, the sociological work of Keith Hart (1973) who introduced the concept of the informal economy.

A formal definition of the term 'informal sector' was given by the ILO in its Kenyan Comprehensive Employment Strategy Mission report in 1972 (Rado, 1973; Sethuraman, 1976). The report defined the 'informal sector' as being characterized by 'ease of entry, reliance on indigenous resources, family ownership of enterprise, small-scale of operation, labor intensive and adapted technology, skills acquired outside the formal school system and unregulated and competitive markets'(ILO/JASPA, 1974). This working definition is applied in labor market reports of many African countries.

Following ILO's operational definition given above, its workings had been explained differently by different labor market analysts. For example, McCrohan et al. (1986), Frey et al.(2000) and Krakowski (2005) have focused on the illegal nature of the informal economy. The informal economy is often synonymous with the 'hidden economy', 'underground economy', 'illegal economy', 'unofficial' economy, 'irregular economy', 'parallel economy', 'second economy', 'subterranean economy', 'invisible economy', 'unrecorded economy' and 'shadow economy' and including casual work and 'moonlighting'.

Similarly, Reddy et al.(2000) explained the informal economy as a sector that encompasses non-formalized small scale economic enterprises. Based on the 1991 ILO's Fiji report on the informal sector, Reddy defined the informal economy as:

"..... all small-scale activities that are normally semi-organized and unregulated, and use simple labor-intensive technology... undertaken by artisans, traders and operators in

work-sites such as open yards, market stalls, undeveloped plots, residential houses and street pavements....not registered with the Register of Companies, they may or may not have licenses from local authorities for carrying out a variety of businesses.” (p. 3).

Sethuraman (1997) viewed the problem of definition from the perspectives of informal sector participants. Accordingly, the sector activities include shoe shining service, small investment and capital, manufacturing, certain skilled operations and small scale construction. The informal sector operators include own account workers, employers, family employees in small businesses, low wage workers and apprentices.

Bigsten’s et.al. (2000) definition of the informal economy is based on the issues and sectoral problems relating to scale, tax evasion and transaction costs. Typically, Bigsten’s informal economy includes unregistered, self-employed and micro- enterprises with 10-20 employees.

In a similar approach, Tanzi (1999), Yamada (1996), and Tuomien (1994) have identified unrecorded income, tax evasion, low pay and disguised unemployment as identifying characteristics of the informal economy.

Informal sector activities are normally not recorded in National Income Accounts, although these activities are often associated with positive value additions to National Income (GNI). The deficiencies of National Income Accounts in this regard have been elaborated by Wallace et al. (2004), English (1994), McCrohan (1986), and Frey et al. (2000).

In the ILO 2003 International Conference for Statisticians, attempt was made to define informal sector employment (Sivananthiran et al., 2005). Accordingly, “informal employment” relate to the following category of workers:

- *Own-account workers employed in their own informal sector enterprises;*
- *Employers employed in their own informal sector enterprises;*
- *Contributing family workers, irrespective of whether they work in formal or informal sector enterprises;*
- *Members of informal producers’ cooperatives;*

- *Employees holding informal jobs whether employed by formal sector enterprises, informal sector enterprises, or as domestic workers employed by households; and*
- *Own-account workers engaged in the production of goods exclusively for own final use by their household.*

Drawing on these definitions, the Ethiopian government in its Proclamation No. 68/1993 defined informal economic activity as:

‘Informal service rendering or production activity means providing services or producing goods outside business premises, in residential houses, or on the verandah or street pavements, and the sales income it generates is of a subsistence level and is carried out with out employees’.

The Central Statistical Authority’s 2003 report introduced modification to the above definition. According to this report, informal sector is defined as household type establishments /activities which:

- are mainly engaged in marketed production and,
- are not registered companies or cooperatives and,
- have no full written book of accounts and,
- have less than 10 persons engaged in the activity and,
- have no license.



The Federal Micro and Small Enterprises Development Agency classifies enterprises on the basis of paid-up capital. Micro enterprises with a paid up capital of less than 20,000 birr would include informal sector enterprises.

An important differentiation in informal activities is that between legal and illegal activities. Krakowski (2005) and Schineider (2000) have attempted to differentiate legal and illegal practices in the following manner.

Table 1: Demarcation between Legal and Illegal Practices

	Monetary Transactions		Non-monetary Transactions	
Illegal Activities	Trade in stolen goods; drug dealing and manufacturing; prostitution; gambling; smuggling and fraud.		Barter: drugs, stolen goods, smuggling, etc. Producing or growing drugs for own use. Theft for own use.	
	Tax Evasion	Tax Avoidance	Tax Evasion	Tax Avoidance
Legal Activities	Unreported income; activities from self-employment; wages, salaries and assets from unreported work related to legal services and goods.	Employee discounts, fringe benefits	Barter of legal services and goods	All do-it-yourself work and neighborly help

Source : Krakowski (2005) and Schneider(2000)

The existence of a wide array of informal sector activities on the fringes of the law has been the focus of an ILO 2002 report:

“.....Because informal activities are on the fringes of the law, public authorities sometimes confuse them with criminal activities and therefore subject them to harassment, including bribery and extortion, and repression.” (p.7)

“..The majority in the informal economy, although they are not registered or regulated, produce goods and services that are legal.” (p.7)

According to Dell’Anno (2003), the “non observed economy” encompasses all production activities that can be classified into three major areas: ‘Underground’, ‘Informal’ and ‘Illegal’. ‘Underground’ refers to the area of production activities that are not directly observed due to economic and statistical reasons. ‘Informal’ production or activity represents institutional units featured with a low level of organization, little or no division between work and capital as well

as work relations based on occasional jobs, kinship, or personal relations. Lastly, 'Illegal' activities are all those oriented to the production of goods and services whose sale, distribution or possession is prohibited by law.

2.3. Causes of Informality

The reasons for carrying out informal operations are many.

Sivananthiran et al.(2005) puts two basic contradicting views regarding sources of informality: poverty and cost-avoidance. The attempt to escape poverty and to survive provides the impetus for informal activity. The same is true in regard to engagement in informal activities with a view to reaching a threshold of profitability without complying with which impose burdensome obligations provide laws the incentive for the engagement in the informal activities. Similarly, Mead et.al. (1999) provide the following explanations for the emergence of the informal sector: one joining the sector seeking profitable venture and the other relates with failure of an economic structure to grant adequate employment opportunities for job seekers and thus forces labor to join the sector for survival.

Good prospects for sub-contracting activities (that is the formal sector sub contracting economic activities to informal sector operators) have attracted significant numbers of the work force into the informal sector wherever the possibilities for such arrangements were possible. Large volumes of such subcontracted production have been observed in places like Calcutta, Bombay, Lagos, Cairo etc (Krakowski, 2005; Frey, 2000; Sethuraman, 1997).

Many studies have shown high taxes, entry restrictions, high transaction costs (beaurocratic red tape, corruption etc) and lack of enabling legal and institutional environment in the formal sector have driven a large number of the workforce in to the informal sector in many developing countries (Loayza, 1996: PP.129-162; Friedman et al., 2000: PP.459-493; and Junqueira et al., 2005). Many are attracted to the sector because it provides job opportunities, gives access to skill development, and requires small capital to join.

In West Africa, women figure prominently in the informal urban economy. The sector is seen as a way out or as a means of survival for the urban majority where unemployment problem is prevailing (Morris et al., 1994). Morris et. al. explain that the primary reason for joining the informal sector is the need to survive and not high rates of return on investment. Typically, the informal economy in African towns offers subsistence and low and irregular rates of a return on investment, minimal security and stability, long working hours and in general a poor working environment.

Motives for joining the urban informal economy vary across regions, between countries and within a country. In Eastern Europe, the major reason of entry is associated with tax evasion or to obtain unjustified profits while in developing countries of Africa and Latin America it is strongly linked with securing a survival strategy (Wallace et.al., 2004). According to the 2002 ILO report, the prime reason for engagement in the urban informal sector in Latin America is the use of the informal economy as a first staging post by the rural – urban migrants. In Argentina, the report shows that large numbers of immigrants from Bolivia, Paraguay and Peru work in informal or temporary jobs (as domestic servants or garment industry workers, etc) and in the construction sectors, just to secure their survival.

There is an increasing trend of informality in the world, which is strongly associated with the rising pressure for flexible production, especially through global supply chains which in turn has affected both the developing and developed economies. The failure of the formal labor market to absorb the ever growing labor supply and the failure of the structural adjustment program to create the required number of jobs has also been a factor behind this trend. Consequently, a large segment of a labor force in developing countries is forced to seek employment and survive in the informal sector (Sivananthiran, 2005). The ILO, 2002 report concluded “....the informal sector is the largest employer in the urban center and its relative share will increase as the capacity of the formal sectors to generate additional jobs in the short and medium term will increasingly diminish due to policy measures undertaken by Economic Recovery and Rehabilitation Program (ERRP)-retrenchment in the public service, privatization of public corporation and demobilization of workers.”



2.4. Role of the Informal Sector

Advocates of the informal sector argue that the sector serves as an incubator for a nation's economic performance via creating an internship base as a foundation of larger formal enterprises capable of absorbing the massive unemployed labor force in urban centers (Thomas, 1988; Okoliski, 2001).

Since the sector has potentials to provide outputs at reduced cost of production for the population, it serves as a counter inflationary measure and hence contributes to economic stability (Thomas, 1988; Koray, 1991:PP.15-21). In addition, for very poor people who are usually rural-urban migrants, engaging in the informal sector serves as a bridge in job search and as a source of added capacity to withstand the adverse consequences of unemployment and staying ideal (Ranis et. al., 1999).

Others contest the view that the informal economy in Africa has potentials for productive and sustainable employment. Due to the fact that most informal activities are practiced for survival, they are characterized by low productivity, have small scale operations and lack adequate capital, expertise, and skills for economic expansion (Morris et al, 1994; Koray, 1991).

Studies conducted in Eastern Europe indicate that the sector serves the purpose of a survival strategy for the poor and as springboard for capital accumulation and entrepreneurial enhancement for successful operators in the sector (Wallace et al, 2004). In the relatively more developed group of developing countries, the informal sector is recognized for its wide employment and income generation capacity.

According to the 2002 ILO report job opportunities in the formal economy are limited and most of the newly created employment has been in the informal economy. The employment potentials of the informal sector varied across regions, countries and continents.

According to this report, the informal economy in Africa accounted for 80 per cent of non-agricultural employment, over 60 per cent of urban employment and over 90 percent of new jobs

over the past decade or so. This large work force had to endure indecent working conditions. Of the 42 African countries surveyed in this report 17 had 50 % or more of the total employment in the informal sector.

In Sub-Sahara Africa and specially West Africa women dominate most of urban informal operations. Street vending, retail trading and cross-border trading are among the most important activities of the sector employing the majority of the urban labor force (ILO, 2002). For example the informal sector employs 73% of the urban labor force in Ouaga-dougou (Burkina Faso), 60%-70% in Kumasi (Ghana) and 50% in Lagos (Nigeria).

In Latin America too the informal sector plays important roles in employment and production. According to the aforementioned 2002 ILO report, the share of urban informal employment was on the average 30.8% in the 1960's, 29.6% in the 1970's, 30.2 % in the 1980's and 31% in the 1990's (ILO, 2002). Sethuraman 1997 noted that the informal sector in Latin America accounted for about a quarter of urban jobs in 1990, although the share varied across countries. For example, for Uruguay informal employment was 18.6% of the total urban employment, and for Bolivia it was 62.2% (Portes et al, 1993). In the decade of the 1990's, there has also been a growing trend of informal sector employment shares for the whole region in general. This share which averaged 52% in 1990 grew to 58% in 1998 (ILO, 2002).

Similar trend of growth of informal sector employment shares has been observed for a number of Asian countries. According to Sethuraman (1997) the share of urban informal sector employment in Asia varied from 10 percent in the newly industrializing countries to 65 percent in the rest. Other estimates for Asia for different periods and different coverage are also available. For example according to 2002 ILO report, the share of informal workers in total non-agricultural employment in the 1990's had a range of 45 to 85 per cent. The larger developing economies of Asia registered even higher shares of informal sector employment. Dasgupta et.al. (2005) estimated that about 92% of the Indian labor force was employed in the informal sector between the years 1999 and 2000, White (2003) estimated for about the same period that the informal sector in India accounted for 60% of Net Domestic Product, 68% of income, 60% of savings, 31% of agricultural exports, and 41% of manufacturing exports (p. 27). In Thailand, the share of

informal sector employment as a percentage of the total urban employment was estimated for the mid 1980's at 50% (Ranis et al., 1999). Following the economic boom of the 1980's and early 90's there was a decline of this informal urban sector employment shares. However, there was a reversal of trend following the economic recession of the late 1990's. Accordingly, the share of informal sector employment, which was 57% in 1994 climbed back to 60% in 1997.

Following the collapse of communism in Central and Eastern Europe in the early 1990's, the urban informal sector appeared in the scene. In the Russian federation the sector accounted for 10% of the total labor force, and in Romania, Serbia and Croatia informal employment accounted for, respectively, 46%, 47% and 45% in 1998 (Wallace, 2004).

The phenomenon of informal employment is pervasive. For instance, it was estimated that, informal employment accounted between 7-19% of the total declared employment (an equivalent of 10 to 28 million jobs) in the European Union countries in 1998 (ILO, 2002). In USA informal employment, mainly involving immigrants are observed in sectors such as electronics and garment manufacturing, and in domestic activities like house keeping and cooking (Tuomien, 1994).

The informal sector makes variable contributions to the national income in different countries. De Paula estimated that in the early 1990's the GDP share of the informal economy was 10% for the United States, 25% to 35% for Latin America, 13% to 70% for Asian countries, and around 15% for Organization for Economic Cooperation and Development (O.E.C.D.) countries. According to the 2002 ILO report, the informal sector constitutes between 7 and 16 percent of the European Union's GDP. Understandably the informal sector contribution to the national income is much higher for African countries. For instance, Morris et al.(1994) estimated that in South Africa the sector's contribution is between 16 and 40 percent of the country's GDP.

A large aspect of informal production is interlinked to formal sector production. This formal-informal linkage should be taken into account while planning for a sustainable development of

the informal economy. Many writers have emphasized forward and backward¹ linkage between the formal and informal economy in developing countries (Sethurman, 1981; Trager, 1987). According to Moser (1978: PP. 1041-1064), in some African countries there is evidence of existence of a relatively strong backward linkage with the informal sector and limited forward linkage with the formal sector. However, Stark (1982:PP.413-416) noted the complexity of this linkage and of its variation across time and space and therefore emphasized the inconclusiveness of the debate on linkage.

In conclusion, the informal sector plays a significant role in the development of the less developed economies. The informal sector has traditionally served the purpose of productive employment creation for migrant work force in the urban economy, has successfully provided goods and services at affordable prices, and has become an important instrument in the design of overall development and social progress of developing countries.



¹ *There are forward (to markets beyond the borders of the informal economy) and backward (in the form of inputs from outside the informal economy) linkages between the formal and informal economy. The formal economy depends on the informal economy to act as a source of goods and services and to provide a market for its own produce.*

CHAPTER THREE: REGULATORY, POLICY AND INSTITUTIONAL ARRANGEMENT: A LOCAL PERSPECTIVE

3.1. An Overview of Policy Development in Ethiopia

In Ethiopia, the informal economy emerged in the 1960's, following rapid urbanization and economic growth. During this period, cities and towns began to feel population pressures emanating from natural growth and rural to urban migration. Although a high growth of the urban economy is registered in the 1960's, it did not go to create jobs at the scale needed to absorb surplus labor (Teshome, 1991).

The country has started to develop and introduce policies in the 1960's which are targeted to maintain labor market equilibrium. This was launched by establishing Ministry of Community Development (MCD) by Order No.15/57 in 1957² to coordinate labor policies and programs, to implement international labor conventions, establish industrial peace, and juridicate over labor and industrial disputes. To give added strength to this important institutional development, the Central Personnel Agency (CPA) was established in 1961 with a mandate to modernize the civil service and standardize its operations. Following these developments, the first labor law was enacted in 1963: Labour Relations Proclamation No. 210/1963. The aim of this law was to empower private sector operators i.e. workers and employers, protect their respective interests and to enable them attain industrial peace through equitable distribution of the fruits of labor. Successively, in 1963 the Federation of Employers of Ethiopia (FEE), and in 1964 the Confederation of Ethiopian Labour Unions (CELU), were founded.

² Ministry of Community Development was re-established by Order No. 46/66 in 1966 as the Ministry of National Community Development and Social Affairs. From 1977 onwards, Ministry of Community Development and Social Affairs was restructured by Proclamation No. 127 as Ministry of Labour and Social Affairs (MOLSA) and is mandated to coordinate activities undertaken in labour & social affairs areas at federal level.

This effort at the modernization of the labor market was complemented by technical and material assistance of the ILO, its World Employment Program and regional systems including the ILO Regional Office and Jobs and Skills Program for Africa (JASPA). For example, with the assistance of the ILO, and its institutions and programs for Africa, an exploratory employment mission to Ethiopia was launched in 1973, followed by similar employment missions in 1976, 1982 and 1993 (ILO, 1973; ILO/JASPA, 1993). In addition, capacity building work was carried out within the Ministry of Labor and Social Affairs which resulted in the establishment of labor databases and publication of reports covering various facets of the labor field.

Ethiopia has also benefited by the establishment and operationalization of trade unions. Under the period of the Confederation of Ethiopian Labor Union (CELU) industrial unions were formed, labor training programs were carried out and the ability of workers to protect their interests greatly enhanced. Ethiopia became an active member of the International Confederation of Free Trade Unions - Africa Regional Organization (ICFTU-AFRO) since 1965. The American Federation of Labor-Congress of Industrial Organizations (AFL-CIO) had provided technical and material help to CELU.

During the Derg period (1974-91) the country's economic and political policies were guided by socialist ideology. Consequently, the country's labor law had been changed in a direction which made the Confederation of Ethiopian Labor Union (CELU) a department of government and which eliminated the Federation of Employers of Ethiopia (FEE). The Labor Proclamation No. 64/1975 replaced the Imperial Labor Relations Proclamation No. 210/1963, and heeded to socialist orientation. For instance, employers' organizations and collective agreements between private industry and workers were eliminated. There was no autonomy concerning the conclusion of collective agreements as a form of independent control over working arrangements exercised by freely constituted trade unions and employers. The Confederation of Ethiopian Labor Union was 'christened' under the Derg the All-Ethiopia Trade Union (AETU) in 1977, after abolishing CELU in 1975. Then in 1986, AETU was renamed the Ethiopia Trade Union (ETU). At the time, the government maintained that the role of AETU /ETU was to educate workers about the need to contribute their share to national development by increasing productivity and building socialism.



After the fall of the Derg in 1991, the country has been pursuing free market economics and following this a new labor law was enacted (Proclamation No. 42/1993) which was inline with the ILO conventions. This proclamation has been amended first by Proclamation No. 88/1994 and again by Proclamation No. 377/2003. The new labor law (Proclamation No. 42/1993 and its amendments) provided for a return to tripartism and a “commitment” to implement the ILO labor conventions³. Under the new régime there was a new round of renaming and reorienting labor and industrial unions. Accordingly, the Confederation of Ethiopian Trade Union (CETU) came into existence. CETU was reaffiliated to the ICFTU-AFRO and joined the Eastern Africa Trade Union Organization (EATUO) and Organization of African Trade Union Unity (OATUU). This reform which was expected to bring the state of trade unionism and labor law back to the 1960’s did not take roots. For example, employers’ associations were not formed as yet. Continued government interference in the activities of free trade unions has become a common occurrence.

3.2. Regulatory and Institutional Arrangements for Informal Sector Development

Very little of institutional development in support of micro and small-scale enterprises (MSEs) in Ethiopia has been registered during the post -1970 period. Having laid the foundation of the basic administrative and institutional infrastructure of the state during the 1940’s and 1950’s, the focus of government policy in later years has been on the consolidation of the gains of reforms to expedite the process of industrialization. In regard to the MSEs, several reforms were made during this early period.

The Business Enterprise Registration Proclamation No.184/1961 required business enterprises to register under the Ministry of Commerce and Industry. By the Industrial Regulation Legal Notice No.292/1971 manufacturing enterprises were required to acquire a temporary license of six month validity and a permanent license if fully formed (Teshome, 1994). The Investment Proclamation No. 242/1966 provided MSE’s tax relief, access to land and buildings, public utilities and other facilitations of advisory and administrative nature.

³ *Articles 5 and 6 of the ILO Freedom of Association and Protection of the Rights to Organize Convention, 1948 (No. 87), are addressed in Article 114 (3), (4), (5) and (6) of the Proclamation, permitting the establishment of federations and confederations by registered trade unions and employers' associations. Subsection 8 allows individual employers to join established employers' federations.*

The period 1974 to 1991 started with socialist proclamations and nationalization of businesses and farms throughout the country. By Proclamation No.26/1975 the government implemented these socialist proclamations and ended up owning and controlling the means of production and “the commanding heights of the economy”. Proclamation No.26/1975 classified all economic activities into private and government leaving room to joint undertakings by government with foreign investors. The proclamation crippled private sector development in the country. This process of downscaling the role of private economy continued and according to Proclamation No.76/1975, acquisition of private businesses was restricted to a single license and capital ceiling set at 300,000 birr for wholesale trade, 200,000 for retail trade and 500,000 for industrial establishments. The process of crowding out private industry was strengthened by Proclamation No.19/1975 which established the Ministry of National Resources Development with a mandate to promote public enterprises. The Public Enterprises Proclamation No.20/1975 (amended by Proclamation No.35/1975) further strengthened the Ministry of National Resources Development by mandating it to reorganize, consolidate and manage nationalized and new public enterprises.

The marginalization of private sector development in the area of MSEs continued well into 1977: in late 1977, for example, the Handicrafts and Small Scale Industries Development Agency (HASIDA) was established by Proclamation No. 124/1977. The objective of HASIDA was to give further boost to the development of the public economy by encouraging cooperative development in the small scale sector. HASIDA issued licenses to cooperatives, regulated their activities, and assisted in the provision of inputs and training.

During the 1980’s HASIDA achieved very little in its objectives. Few service and producers’ cooperatives were formed, their numbers increased and then decreased through bankruptcy, lack of imported inputs, and eventual closure and at the same time private investment in the sector virtually ceased.

Following policy failure over two decades, the Derg, declared a new program of mixed economy development. Accordingly, it issued two declarations in succession: the Small Scale Industry Development Council of State Special Decree No.9/1989 and Council of State Special Decree on

Investment No.17/1990. Decree No.9/1989 allowed establishment of small-scale enterprises by business organizations, cooperatives and individual entrepreneurs. This Decree replaced the restrictive Proclamation No.76/1975 and unlike this proclamation, the Decree allowed participation by the Diaspora and raised the capital ceiling for small scale enterprises from birr 500,000 to between two and four million birr. Decree No.17/1990 lifted the restriction of private sector participation to single license (by Proclamation No.76/1975) and allowed individuals to undertake investment in unlimited number of enterprises, and attempted to provide incentives to do so.

Further enhancement was given by the new Regulations No.8/1990 which was aimed at operationalizing the two aforementioned Decrees. According to the Regulations, prospective investors in the MSE sector were required to have a temporary license which permitted completion of the establishment phase of their projects and eventually own permanent license when the investment reached the production phase. However, the adventure into mixed economy development was short lived. The Derg was overthrown in 1991.

The new régime, the Ethiopian People Revolutionary Democratic Front (EPRDF), immediately proclaimed the Emergency Recovery and Reconstruction Program (ERRP) and started a program of private sector development. In 1991, the ERRP was launched with the support of the World Bank and the international community to bring about economic stabilization, public sector reform and private and market economy development. Several other supporting proclamations were also issued:

- The new labor law (Proclamation No. 42/1993 and its amendments),
- The Encouragement, Expansion and Coordination of Investment Proclamation No.15/1992,
- Administrative Reform Proclamation No.31/1992, and its amendment, Proclamation No.15/1992 (Regional State Governments were empowered to establish their respective regional investment offices to receive review and decide on investment applications).



The efficacy of these proclamations replacing their Derg régime counterparts is nevertheless dubious and not yet verifiable.

Proclamation No.41/1993: Definition of Powers and Duties of the Central and Regional Executive Organs of the Transitional Government of Ethiopia which establishes Industry and Handicrafts Bureaus in the Regional Governments has replaced the HASIDA proclamation (Proclamation No.124/1977). In this case too the change doesn't seem to have a lasting impact on the status of MSEs development in the country. The issue of temporary licenses proceeded without restraint and at a nominal charge and resulted in an oversell of such licenses. Individuals obtained the temporary licenses to take advantage of the access to land, public utilities and credits that such license were expected to give them. However, these temporary licensees failed to graduate to permanent license holding and were unable to get the access to land, utilities and credits as they expected. The result had been lack of growth of investment in MSEs development and the informalization of the few investments that obtained in the process. As a consequence, most temporary license holders withdrew their licenses and most of the few that reached the stage of production (permanent license holding) withdrew from the process and started working underground (Teshome, 1994: p.37).

One of the measures taken to enhance the operation of MSEs is the issuance of the licensing and supervision of micro financing institutions proclamation in 1996 (Proclamation No. 40/1996). The principal aim of this proclamation is to enable MSEs have access to credit facilities, counseling services and income generating projects through micro-finance institutions. By building the capacity of MSEs, this legislation provides opportunities and security for the informal sector operators through enhancing legality and formalization.

The EPRDF adopted Agricultural Development Led Industrialization (ADLI) and private sector development strategy in 1995. An element of these strategies was focused on MSEs development: Federal Micro and Small-Scale Enterprises Strategy (FMSES) and Regional Micro and Small-Scale Enterprises Strategies (RMSES) were formulated in 1997. Federal Micro and Small-Scale Enterprises Development Agency (FMSEDA) and Regional Micro and Small-Scale

Enterprises Development Agencies (RMSEDAs) were established by the Council of Ministers of Ethiopia Regulation No.33/1998, and supportive financial sector reforms were made.

Among the principal objectives of the FMSES and RMSES are exploitation of local raw material, creation of productive job opportunities, adoption of new and appropriate technologies, and enhancement of the development of MSEs which have wide-ranging backward and forward linkages.

In order to operationalize FMSEDA and RMSEDAs and address the major issues and problems constraining MSEs development, the government issued an Industrial Development Strategy in 2003, which was aimed at providing a package of material and technical government support to the MSEs including, inter alia, provision of utilities and infrastructure, raw materials, access to credits, etc.

At the early 2000's, the World Bank introduced poverty reduction strategy for Less Developed Countries which is inline with the Millennium Development Goals. For Ethiopia, the program has two phases: the Sustainable Development and Poverty Reduction Program (SDPRP) and the Plan for Accelerated and Sustained Development to End Poverty (PASDEP).

SDPRP was aimed at creating an enabling environment for accelerated development and attainment of improvements in the standard of living of the people and it lasted from year 2000/01 to 2003/04. PASDEP is designed for the years 2005 to 2010 and identified development of MSEs as a best venue for job creation and to mitigate the pervasive youth unemployment observed in the country. According to PASDEP, MSEs would get extended basic trainings, upgraded business development services and enhanced market linkages with foreign importers through FMSEDA and RMSEDAs in the planned period.

To recapitulate, the institutional and policy support for the development of the MSEs come from a variety of sources. The FMSEDA and RMSEDAs have already been mentioned. Other institutions which lend support to this development include Ministry of Labor and Social

Affaires (MOLSA), Trade and Industry Development Bureaus (TIDB), Regional Chamber of Commerce and various non-governmental organizations (NGOs).

3.2.1. Policy and Institutional Reforms: the Addis Ababa Region

The Addis Ababa Trade and Industry Development Office (AA-TIDO) was established with a view to guiding and regulating the development of micro and small scale handicraft activities. The AA-TIDO defines the micro enterprises (synonymous with the informal economy) as those small business enterprises with a paid-up capital not exceeding birr 20,000⁴. The underlying objective of the Agency is creating an enabling environment for the micro and small enterprises (MSEs) so as to bring about sustainable economic growth and equitable development by upgrading the technical capacity of these establishments and allowing for growth in employment.

The Addis Ababa Trade and Industry Development Office (AA-TIDO) has many departments providing diversified services to the MSE sector. It has two deputy heads: one for MSE promotion and the other for business licensing, registration and promotion. The MSE promotion at the city level is again organized into four major departments: the Enterprise Development department, Marketing Research and Promotion department, Cooperative department and Urban Agriculture department. At the Sub-city level, the Office manages four decentralized teams (the MSE team, the Cooperative team, Urban Agriculture team and Trade and Industry Registration and Licensing team). At Kebele level, the MSE Office handles the one stop service center and the extension usually having agents in each Kebele. MSE councils and committees are established to help in the promotion of the micro and small scale enterprises development.

The work of the TIDO is complemented by NGOs such as NGO Network, GTZ, PLAN Ethiopia, WISE, and CONCERN⁵ and by other responsible departments of government with a stake in the

⁴ It is worth noting to indicate that according to the 2003 CSA Informal Sector Survey most informal business operators in the city do not have a starting capital which exceeds Birr 250.

⁵ Along their other development and social- related programs, these NGOs are also engaged in exploiting the opportunities found in different informal economic establishments. To achieve this, they are involved in preparation of training in organizational management, entrepreneurship, auditing, family planning, cooperative management, and create forums for exchanging knowledge and experience (for all types of self-help organizations). They also

development of the MSEs and the urban informal sector including Labor and Social Affairs Bureau of Addis Ababa, Chamber of Commerce and Addis Ababa City Government Law and Code Enforcement Office. Other stakeholders include micro finance institutions (for the provision of credits), Technical and Vocational Education Trainings (TVETs) and the Productivity Improvement Center (PIC). The TVETs provide skill test and skill gap training; while the PIC offers training, skill test, proto type development, research, etc.

provide vocational training, counseling services and financial support to different individuals who seek to graduate from the informal sector and begin small businesses in the formal framework.

CHAPTER FOUR: DATA AND METHODOLOGY

4.1. Entrepreneurial History

As indicated in the introductory chapter, one of the aims of this study is to analyze determinants of income, the working, issues and problems of the informal economy in Addis Ababa by means of a case study method. For this case study one informal sector association, Barrel and Bottle Traders Share Company⁶, which is located in Addis Ababa (Addis Ketema Sub city, Kebele 03 in Merkato - “Chid Tera” area⁷) is selected. The overarching activity of the association is recycling and trading of plastics, scarp metal, bottles, barrels and other waste materials. The indicated informal association is selected for a case study because it has a constructive impact on the environment through traditional recycling activities, generating employment opportunities for many and making foreign exchange savings through import substitution by means of using indigenous system of production.

The history of Barrel and Bottle Traders Share Company is directly related to the history of Merkato in general, and “Minalesh Tera” and “Chid Tera” in particular. According to WUB Consult (2006), Merkato was initially designed as a planned market shade consisting of planned stores and well arranged ‘Gullits’ (selling premises) with ground seats and covered with cloth/plastic material shades. On the other hand, the current “Minalesh Tera” area was an open area (except for few settlements and market shades) and had been used as a dumping site for solid wastes until 1972. Gradually the land-fill function of the area was converted to a fortified

⁶ “Barrel and Bottle Traders Share Company” constitutes informal metal recyclers and traders of recyclable metal, plastic and glass items around “Chid Tera” of Merkato area. This association is amongst the 12 other associations found in “Minalesh Tera” of Merkato. “Minalesh Tera” is one of the Teras found in Merkato market for which the leading sum of workers/traders in the area are operating informally. The term ‘Tera’ is used for a specific location where particular goods and services are produced, displayed and transacted in Merkato.

⁷ “Chid Tera” is a part of Merkato where transactions of different goods and services as well as recycling activities take place widely by the majority of informal sector operators.

place for some informal as well as underground trading activities, involving, inter-alia, smuggled goods (Yemengist et al., 2004; WUB Consult, 2006).

Specifically after the 1974 overthrow of the Monarchy, “*Minalesh Tera*” emerged as a market place where different goods and commodities are exchanged and recycled both formally and informally. Within “*Minalesh Tera*”, there are also different Teras where different commodities are sold and recycled/manufactured having their own respective features. “*Chid Tera*” is among other Teras in “*Minalesh Tera*”, where the association selected for a case study i.e. Barrel and Bottle Traders Share Company is located. In “*Chid Tera*”, informal metal recycling and trading of recyclable metal, plastics and glass products as well as production and marketing of small scale manufacturing activities were started soon after the establishment of “*Minalesh Tera*”. Currently, “*Chid Tera*” is among the highly polluted and congested market places in Merkato and shortages of working and selling space prevail. The recycling activities and trading of recyclable materials in the area has a wide and complex raw material source and marketing structure chain. The activities are noted for their relatively large employment generation capacity, positive environmental impact, and high rate of return.

4.2. Source of Data and Coverage

Cross sectional data generated from the census survey of the selected case study i.e. Barrel and Bottle Traders Share Company was used in the analysis of the study. The data was collected using a structured questionnaire on the entire members of the association who are informal traders of metal, glass and plastic recyclable items and metal products recyclers. The indicated informal association is specifically selected for the case study because (using criteria such as: capital, earnings, technology and risks) members were found to be representatives of similar operators in the area.

Barrel and Bottle Traders Share Company has a total of 165 members and it was possible to reach and collect the required data from 150 members. The remaining 15 members were unavailable during the census period.

The questionnaire was specifically designed to capture information regarding demographic and migratory characteristics of the interviewees, capital and marketing related issues, costs and revenues as well as policy related matters. The policy related variables include: issues regarding access to working/selling premise, attitude of the government towards the sector, etc.

Data collection was carried out in October 2006 by two enumerators and the researcher acting as a supervisor and field coordinator. The enumerators were trained intensively on each question of the structured questionnaire and participated in the pilot testing. The questionnaire was refined and finalized based on inputs from the pilot testing, before it was administered. Completed questionnaires were checked for errors and inconsistencies during the data collection and data entry periods.

4.3. Factors Affecting Performance of Recyclers and Recyclable Items Traders

Different factors affect performance and income of the informal recyclers and recyclable items traders. From the available data, many variables were probed which are thought potentially important to affect the operators activity and earnings.

In the quantitative analysis part, the natural logarithm of annual earnings is considered as the dependent variable. Logarithm in preference to direct measure of annual earnings is used because it directly measures the expected rate of return of annual earnings. Annual, instead of monthly or weekly, earnings are considered as the dependent variable because they are assumed to reflect the operators' welfare better.

What follows is a review of the important variables in the study.



4.3.1. Social Characteristics

Sex

The survey data revealed that the Association is dominated by male operators (97%). Empirical studies show that most informal sector activities are dominated by women. For instance, Gebrehiwot et al. (2003) indicated that 72% of the registered micro enterprises and 66% of the micro enterprises operating with license in 12 developing countries is operated by women.

Gender differences entail entry restrictions and wage discrimination (Cohen et al., 1996). More specifically, it is believed that women face wage discrimination and entry restrictions within sectors because of their sex.

Ethnic group and Migratory Status

The majority of the surveyed operators (86%) were borne in Southern Nations, Nationalities and People Region (SNNPR) and particularly in Gurage zone. The remaining were born in Addis Ababa (9%), Oromiya (4%) and Amhara (1%) regions. Regardless of their birth place, 98% of the operators were from 'Gurage' ethnic group. This ethnic based job-specialization is also common in some parts of Addis Ababa. For instance, traditional weavers in three localities of Gullele sub city come from the 'Dorze' ethnic group (ORAAMP, 2001).

In the formal sector, employers rely on alternative institutions (such as educational and training institutions, profession licensing institutions and apprenticeship system) to supplement labor market information unlike the informal sector. Employees are recruited solely on the basis of their skills and education and not by virtue of their kinship and social networks. In the informal sector, the use of social networks of communications (instead of levels of skills and education) is common. Studies suggest that kinship and social networks are important sources of information regarding location, licensing, and employment opportunities especially in the case of small businesses and informal sector activities (Monica, 1996). A study from India indicated that

considerable numbers of migrants from one minority ethnic group arrive in Bombay with informal promises of accessing jobs in Bombay from friends and relatives who settled earlier in the city. Ethnic affiliation can also be important in gaining access to credit and other raw materials (Cohen et al., 1996). In general, the role of relatives, friends and labor market intermediaries is very high in the process of job search and for success in the informal sector.

In pre-industrial and developing economies one observes specialization along ethnic lines. These often follow strong religious practices such as the cast-system in India. Most Ethiopians are followers of Christianity or Islam, and the ethnicity – occupation linkages often arise not from the dictates of religion but rather as a result of tradition: goldsmiths come from Adwa, garment making and shoe shine boys from the Southern Regions, local woolen garb trousers from the Menz area, etc. These ethnic specializations however are unsustainable and exist even temporarily in situations of poverty and underdevelopment, and in small-scale activities where scale and investment cannot benefit from modern banking and wholesale trade services but rely instead on a network of close families and friends.

Marital Status and Religion

Concerning marital status, 86% of the operators were found married and the remaining were either singles, widowed or divorced. Religion wise, Christians were 67%, Muslims were 29% and followers of other religions were 4%.

Marital status is introduced into the earning determination model to proxy work effort as suggested in the literature. The variable is considered in a dummy: one if married and zero otherwise. It is assumed that married people exert or show more effort than unmarried / widowed / divorced and thus increased earnings. Accordingly, positive and significant result is expected for married operators in this study case. As religion was not hypothesized to affect earnings, it was not considered in the earning determination model of this study.

Age and Family Size

Majority of the operators in the case association are in the working age group. Two third were between age 21 and 40, and close to 28% between age 41 and 60. Of the entire interviewees, 42% had one to five family sizes, 51% had between six and ten and the remaining 7% had above 10 family sizes.

Age could be an important determinant of earnings where there is lack of information regarding job experience. However, as information concerning job experience was gathered in this study, age variable was not considered in the original model of earnings determination.

Two contrasting views are explained in the literature concerning family size in determining earnings of the informal sector operators. The first outlook states that earnings decline as the family size increases because the additional income obtained would be allocated for household consumption rather than savings and reinvestment. On the other hand, it is argued that larger families provide potential informal entrepreneurs greater resources to draw on, particularly in the form of unpaid family labor (McKeever, 1998; Gerry, 1978).

This study is inline with the later view because in urban Ethiopia where poverty and unemployment is rampant and where formal sector employment is limited, it would be more plausible to expect participation of unpaid family labor in such kind of informal activities. Family size enters the earning equation as a continuous variable and it is hypothesized that:

$$\frac{dY}{dF} > 0, \text{ where } Y \text{ is earnings and } F \text{ is family size.}$$

4.3.2. Access to Education and Training

More than 90% of the respondents have at least attended primary level of education. 75% of the operators either attended or completed primary (1 to 8 grade) level and 16% acquired secondary

level education (9 to 10/12 grades). Illiterates were 4% while those who can only read and write constituted 3%. Respondents with tertiary level of education (above 10/12 grade) were 3%.

Concerning trainings, the entire operators had no access to apprenticeship and/or on the job training related to their work. Only three of the interviewees reported that they took non-related training later on their career. Lack of training among the informal sector operators in Merkato and *Minalesh Tera* is in fact reported by other studies which revealed that the operators in the area lack access to integrated training programs. Most operators in the Merkato area (including those covered by the case study) often do not have access to institutions that provide the necessary support such as training, loan facilities and the like (WUB Consult, 2006; Yemengist et al., 2004).

The Human Capital Theory predicts increasing returns to education and trainings and thus positive signs on the coefficients of education and training variables (Mincer, 1976; Gindling, 1991; Cohen et al., 1996). But this might not hold true for similar cases of the informal sector. For instance, Monica (1996: 69-87), based on studies conducted on the informal sector in Kenya, suggested that formally acquired human capital may not be directly productive in the informal sector.

In view of the aforementioned two contrasting outlooks, it was found necessary to probe whether the education and training variables determine earnings significantly in the considered sector. Education entered into the model in two ways: as a continuous number of years of schooling and using dummy variables. The dummy variables have five categories: illiterate, able to read and write, attend primary education, attend secondary education and attend tertiary education. Each of the indicated dummies is captured with one value and zero otherwise. In this study case, positive and significant results of education coefficients are expected. Training is considered in the model with a dummy and this variable is also expected to positively and significantly affect earnings.

4.3.3. Labor Market Experience

Of the entire respondents, 5% started to work before 1974 and 44% between 1974 and 1992. The majority (51%) reported that they initiated their current activities after 1992.

The Human Capital Theory indicates that labor market experience directly affects earnings. The specific nature of this effect varies and a study by Gindling (1991) suggests that with age increasing, the marginal rate of return of experience diminishes. The result will be tested using the data in the sample case study.

Inline with the theory of human capital, this study assumes that experience positively and significantly affects earnings in the considered case.

4.3.4. Source of Start-up Capital

The majority of the operators (85%) used their own savings to start their business. Only 9% of the interviewees used loan and 5% used aid from families, relatives or friends as a source of beginning capital. High collateral requirements, prohibitive beaurocratic formalities, etc. could be cited as major obstacles in accessing capital. This is observed by the fact that none of the interviewees used loans from financial institutions.

Other similar industries also largely use own savings as a source of beginning capital. For instance, Gebrehiwot et al. (2003) reported that around 68% of micro enterprises in Ethiopia use their personal savings as a source of start-up finance. According to CSA (2003), own savings (41.26%), borrowings (28.21%), and assistance from friends and relatives (22.52%) were the major sources of finance to start a business in the informal sector.

Differences in source of beginning capital are hypothesized to affect earnings differently by influencing work effort in a different way. In this study case, businesses established using own savings are expected to influence earnings positively as compared to those established by borrowings because they do not owe loans to be repaid.



4.3.5. Size of Capital

Size of beginning capital among the informal sector establishments is commonly small. The 2003 CSA report on the urban informal sector depicted that 74% of the informal sector establishments in Addis Ababa had initial capitals not exceeding birr 250. Gebrehiwot et al. (2003) also indicated that most micro enterprises in the country start their business from scratch. Similar to start-up capital, most informal sector businesses have small current capital accumulated since the establishment of the firms until the survey was conducted. The survey result of this study conveys that the majority of the operators have small beginning and current capital⁸. Accordingly, the survey result revealed that about 47% of the operators had invested less than birr 250, 43% between birr 251 and 1,000 and only 4% had a beginning capital in the range of birr 1,001 - 5,000.

Table 2: Amount of Beginning Capital

Category in birr	Number	Percentage
<250	71	47
251-1000	65	43
1001-2500	5	4
2501-5000	9	6
Total	150	100

Source: Computed from the Census Survey, October 2006



The survey also captured progresses in the size of current capital among operators, as compared to start-up capital. For instance, those who reported that their start-up capital was less than birr 250 were 47% while during the survey period those with current capital less than birr 250 were

⁸ In Ethiopia, most responses given for similar surveys regarding current capital and income/revenue have high tendencies to be unrealistic because the respondents usually associate the question with future high tax burdens to be levied. To escape this, they usually tend to report their capital and revenues by understating it. Hence, the analysis made in this study in relation to current capital should be considered with caution or should be considered only for comparison purposes.

found to be only 1%. The greater part had current capital between birr 251 to 1000 (52%), followed by those who reported above birr 2501 (26%).

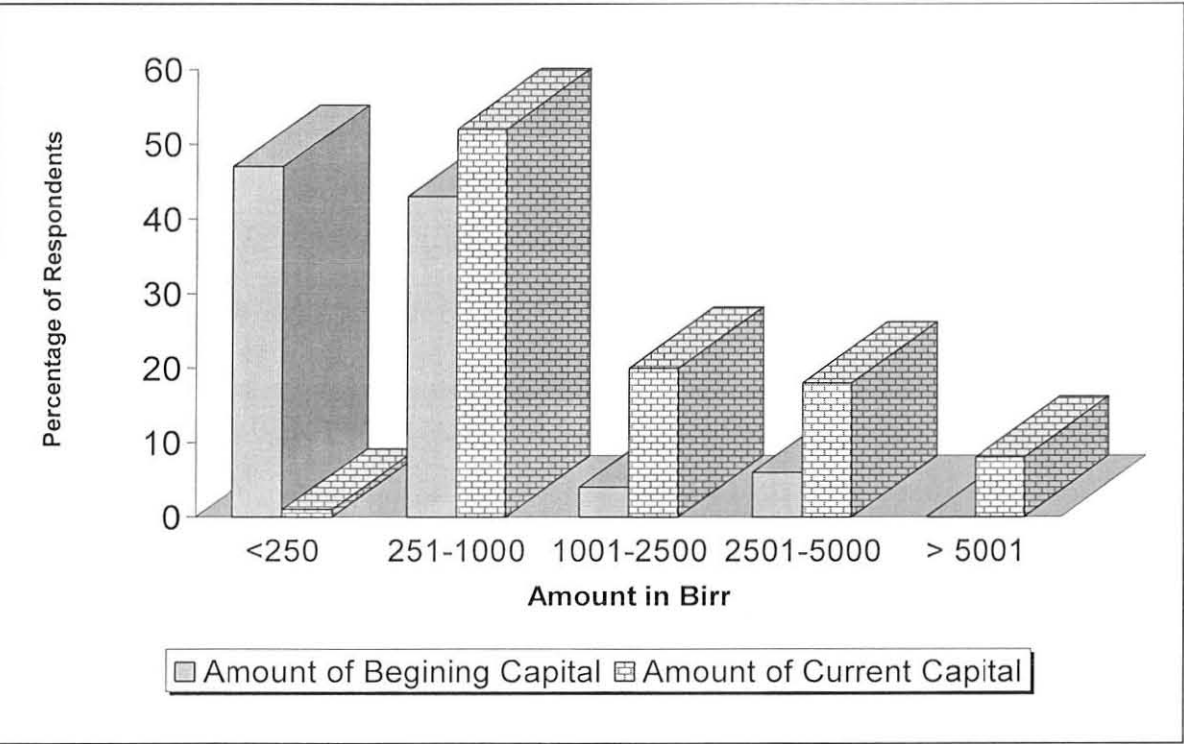
Table 3: Amount of Current Capital

Category in birr	Number	Percentage
<250	2	1
251-1000	78	52
1001-2500	31	20
2501-5000	27	18
> 5001	12	8
Total	150	100

Source: Computed from the Census Survey, October 2006

Pictorial presentation of both beginning and the current capital is illustrated Figure 1 below.

Figure 1: Amount of Beginning and Current Capital



Sizes of beginning and current capitals are hypothesized as important variables for determining earnings. It is expected that the bigger the size of beginning and current capitals, the better will be earnings. These variables are considered in the original model in dummies. Thus positive and significant coefficient results are expected for dummies with larger sizes of initial and current capitals.



4.3.6. Ownership Structure

4.3.6.1. Job Ownership

Nearly all of the considered informal sector businesses (99%) were owned and operated by single individuals. This single individual ownership and operation is in fact common among the informal sector operations in most parts of the world (Gebrehiwot et al., 2003; ILO, 2002; Sivananthiran et al., 2005). The 2003 CSA report on urban informal sector indicated that 99% of informal sector establishments in the country are owned and operated by single individuals. Partnership modalities in such kind of informal businesses have not yet developed in the country. The practice of pooling capital by a group of individuals to overcome the problem of start-up and operating capital is at its infancy in Ethiopia (Gebrehiwot et al., 2003). This perhaps explains why most of the operators covered by this study have limited start-up and operating capitals. In view of this, it is hypothesized that single individual ownership modes of operations would affect earnings negatively and significantly.

The interviewees were also asked to explain how they acquired their businesses. Accordingly, 82% claimed that the business was self established, 17% inherited from their families and only 1% acquired it in the form of gift. This suggests that intra-generational transmission of business holding is not deeply rooted.

Table 4: Form of Acquiring the Business

Description	Frequency	Percent
Self established	124	82
Inherited	25	17
Gift	1	1
Total	150	100

Source: Computed from the Census Survey, October 2006

The other possible explanation for weak effect of family inheritance for acquiring the business is in relation to the small size of the establishment itself. Many of those reaching old age did not own enterprises that they could transfer to their offspring through inheritance. Form of acquiring business is hypothesized to affect earnings by influencing work effort differently. Accordingly, own established businesses are expected to contribute for earnings positively and significantly than any other form of acquiring a business.

4.3.6.2. Working Premise Ownership

Lack of working/selling premise has been identified by several studies as the leading constraint of the informal sector operators. The 2003 CSA report on urban informal sector identifies lack of working premise as the third most important constraint faced by informal sector operators in Addis Ababa.

This study revealed that 78% of the operators were working on informally occupied public land, 20% in Kebele rented premises and 2% by renting from private holders.

Table 5: Working Premise Ownership

Working Premise Ownership Type	Frequency	Percent
Kebele rented	31	20
Informally occupied	116	78
Private rental	3	2
Total	150	100.0

Source: Computed from the Census Survey, October 2006

As shown above, most of the operators do not have a clearly defined working/selling premises ownership and this apparently exposes them to a multitude of economic, social, environmental and health problems. This absence of clear ownership structure has also forced the operators not to transform their working/selling environment into a healthy and pleasant working neighborhood.

In this study, it is hypothesized that the accord of ownership property rights to the premises determines earnings from the informal business operation. More specifically, earnings is a positive function of premise ownership.

4.3.7. Availability of Infrastructure and Utility Facilities

The “*Chid Tera*” work area lacks the necessary infrastructure. Access roads are few and impassable at times, potable water doesn’t exist and electricity is highly limited to communal level. The case study area faces poor drainage and is flood-prone. The metal recyclers and recyclable items traders also lack adequate storage both for selling and raw materials and products.

4.3.8. Source of Raw Material/Marketable Items

The types and sources of raw materials vary. The major types of raw materials used by the informal recyclers and recyclable items traders include: used cans, plastics, bottles, and metal products. The major sources of these raw materials are informal recyclable items collectors (‘*Qorqoroyalew*’⁹) in the city (73%) and urban intermediate dealers who collect from different sources and supply either to the recyclers or recyclable item traders (18%).

⁹ ‘*Qorqoroyalew*’ is the term given to informal recyclable items collector in Amharic.

Table 6: Source of Raw Material

Major Source	Frequency	Percent
Recyclable items collectors ('Qorqoroyalew')	109	73
Urban intermediate dealers	27	18
Companies	7	5
Individuals (Residences of the city)	3	2
Rural intermediate dealers	2	1
Different sources (Recyclers, intermediate Dealers, etc)	2	1
Total	150	100

Source: Computed from the Census Survey, October 2006

Formal sector enterprises such as bottle factories are also found to be sources of raw materials for the operators. The source of raw material channel is not confined to the boundaries of Addis Ababa, but also extends out of the city.

Used plastic items, scraped metals, corrugated iron sheets and bottles are collected from the city and other rural and major urban centers of the country. According to WUB Consult (2006), some 4000 informal recyclable items collectors ('Qorqoroyalew's) supply raw materials for *Chid Tera* recyclers and recyclable items traders. These collectors are usually equipped with plastic bag containers for the collection of recyclable items. The same source also disclosed that garbage collectors organized by the city government in the form of MSEs supply raw materials in the area next to the informal recyclable items collectors, even though these were not captured by the conducted survey. The informal recyclable items collectors and the MSE organized garbage collectors scan the city perimeters for plastics, metals, cans and bottles on a regular basis. Then the collected items will be transported to the loading dock area and will be separated before reaching to '*Chid Tera*' where the raw materials are accepted for recycling or resell.

In a broader sense, suppliers of raw material encompass individual collectors (informal recyclable items collectors), public and private companies (MSEs, chemical importing

enterprises, road and construction enterprises, etc) and others from different parts of the country. This makes the raw material source chain vast and complex.

It is hypothesized that those informal recyclers who acquire their raw materials largely from informal recyclable item collectors would receive higher earnings compared to other recyclers who rely on other sources such as the MSE organized garbage collectors and urban intermediate dealers.

4.3.9. Market Outlet

Most of the surveyed operators provide their items to Addis Ababa market. They also disseminate their products to other big and small towns as well as rural areas of the country. As indicated before, the major activities in the area are collecting, distributing and selling of different recyclable materials as well as recycling and manufacturing practices. Marketing chain of the sellable goods is also vast and complex like that of raw material source.

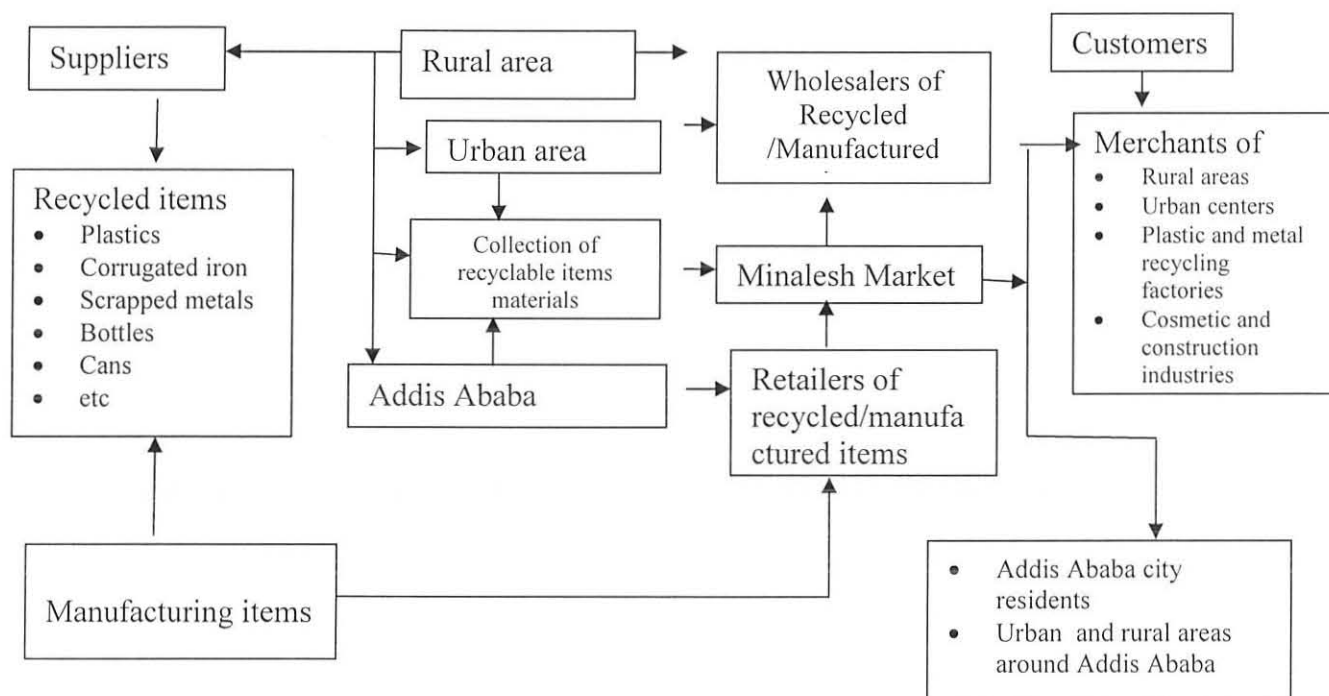
Usually, the collected recyclable items are distributed to different medium and large scale metal and plastic processing plants while the manufactured/recycled goods are disseminated largely to customers directly. The frequently manufactured recycled items in the area include: cooking/washing pans ('Biretmitad'), barrels ('Gurdbermel'), traditional stoves ('Midija'), lamps ('Kuraz'), sieves ('Wenfite'), etc.

The process flow and market transaction of recycling and recyclable items trading is actually a vast and complex interaction of traders, recyclers, suppliers and middle men. The process and market transaction in the area has a dual nature. First, recyclers and traders usually purchase raw materials directly from different suppliers for recycling and reselling. Second, the recyclers and traders also use middlemen who are engaged widely in distribution of various raw recyclable materials and finished recycled goods.

To be more specific, as stated above the operators purchase raw and used materials from different suppliers. In terms of spatial coverage, recyclable items are collected from Addis Ababa city as well as different parts of the regions and urban centers of the country. These rural and urban suppliers collect recyclable plastics, corrugated iron sheets, scrapped metals, bottles, cans etc from recyclers, residences, public and private companies, as well as retailers and wholesalers of recyclable items. After the collected raw materials reach *Minalesh Tera* they will be recycled or ready for reselling. Then the goods will be traded to different customers through wholesalers, retailers and direct transactions. Customers and market outlets of *Minalesh Tera* ranges from Addis Ababa city residents to medium and large scale manufacturing and processing industrial plants working in all parts of the country. The following chart summarizes the above described process flow and market transaction of the area.



Figure 2: Process Flow and Market Transactions of Recycling and Recyclable Items Trading Activities in *Minalesh Tera* (*Chid Tera*)



It is hypothesized that those recyclers and traders who trade their outputs directly to the customers would earn higher earnings than those who sell their produces to either local retailers/wholesalers, foreign sellers, manufacturers or exporters.

4.3.10. Work-Leisure Substitution

Studies show that most informal sector operators have less leisure time and spend their large proportion of daytime on their working areas or premises. In this study case, the majority (76%) reported that they spend eight to ten hours per day in their working area. The mean hours spent per day in the working area was found around 9 hours. The result implies that most of the considered operators do not work in other areas for other income generation activities, as they spend much of their time in *Chid Tera*. The entire respondents also reported that they work six days per week.

Basically individuals are heterogeneous with respect to their preferences, their observed and unobserved productivity enhancing characteristics, and strength of their contacts in the labor market (Cohen et al., 1996). It is assumed that duration of labor market participation is expected to affect earnings. In this study, it is hypothesized that the more the operators spend their time for work by reducing their leisure time, the more they earn and the vice versa. Length or duration of labor market contact entered the original model as a continuous number of hours worked per day and days worked per week, independently. Positive and significant results are expected from estimation of the variables.

Distance between home and workplace is also expected to affect earnings negatively i.e. as the home-to-workplace distance increases, earnings would decrease as it takes away more working time which in turn reduces earnings. Being far from work place is also expected to lessen work effort and thus earnings. In general, by consuming more working time and reducing work effort of an individual, home-to-work place distance is hypothesized to reduce an individual's labor market participation and earnings.

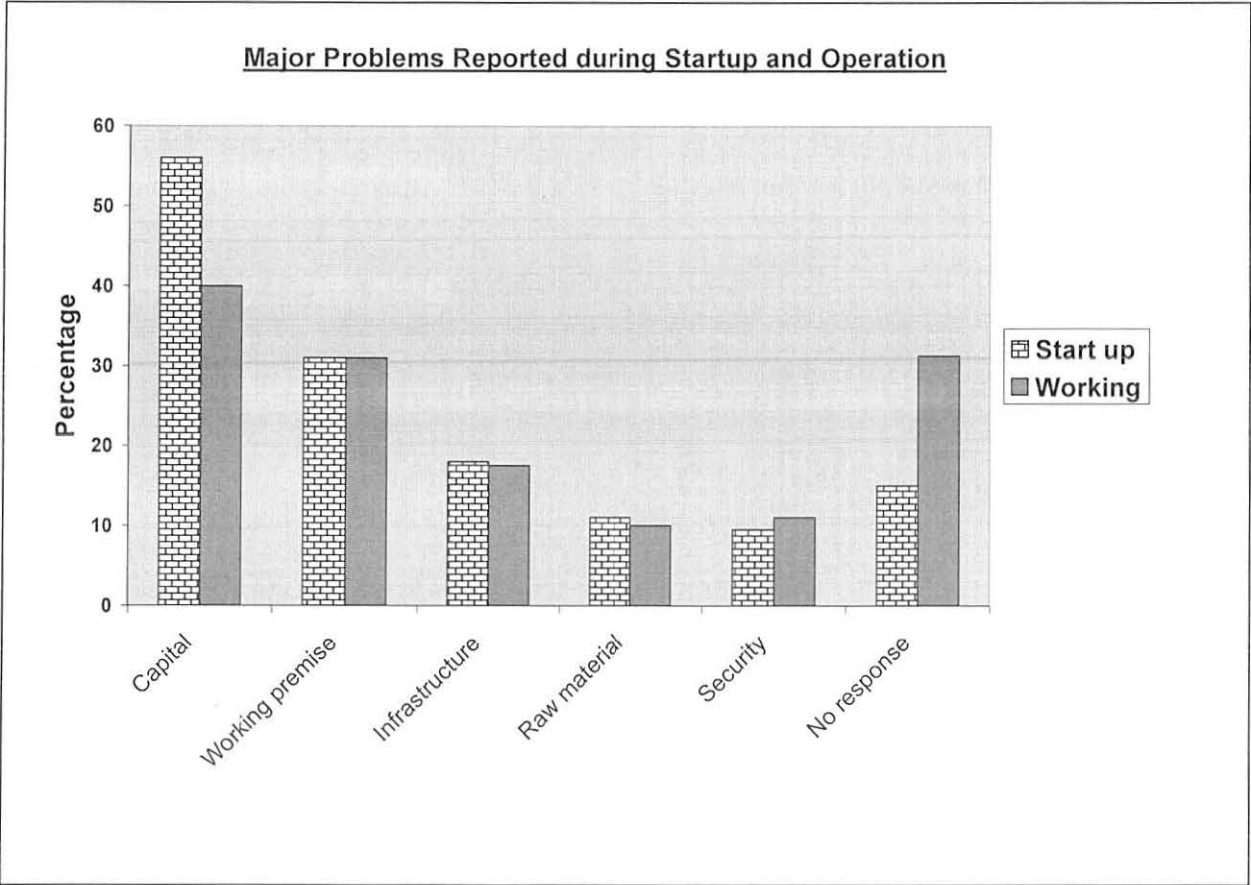
This variable joined the original model as a continuous variable in number of hours spent per day to go from home to workplace. Negative and significant coefficient is expected from estimation of the variable.

4.3.11. Problems Encountered During Startup and Operation

The informal sector operators often face numerous bottlenecks. According to the 2003 CSA report on urban informal sector, the major start-up problems of the informal sector establishments in Addis Ababa are: shortage of working capital (36.2%), inadequate skill (9.19%) and lack of working premises (8.87%). Similarly, the first major operating problems reported include: lack of sufficient capital (27.68%), marketing problem (24.27%), and lack of operating premises (10.16%).

In this study case, shortage of capital (56% during start-up and 40% during operational period) and lack of working premise (31% during start-up and 30% during operational period) were found to be the foremost problems.

Figure 3: Major Problems Faced



Other problems include: lack of adequate infrastructure and utility facilities, shortage of raw material and security problems in work place. Table 7 below depicts the leading problems encountered during startup and operational periods.

Table 7: Major Problems During Startup and Operation

Description	Percentage	
	Start-up	Working
Capital shortage	56	40
Lack of adequate working premise	31	31
Lack of infrastructure and utility facilities	18	18
Shortage of raw material	11	10
Security problem	10	11
No response	15	31

Source: Computed from the Census Survey, October 2006

4.3.12. General Attitude and Future Plans

The considered operators were asked to evaluate status of their job, explain their attitude towards the contemporary policies/regulations that affect their job and their future plans in relation to their job.

Accordingly, the majority believe that their business has not been growing over years but still need to continue with their current activity. Of the entire operators, 44% reported that they exhibited growth since their establishment. Almost all of the remaining operators (56%) believe that their business has either been declining or stayed stagnant.

Concerning their attitude towards the respective policies and regulations directed towards the MSEs development, 57% believe that the policies and directives devised are supportive, but lack committed and practical implementation. On the other hand, 41% believe that they are neither supportive nor discouraging.

Regarding their future plans, the majority (61%) stated that they want to continue with their current occupation while near to 24% need either to quit their recycling/trading activity or seek to engage in other types of informal economic activities. Most of those who seek to change their

activity were found operators who reported that their business is either dying or has been stagnant.

Table 8: Cross Tabulation: Future Plan Versus Evaluation of Business Growth

			How do you evaluate your business?				Total
			Prospecting	Dieing	No change	Other	
Do you have a plan to proceed with your current occupation?	Yes	Number	49	12	18	1	80
		Percent	61.3%	15.0%	22.5%	1.3%	100%
	No	Number	17	22	31		70
		Percent	24.3%	31.4%	44.3%		100%
Total		Number	66	34	49	1	150
		Percent	44.0%	22.7%	32.7%	0.7%	100%

Source: Computed from the Census Survey, October 2006

The operators were also asked to explain and rank major types of threats to their job. Accordingly, dislocation (61%), fire accident (41.3%), bankruptcy (8.7%) and security problems (4.7%) were identified as the major types of threats faced by the operators. The leading threat (eviction) perhaps originates because of unclear ownership and tenure right the operators have on their working/selling premises. According to WUB Consult (2006), the majority have been reluctant to invest on fixed assets (such as permanent construction structures, machineries, etc.) in the area where their underlining rights to the land and property remains insecure. This legal uncertainty has been resulting negative socio-economic and environmental consequences in the area. In addition, continued warnings and harassments from the local authorities (Kebele and Sub city officials) and licensed business operators is believed to contribute for creation of this dislocation threat. Most Kebele officials and legal traders consider these informal sector operators as recipients of unjustified profit. Both consider the operators as unlawful and unfair and as introducers of sanitation problems (ORAAMP, 2001).

The survey result indicated that the majority of the operators consider their job as a stagnant. Similarly, it was indicated that the greater part of the operators belief towards the contemporary policies and regulations directed for the MSEs development are supportive. These job and policy

evaluation variables are believed to affect earnings in a number of ways. Here, affirmative evaluations are expected to correlate positively with earnings and negative evaluations of job success and policy are expected to reduce work effort and thus earnings. These variables entered the model in dummies.

The effect of some variables on earnings is always predictable and can be explained simply. For instance, operational problems and constraints faced almost always reduce earnings. Job-related threats have also the same effect. Including such kind of variables in earning determination models would not be relevant as they always exhibit little variations in their estimation results. In this study case, problem and threat related variables were not included in the original model as their expected result is always predictable.

CHAPTER FIVE: MODEL SPECIFICATION AND ESTIMATION

APPROACH OF THE STUDY

5.1. Model Specification

There is a wide variety of labor earnings models in the literature. A model used to estimate earnings in this study takes the following general form:

$$\ln(Y_j) = \beta_j' X_j + \mu_j \quad (1)$$

Where $\ln(Y_j)$ is log of annual earnings, X_j is a vector of exogenous variables such as socio-economic, demographic and marketing variables, and μ_j is an error term which is a randomly and normally distributed random variable with zero mean and constant variance. This is the usual least square regression approach.

5.2. Original Specification of the Model

Specific form of the equation considered for estimation was originally represented in equation (2) and the variables in equation 2 are defined and measured in Table 9.

$$\ln Y_j = \beta_0 + \sum_j \beta_j X_j + U_j \quad \dots\dots\dots (2)$$

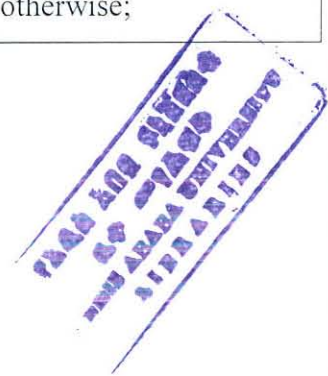
Table 9: Description of the Originally Considered Model Variables

S.No .	Type of Variable	Variable	Variable` Label	Definition	Measurement
1	Dependent				
		Annual earnings	$\ln Y$	The natural logarithm of annual earnings of an operator	The natural logarithm of annual earnings
2	Independent				
		Experience	$EXPERIEN$	Labor market experience of an operator in years	A continuous variable in number of years of labor market experience
		Experience squared	$EXPESQUA$	Square of years of labor market experience of an operator	Square of a continuous variable in number of years of labor market experience
		Sex	$SEXDUM_I$	Gender of an operator	A dummy variable with 1,0 values i.e. Dummy = 1 if male, 0 if female
		Marital status	$MARDUM_I$	Marital status of an operator	A dummy variable with 1,0 values (Dummy = 1 if an operator is married, 0 otherwise)
		Family size	$FAMSIZE$	Family size of an operator	A continuous variable in number of family members
		Migratory status	$MIGRATO_I$	Migration status of an operator (<i>whether an operator migrated to Addis Ababa or not</i>)	A dummy variable with 1,0 values (Dummy = 1 if an operator migrated to Addis Ababa, 0 otherwise)

S.No .	Type of Variable	Variable	Variable' Label	Definition	Measurement
		Ethnic group	<i>ETHGDUM₁</i>	Ethnic group of an operator	Dummy with value 1,0 i.e. <i>ETHGDUM₁</i> =1 if Gurage, 0 otherwise
		Education	<i>EDUCSTA</i>	Continuous number of education attained	Number of years of schooling
			<i>EDUDUM₁,..., EDUDUM₅</i>	Level of education attained where 1= illiterate, 2 = able to read and write, 3 = primary (1-8 grade level), 4 = secondary (9-10/12 grade level), 5 = tertiary (13 or more years of education)	Dummy with value 1,0 for each level of education i.e. <i>EDUDUM₁</i> =1 if illiterate, 0 otherwise <i>EDUDUM₂</i> =1 if able to read/write, 0 otherwise; <i>EDUDUM₃</i> =1 if primary incomplete, 0 otherwise; <i>EDUDUM₄</i> =1 if secondary incomplete, 0 otherwise; <i>EDUDUM₅</i> =1 if 13 or more years of education, 0 otherwise
		Training	<i>TRAINDUM₁</i>	Access to training	Dummy with value 1,0 i.e. <i>TRAINDUM₁</i> = 1 if there has been an access to training, 0 otherwise
		Hours worked per day	<i>HWDDUMM</i>	The number of working hours per day	A continuous variable in number of working hours per day

S.No .	Type of Variable	Variable	Variable' Label	Definition	Measurement
		Days worked per week	<i>DWW</i>	The number of working days per week	A continuous variable in number of working days per week
		Home to workplace distance	<i>HWODDUMM</i>	Number of time spent from home to work place	A continuous variable in number of hours elapsed per day during moving from home to workplace
		Form of business acquiring	<i>BUSAQDUM_I</i>	The way an operator acquired his business	Dummy with value 1,0 i.e. <i>BUSAQDUM_I</i> = 1 if own established, 0 otherwise
		Type of job ownership	<i>JOBOWDUM_I</i>	Form of job ownership	Dummy with value 1,0 (<i>JOBOWDUM_I</i> = 1 if owner operator, 0 otherwise)
		Source of beginning capital	<i>SOBECDUM_I</i>	Source of beginning capital	Dummy with value 1,0 i.e. <i>SOBECDUM_I</i> = 1 if own savings, 0 otherwise
		Beginning capital	<i>BEGCDUM₁,..., BEGCDUM₄</i>	Amount of beginning capital where: 1 = < 250 birr, 2 = 251-1000 birr, 3 = 1001-2500 birr, 4 = > 2501 birr.	Dummy with value 1,0 for each category of size of beginning capital i.e. <i>BEGCDUM₁</i> =1 if < 250 birr, 0 otherwise; <i>BEGCDUM₂</i> =1 if 251-1000 birr, 0 otherwise; <i>BEGCDUM₃</i> =1 if

S.No .	Type of Variable	Variable	Variable' Label	Definition	Measurement
					1001- 2500 birr, 0 otherwise; $BEGCDUM_t=1$ if >2500 birr, 0 otherwise.
		Current capital	$CURCDUM_1, \dots,$ $CURCDUM_5$	Amount of current capital where: 1 = < 250 birr, 2 = 251-1000 birr, 3 = 1001-2500 birr, 4 = 2501-5000 birr, 5 = > 5000 birr	Dummy with value 1,0 for each category of size of current capital i.e. $CURCDUM_1=1$ if < 250 birr, 0 otherwise; $CURCDUM_2=1$ if 251- 1000 birr, 0 otherwise; $CURCDUM_3=1$ if 1001- 2500 birr, 0 otherwise; $CURCDUM_4=1$ if 2501-5000 birr, 0 otherwise; $CURCDUM_5=1$ if >5000 birr, 0 otherwise;
		Working premise ownership	$WPRODUM_1, \dots,$ $WPRODUM_5$	Form of working premise ownership by which: 1 = privately owned, 2 = Kebele owned, 3 = informally occupied, 4 = private rental, 5 = other	Dummy with value 1,0 for each category of form of working premise ownership i.e. $WPRODUM_1=1$ if privately owned, 0 otherwise;



S.No	Type of Variable	Variable	Variable` Label	Definition	Measurement
.					$WPRODUM_2=1$ if Kebele owned, 0 otherwise; $WPRODUM_3=1$ if informally occupied, 0 otherwise; $WPRODUM_4=1$ if private rental, 0 otherwise; $WPRODUM_5=1$ if other form of working premise ownership other than private, Kebele, informal occupation and private rental owned, 0 otherwise;
		Market outlet	$SELODUM_1, \dots, SELODUM_5$	Type of market outlet for the outputs where: 1 = directly to the customers, 2 = to local retailers/wholesalers, 3 = to foreign sellers, 4 = to manufacturers, 5 = to exporters.	Dummy with value 1, 0 for each category of market outlet. These include: $SELODUM_1=1$ if sold directly to the customers, 0 otherwise; $SELODUM_2=1$ if sold to local retailers/wholesalers, 0 otherwise; $SELODUM_3=1$ if sold

S.No .	Type of Variable	Variable	Variable` Label	Definition	Measurement
					to foreign sellers, 0 otherwise; $SELODUM_4=1$ if sold to manufacturers, 0 otherwise; $SELODUM_5=1$ if sold to exporters, 0 otherwise;
		Source of Raw material	$SRAWDUM_1, \dots,$ $SRAWDUM_3$	Source of Raw material where: 1 = recyclable items collectors, 2 = urban intermediate dealers, 3 = others except recyclable items collectors and urban intermediate dealers.	Dummy with value 1,0 for each category of source of raw material i.e. $SRAWDUM_1=1$ if recyclable items collectors, 0 otherwise; $SRAWDUM_2=1$ if urban intermediate dealers, 0 otherwise; $SRAWDUM_3=1$ if others except recyclable items collectors and urban intermediate dealers, 0 otherwise.
		Job evaluation	$EVJODUM_1, \dots,$ $EVJODUM_4$	How the operators evaluate their job where: 1 = expanding, 2 = declining, 3 = no change,	Dummy with value 1,0 for each category of how the operators evaluate their job i.e. $EVJODUM_1=1$ if

S.No .	Type of Variable	Variable	Variable` Label	Definition	Measurement
					prospecting, 0 otherwise; $EVJODUM_2=1$ if diminishing, 0 otherwise; $EVJODUM_3=1$ if no- change, 0 otherwise.
		Policy evaluation	$PLEVDUM_1, \dots,$ $PLEVDUM_4$	How the operators evaluate the contemporary MSE related policies: 1 = encouraging, 2 = discouraging, 3 = neither encouraging nor discouraging,	Dummy with value 1,0 for each category of how the operators evaluate the contemporary MSE related policies i.e. $PLEVDUM_1=1$ if encouraging, 0 otherwise; $PLEVDUM_2=1$ if discouraging, 0 otherwise; $PLEVDUM_3=1$ if neither encouraging nor discouraging, 0 otherwise.
3	Coefficients	Coefficients	βs	Coefficients to be estimated	
4	An error term	An error term	U	An error term	An error term with the usual least square assumptions

5.3. Preliminary Estimation Results of the Original Model

To evaluate the explanatory power and validity of all variables in the original model, a least square regression was run using equation (2). Parameter estimates of the variables are shown in table below.

Table 10: Estimation Result of the Original Model

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
Constant	---	---	1.045	0.298	
EXPERIEN	-0.676	3.344	-0.202	0.840	14.360
EXPESQUA	-0.003	0.073	-0.035	0.972	280.960
SEXDUM1	17.623	45.230	0.390	0.698	0.967
MARDUM1	24.782	23.896	1.037	0.302	0.860
MIGRATO1	30.978	21.476	1.442	0.152	0.913
FAMSIZE	-4.394	4.936	-0.890	0.375	6.173
ETHGDUM1	-0.202	18.891	-0.011	0.992	0.960
EDUCSTA	---	---	-0.750	0.455	3.127
EDUDUM1	L	L	L	L	L
EDUDUM2	---	---	0.479	0.633	0.020
EDUDUM3	---	---	0.750	0.455	0.747
EDUDUM4	----	---	1.244	0.216	0.160
EDUDUM5	---	---	0.750	0.455	0.033
TRAINDUM	-386.39	286.438	-1.349	0.180	0.020
HWDDUMM	-3.05	7.827	-0.390	0.698	9.293
DWW	!	!	!	!	!
HWODDUMM	-69.556	28.118	-2.474*	0.015	0.601
BUSAQDUM	-27.702	20.335	-1.362	0.176	0.827
JOBOWDUM	-65.889	59.925	-1.100	0.274	0.987

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
SOBECDUM	-25.523	18.131	-1.408	0.162	0.853
BEGCDUM1	L	L	L	L	L
BEGCDUM2	-6.326	42.202	-0.150	0.881	0.433
BEGCDUM3	-6.836	42.723	-0.160	0.873	0.033
BEGCDUM4	-157.033	81.520	-1.926***	0.057	0.060
CURCDUM1	L	L	L	L	L
CURCDUM2	-50.617	45.934	-1.102	0.273	0.520
CURCDUM3	-75.433	67.847	-1.112	0.269	0.207
CURCDUM4	-49.970	60.625	-0.824	0.412	0.180
CURCDUM5	68.491	89.142	0.768	0.444	0.080
WPRODUM1	29.788	25.070	1.188	0.237	0.087
WPRODUM2	10.002	18.680	0.535	0.593	0.207
WPRODUM3	L	L	L	L	L
WPRODUM4	22.526	23.602	0.954	0.342	0.020
WPRODUM5	^	^	^	^	^
SELODUM1	L	L	L	L	L
SELODUM2	-31.348	20.026	-1.565	0.120	0.507
SELODUM3	^	^	^	^	^
SELODUM4	-38.210	47.493	-0.805	0.423	0.007
SELODUM5	^	^	^	^	^
SRAWDUM1	L	L	L	L	L
SRAWDUM2	2.918	15.193	0.192	0.848	0.160
SRAWDUM3	-7.882	16.798	-0.469	0.640	0.107
EVJODUM1	L	L	L	L	L
EVJODUM2	-65.199	48.375	-1.348	0.180	0.227
EVJODUM3	23.973	19.484	1.230	0.221	0.333
PLEVDUM1	L	L	L	L	L
PLEVDUM2	-9.215	35.355	-0.261	0.795	0.300

Explanatory Variables	Coefficient	Standard Error	t-ratio	P (T >t)	Mean of X
PLEVDUM3	20.356	23.044	0.883	0.379	0.127
Dependent variable			Log of annual revenue		
Number of observations			150		
R ²			0.196		
Adjusted R ²			-0.059		
Degrees of freedom			36, 113		
F-Statistic			0.77		

Source: Author's Computation from the Census Conducted on October 2006

Note: L = Left out

* Significant at 1 percent level of significance

** Significant at 5 percent level of significance

*** Significant at 10 percent level of significance

^ No observation

! No variation across observation



As indicated in table 10, the variables considered overall have not been significant i.e. insignificant F-statistics has been obtained. Both R squared and adjusted R squared (the measures of the goodness of fit of the model) has also been too small. Only two variables (BEGCDUM4 and HWODDUMM) shown significant results and the remaining variables were found insignificant.

In view of the aforementioned result, it was found necessary to probe each of the variables considered in the original model: first the dependent variable and then the independent variables. Accordingly, a number of variables were reasonably omitted, modified or re-specified to arrive at the final specification of the model.

To start with the dependent variable, the natural logarithm of annual earnings is proxied by the sum of the annual components of the total operating cost i.e. costs of raw material + administrative overhead + rent + repair and maintenance + electricity (for light) + energy (coal, etc) + water + salary + transport + miscellaneous expenses. In other words, the total operating cost is the proxy measurement used for earnings in this survey. An alternative measurement

would have been the annual revenue or income of the operations reported. Unfortunately, the accuracy of this measurement is doubted in view of the underreporting of earnings that is common in this survey.

In the list of explanatory variables, the following were examined as they show various problems:

1. Labor market experience (EXPERIEN)
2. Number of years of schooling (EDUCSTA)
3. Sex (SEXDUM1)
4. Migration status (MIGRATO1)
5. Ethnic group (ETHGDUM1)
6. Number of days worked per week (DWW)
7. Job ownership (JOBOWDUM)
8. Training (TRAINDUM)
9. Two market outlet dummies i.e. sell to foreign sellers (SELODUM3) and sell to exporters (SELODUM5)
10. One working premise ownership dummy (other form of working premise ownership except private, Kebele, informal occupation and private rental owned or WPRODUM5)

Regarding experience, two types of measurements have been considered in the original estimation. First, years of labor market experience reported by the operators was directly used for estimation by which the result turned insignificant as indicated in table 10. Probing further, frequent inconsistencies were observed in the gathered data concerning reports of labor market experiences among the interviewees. For instance, it was found that experience exceeds age in several reporting, thus indicating error in measurement of this variable. To mitigate such kind of problems in measuring experience, an alternative measurement has been used by combining (1) age, (2) years of schooling and (3) six, assuming six as the age at which school begins (In the questioner, the interviewees were asked to explain their age and years of schooling). The combination of these variables is used as a proxy for experience and is represented by age less schooling less six (A-S-6), as suggested by Mincer (Mincer, 1978). It is clear that this approximation may not be necessarily correct in the Ethiopian case. For instance, in the Mincer

case secondary schooling is compulsory and there is a working age limit. In the Ethiopian case there is no age limit for working and secondary schooling is not compulsory for working. Therefore, A-S-6 is the maximum value of labor market experience in the Ethiopian case. Accordingly, this A-S-6 variable is used in the final specification of the original model (equation 2) of this study to proxy labor market experience.

An education variable that deals with a continuous number of years of schooling (EDUCSTA) was excluded from the final model because the dummy variables of education better explain effects of education on earnings.

Those explanatory variables which have shown little or insignificant variations across their observations were also removed from the final model. These comprise sex, migration status, ethnic group, number of days worked per week and type of job ownership variables. Sex variable (SEXDUM1) was excluded from the final model because 98% of the respondents are male. Estimation result with the presence of only 2% female population across the entire observation is not believed to give reliable explanation about the impact of gender variation on earnings and thus this variable was not considered in the final model. Migration status (MIGRATO1) and ethnic group (ETHGDUM1) variables were also removed as 98% the observed operators were found to be migrants from 'Gurage' ethnic group, thus depicting insignificant variation across the observation. Similarly, number of days worked per week (DWW) variable was debarred from the model because the whole interviewees reported they work six days per week (no variation across the considered observation). For the same reason, job ownership dummy variable (JOBOWDUM) was also removed from the final model because nearly all of the operations (99%) are owned and operated by single individuals.

Some of the explanatory variables included in the original model were removed from the final specification of the model because no observations were recorded for them. These include training (TRAINDUM), two market outlet dummies (SELODUM3 and SELODUM5) and one working premise ownership dummy (WPRODUM5). Training dummy variable (TRAINDUM) was excluded from the final model as the considered operators had exclusively no access to related trainings to their current operations. None of the interviewees were also found to supply

their outputs either to exporters or foreign sellers. Similarly, no other form of working premise ownership out of private, Kebele, informal occupation and private rental has been observed in the survey.

As tried to indicate earlier, the considered case association comprises metal recyclers and traders of recyclable metal, plastic and glass items. We strongly believe that there is a difference in profitability of these recyclers and traders. Consequently, a new dummy variable (JOBCATEG1) was introduced in the final model to examine whether there is a difference in earnings between recyclers and traders of recyclable items.

5.4. Final Specification of the Model

Application of model (2) has been reviewed in section 5.3 above. As discussed in the section, variables which do not show variations across the entire observation, which do not have observations and which are replaced by proxies are described in the following tables.

Table 11: Description of Proxy Variables Included in the Final Model

S.No	Type of Variable	Variable	Variable` Label	Definition	Measurement
1	Dependent				
		Annual earnings	<i>lnY</i>	The natural logarithm of annual earnings of an operator	Annual earnings is proxied by summation of an operator’s annual cost components
2	Independent				
		Experience	<i>AGEXPER</i>	Labor market experience proxy of an operator in years	A continuous variable in number of completed years of age-schooling-six <i>(This variable is used</i>

S.No	Type of Variable	Variable	Variable` Label	Definition	Measurement
.					<i>to proxy labor market experience)</i>
		Experience squared	<i>AGEXPSQU</i>	Square of years of labor market experience proxy of an operator	Square of a continuous variable in number of years of labor market experience proxy
		Type of Job	<i>JOBCATEGI</i>	Job category of an operator	A dummy variable with 1,0 values i.e. Dummy = 1 if recyclable items traders, 0 if recycler

Table 12: Description of Variables Omitted in the Final Model

S. No.	Type of Variable	Variable	Variable` Label in the Original Model	Reason for Omission	Remark
1	Independent	Sex	<i>SEXDUM₁</i>	Little variation	
2	»	Migratory status	<i>MIGRATO₁</i>	Little variation	
3	»	Ethnic group	<i>ETHGDUM₁</i>	Little variation	
4	»	Education	<i>EDUCSTA</i>	Limited application	The dummy variables of education better explain effects of education on earnings
5	»	Training	<i>TRAINDUM₁</i>	No observation	

S. No.	Type of Variable	Variable	Variable' Label in the Original Model	Reason for Omission	Remark
6	»	Days worked per week	<i>DWW</i>	No variation	
7	»	Type of job ownership	<i>JOBOWDUM₁</i>	Little variation	
8	»	Working premise ownership	<i>WPRODUM₅</i>	Little variation	
9	»	Market outlet	<i>SELODUM₃</i> , <i>SELODUM₅</i>	No observation	<i>SELODUM₄ of the original model renamed into SELODUM₃ in the final model</i>

Considering the reflections explained, the final shape or expression of the model shown below (equation (3)) is actually the same as general equation (2) form indicated earlier. However, Equation (3) includes proxy variables and excludes omitted variables discussed in tables 11 and 12 above.

$$\ln Y_j = \beta_0 + \sum_j \beta_j X_j + U_j \dots\dots\dots(3)$$

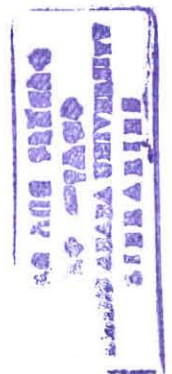
Equation (3) is used in this study to examine determinants of earnings among the metal recyclers and traders of recyclable metal, plastic and glass products as a whole. Using equation (3), a hypothesis test was conducted originally for the entire observation to learn whether the identified variables adequately represent the earnings equation. Based on the result of this hypothesis, two more tests were undertaken for two different groups (metal recyclers only and traders of

recyclable metal, plastic and glass products) to examine differences in earnings among these groups. The conducted tests took the following forms:

$$H_0 = \beta_1 = \beta_2 = \beta_3 = \dots\dots\dots\beta_{39} = 0$$

$$H_1 = \beta_1 = \beta_2 = \beta_3 = \dots\dots\dots\beta_{39} \neq 0$$

Accordingly, results of the tests conducted for different groups are discussed in the proceeding chapter (Chapter six) of this study.



CHAPTER SIX: RESULT AND DISCUSSIONS

Having final specification of this study's model i.e. equation 3, parameter estimates were made using a least square regression first for the entire group. Based on the result of this regression, two additional regressions were made independently for the metal recyclers group and the traders of recyclable metal, plastic and glass items group. Results of the regressions are discussed in the following sections.

6.1. Estimation Result for the Entire Observation

As tried to indicate above, the first estimation was made for the entire 150 observations of the case association. Table 13 displays results of heteroscedasticity consistent regression for the entire observation.

Table 13: Least Square Results for the Entire Observation

Explanatory Variables	Coefficient	Standard Error	t-ratio	P T >t	Mean of X
Constant	7.778	0.923	8.423*	0.000	
AGEXPER	0.055	0.009	6.343*	0.000	16.980
AGEXPSQU	-0.001	0.000	-4.837*	0.000	393.233
MARDUM1	0.617	0.138	4.455*	0.000	0.860
FAMSIZE	0.054	0.013	4.128*	0.000	6.173
EDUDUM1	L	L	L	L	L
EDUDUM2	0.906	0.710	1.276	0.205	0.020
EDUDUM3	0.977	0.345	2.832*	0.005	0.747
EDUDUM4	1.045	0.357	2.927*	0.004	0.160
EDUDUM5	0.965	0.419	2.304**	0.023	0.033
HWDDUMM	-0.070	0.063	-1.103	0.272	9.293

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
HWODDUMM	0.107	0.164	0.652	0.516	0.601
BUSAQDUM	0.250	0.146	1.707***	0.090	0.827
SOBECDUM	-0.256	0.154	-1.661***	0.099	0.853
BEGCDUM1	L	L	L	L	L
BEGCDUM2	-0.065	0.114	-0.565	0.573	0.433
BEGCDUM3	-0.306	0.361	-0.848	0.398	0.033
BEGCDUM4	-0.781	0.517	-1.510	0.134	0.060
CURCDUM1	L	L	L	L	L
CURCDUM2	-0.239	0.229	-1.042	0.300	0.520
CURCDUM3	-0.117	0.256	-0.457	0.649	0.207
CURCDUM4	-0.324	0.269	-1.205	0.231	0.180
CURCDUM5	0.363	0.512	0.709	0.480	0.080
WPRODUM1	0.112	0.178	0.631	0.529	0.087
WPRODUM2	0.250	0.137	1.824***	0.071	0.207
WPRODUM3	L	L	L	L	L
WPRODUM4	0.278	0.196	1.417	0.159	0.020
SELODUM1	-0.150	0.186	-0.806	0.422	0.453
SELODUM2	L	L	L	L	L
SELODUM3	-0.179	0.326	-0.549	0.584	0.007
SRAWDUM1	L	L	L	L	L
SRAWDUM2	-0.030	0.119	-0.256	0.799	0.160
SRAWDUM3	0.233	0.182	1.280	0.203	0.107
EVJODUM1	L	L	L	L	L
EVJODUM2	0.069	0.115	0.600	0.550	0.227
EVJODUM3	-0.194	0.132	-1.473	0.143	0.333
PLEVDUM1	L	L	L	L	L
PLEVDUM2	-0.163	0.105	-1.548	0.124	0.300
PLEVDUM3	-0.350	0.176	-1.989**	0.049	0.127



Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
JOBCATEG1	0.639	0.459	2.044**	0.043	0.573
Dependent variable			Log of annual earnings		
Number of observations			150		
R ²			0.4977		
Adjusted R ²			0.3658		
Degrees of freedom			32, 118		
F-Statistic			3.77		
Breusch - Pagan chi-squared			52.6453		

Source: Author's Computation from the Census conducted on October 2006

Note: L = Left out (control variable)

* Significant at 1 percent level of significance

** Significant at 5 percent level of significance

*** Significant at 10 percent level of significance

As indicated in table 13, the measures of the goodness of fit of the model i.e. R² and adjusted R² are generally satisfactory for such kind of cross-sectional data based models. The overall test of the model (F-test) also indicates that the set of explanatory variables were found to explain the dependent variable well at 1% level of significance.

Most of the human capital variables were found to have significant effect on earnings. The estimated results show that experience (AGEXPER) determines earnings positively and significantly at 1% level of significance. The result suggests that a one year increase in experience raises earnings by about 5.5%. The negative coefficient of experience squared (AGEXPSQU) implies an inverse parabolic relationship between annual earnings and experience of an operator as the operator gets older. Most empirical studies of the Human Capital Theory indicate that experience has a positive relationship with earnings. Inline with this, the positive and significant influence of experience on earnings was found as expected.

Most of the education dummies considered also turned statistically significant and taken signs corresponding to prior expectations. Only those who are able to read/write (EDUDUM2) show

statistically insignificant variations on earnings as compared to illiterates. Rate of return for those who have at least attended primary level of education was found to be significantly higher than illiterates at 1% level of significance.

Being married and having larger family size yield a positive influence on earnings. Those who are married earn 62% larger income than those single, divorced or widowed operators. Similarly, an increase in one additional family size among operators is found to raise earnings by 5%. Both marital status dummy and family size parameter estimates are significant at 1% level of confidence and turned with their corresponding expected signs.

Earning is found to be influenced by form of acquiring a business. The estimation result revealed that own established businesses (BUSAQDUM) earn higher income than other forms of acquiring a business. BUSAQDUM was found significant at 10% level of significance. On the contrary, use of own savings as a source of beginning capital is found to affect earnings negatively. This result is, in fact, unforeseen because it was expected previously that use of own savings as a source of beginning capital would increase earnings by influencing work effort. The result obtained probably suggests that those who use own savings as a source of capital might not exert adequate effort to increase their earnings, as they do not have debts to pay back.

Way of acquiring working premise is only significant for the case of those which operate in Kebele owned houses. Those who work on Kebele owned working premises earn 25% more than those who work on informally occupied premises. Perhaps, this is because those who work in Kebele owned houses feel more security which enable them to work hard and earn more than those who work on informally occupied premises.

All sizes of beginning and current capital dummies, hourly length of labor market participation in a day and length of time spent to travel from home to work place were found insignificant in determining earnings. Similarly, differences in type of market outlets and sources of raw material as well as operators evaluations on their job (how the operators evaluate their job) were discovered not to have significant influences on earnings. Most evaluations made by the

operators on the contemporary MSE related policies show that the policies do not significantly influence earnings.

It was indicated earlier that in order to examine whether there is earnings difference between metal recyclers and traders of recyclable metal, plastic and glass items, it was found necessary to include a dummy variable (JOBCATEG1) in the final model. Accordingly, the estimation result of this dummy variable revealed presence of earnings difference between the two groups. It was found that traders of metal, plastic and glass items earn 17% more than the metal recyclers. Type of business (JOBCATEG1) significantly and positively determines earnings at 5% level of significance. This result indeed suggests a need to probe the groups separately to identify those variables which are responsible for the differences exhibited. Accordingly, estimation results of the two groups are discussed independently under section 6.2 and 6.3 below. Heteroscedasticity consistent regression results are reported for both groups.

6.2. Estimation Result for the Metal Recyclers

The number of recyclers in the association on which the least square regression was run is 64. This specific group shows acceptable levels of R^2 and adjusted $\check{R}^2$ as well as positive and significant overall significance of the model.

Some of the variables that had response in the case of the entire observation were turned to have no data under this group. For instance, in the recyclers group none of the operators fall under the category of <able to read and write> or EDUDUM₂ among the dummies for level of education. Similarly, one of the market outlet dummies (SELODUM₄ or sell to manufacturers dummy) had no observation for this group and thus removed from the estimation. SELODUM₄ was renamed into SELODUM₃ as indicated in table 12 and this holds true in the coming discussions.

Table 14: Least Square Results for Metal Recyclers

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t] 	Mean of X
Constant	9.697	---	0.000	1.000	
AGEXPER	0.058	0.014	4.026*	0.000	13.563
AGEXPSQU	-0.001	0.000	-1.832***	0.076	265.625
MARDUM1	0.648	0.228	2.845*	0.007	0.813
FAMSIZE	0.061	0.028	2.219**	0.033	5.750
EDUDUM1	L	L	L	L	L
EDUDUM2	^	^	^	^	^
EDUDUM3	-0.926	0.319	-2.907*	0.006	0.813
EDUDUM4	-0.832	0.331	-2.517*	0.017	0.156
EDUDUM5	-1.390	0.318	-4.370*	0.000	0.016
HWDDUMM	-0.152	0.085	-1.783***	0.083	8.844
HWODDUMM	-0.264	0.197	-1.338	0.190	0.612
BUSAQDUM	-0.009	0.216	-0.042	0.967	0.781
SOBECDUM	1.128	0.514	2.196**	0.035	0.969
BEGCDUM1	L	L	L	L	L
BEGCDUM2	0.061	0.163	0.377	0.708	0.469
BEGCDUM3	-0.783	0.512	-1.529	0.135	0.016
BEGCDUM4	---	---	0.369	0.714	0.031
CURCDUM1	L	L	L	L	L
CURCDUM2	-0.308	0.482	-0.638	0.527	0.609
CURCDUM3	-0.281	0.514	-0.547	0.588	0.172
CURCDUM4	-0.370	1.047	-0.354	0.726	0.172
CURCDUM5	---	---	-0.123	0.903	0.031
WPRODUM1	-0.384	0.369	-1.041	0.305	0.094
WPRODUM2	0.036	0.313	0.115	0.909	0.125
WPRODUM3	L	L	L	L	L
WPRODUM4	0.306	0.209	1.459	0.154	0.016



Explanatory Variables	Coefficient	Standard Error	t-ratio	P T >t 	Mean of X
SELODUM1	-0.641	0.274	-2.344**	0.025	0.563
SELODUM2	L	L	L	L	L
SELODUM3	^	^	^	^	^
SRAWDUM1	L	L	L	L	L
SRAWDUM2	-0.064	0.150	-0.424	0.674	0.188
SRAWDUM3	-0.064	0.264	-0.242	0.810	0.172
EVJODUM1	L	L	L	L	L
EVJODUM2	-0.047	0.169	-0.277	0.783	0.281
EVJODUM3	0.034	0.228	0.151	0.881	0.234
PLEVDUM1	L	L	L	L	L
PLEVDUM2	-0.289	0.151	-1.912***	0.064	0.219
PLEVDUM3	-0.369	0.182	-2.034**	0.050	0.109
Dependent variable			Log of annual earnings		
Number of observations			64		
R ²			0.708		
Adjusted R ²			0.475		
Degrees of freedom			28,35		
F-Statistic			3.04		

Source: Author's Computation from the Census conducted on October 2006

Note: L = Left out

^ No observation

* Significant at 1 percent level of significance

** Significant at 5 percent level of significance

*** Significant at 10 percent level of significance

Human-capital characteristics appear to be important determinants of earnings for metal recyclers too. Similar to the estimation results for the entire observation, experience, family size and marital status parameter estimates significantly and positively determine earnings of recyclers at 5% level of significance. All the signs of the estimated coefficients of the variables

indicated were as expected. The negative inverse parabolic (U-shape) relation ship between earnings and experience square was also as expected. This explains the diminishing returns in earnings as age increases, so that the gains from experience are eventually exhausted.

Regarding education, all the considered dummies were found to negatively and significantly correlate with earnings at 1% level of significance. Although the Human Capital Theory predicts increasing return to education, the result obtained for education dummies possibly suggests that formally acquired human capital might not be directly productive in the case of informal recyclers. Perhaps other non-educational factors such as age (being young or old) or physical fitness (being strong or weak) matters more for informal recyclers than level of education acquired in determining earnings.

Estimated coefficient for number of working hours per day spent was found negative and significant at 10% level of significance. This implies that working an additional hour above the mean 9 hours per day might reduce earnings of recyclers by 15%. The result obtained is, in fact, opposite to the original expectation of increasing returns to earnings for an increase in number of working hours per day. Fatigue may account for reduction in earnings beyond the mean 9 daily working hours as metal recycling by itself is labor intensive. Inline with the previous expectation, source of beginning capital dummy for own savings is found to positively and significantly influence earnings of metal recyclers (at 5% level of significance).

Similar to the result for the entire group, the sizes of beginning and current capitals were found statistically insignificant in determining earning among recyclers. Length of time consumed for traveling from home to work place, differences in sources of raw material and operators' evaluation about the status of their job were also found insignificant in determining earnings.

Selling recycled metal products directly to the consumers is strongly associated with lower earnings. Recyclers who sell their products directly to the consumers earn 64% less income than those who trade to local wholesalers and retailers. This reveals how the recyclers would enjoy higher earnings if they trade their items to the retailers than to the consumers. Perhaps, the

operators might prefer to trade with the retailers because the retailers might have higher and sustainable market outlet share than the end consumers.

Two of policy evaluation dummies (discouraging and indifferent) were found to negatively and significantly affect earnings at 10% and 5% levels of significance, respectively. In other words, those who consider the policies as ‘discouraging’ earn 29% less than those who regard as ‘encouraging’. Similarly, those who are indifferent about the existing policies earn 37% less than those who responded the policies as ‘encouraging’.

6.3. Estimation Result for Recyclable Metal, Plastic and Glass Items Traders

This group also exhibited high measures of the goodness of fit (both R^2 and adjusted R^2) and significant overall significance. The estimated coefficients are reported in Table 15 below.

Table 15: Least Square Results for Recyclable Metal, Plastic and Glass Items Traders

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
Constant	7.594	0.774	9.809*	0.000	
AGEXPER	0.050	0.011	4.622*	0.000	19.523
AGEXPSQU	-0.001	0.000	-3.827*	0.000	488.198
MARDUM1	0.527	0.169	3.123*	0.003	0.895
FAMSIZE	0.054	0.019	2.783*	0.007	6.488
EDUDUM1	L	L	L	L	L
EDUDUM2	1.285	0.670	1.918***	0.060	0.035
EDUDUM3	1.306	0.223	5.855*	0.000	0.698
EDUDUM4	1.213	0.276	4.393*	0.000	0.163
EDUDUM5	1.326	0.426	3.113*	0.003	0.047
HWDDUMM	-0.100	0.069	-1.463	0.149	9.628
HWODDUMM	0.564	0.239	2.363**	0.022	0.592
BUSAQDUM	0.148	0.185	0.800	0.427	0.860

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
SOBECDUM	-0.397	0.172	-2.311**	0.025	0.767
BEGCDUM1	L	L	L	L	L
BEGCDUM2	-0.323	0.143	-2.259**	0.028	0.407
BEGCDUM3	-0.291	0.432	-0.673	0.504	0.047
BEGCDUM4	-0.899	0.498	-1.806***	0.076	0.081
CURCDUM1	L	L	L	L	L
CURCDUM2	0.117	0.297	0.394	0.695	0.453
CURCDUM3	0.241	0.363	0.663	0.510	0.233
CURCDUM4	0.182	0.373	0.488	0.627	0.186
CURCDUM5	0.515	0.473	1.089	0.281	0.116
WPRODUM1	0.515	0.209	2.463**	0.017	0.081
WPRODUM2	0.416	0.129	3.215*	0.002	0.267
WPRODUM3	L	L	L	L	L
WPRODUM4	0.186	0.224	0.828**	0.411	0.023
SELODUM1	L	L	L	L	L
SELODUM2	0.065	0.210	0.308	0.760	0.570
SELODUM3	-0.247	0.391	-0.631*	0.531	0.012
SRAWDUM1	L	L	L	L	L
SRAWDUM2	-0.015	0.136	-0.112	0.911	0.140
SRAWDUM3	0.076	0.225	0.338	0.736	0.058
EVJODUM1	L	L	L	L	L
EVJODUM2	-0.129	0.185	-0.698	0.488	0.186
EVJODUM3	-0.407	0.154	-2.645*	0.011	0.407
PLEVDUM1	L	L	L	L	L
PLEVDUM2	-0.077	0.144	-0.539	0.592	0.360
PLEVDUM3	-0.193	0.268	-0.720	0.475	0.140
Dependent variable			Log of annual earnings		
Number of observations			86		

Explanatory Variables	Coefficient	Standard Error	t-ratio	P[T >t]	Mean of X
R ²				0.610	
Adjusted R ²				0.397	
Degrees of freedom				30, 55	
F-Statistic				2.87	

Source: Author's Computation from the Census conducted on October 2006

Note : L = Left out

* Significant at 1 percent level of significance

** Significant at 5 percent level of significance

*** Significant at 10 percent level of significance

* = SELODUM3 represents a dummy with 1 if sold to manufacturers, 0 otherwise.

Like that of the entire observation result, labour market experience, having higher family size and being married were found positive and significant at 1% level of confidence thus indicating the variables strong and positive influence in determining earnings among recyclable metal, plastic and glass items traders.

Unlike results for the recyclers', all the estimated parameters of education dummies have taken their expected signs (positive) and were found significant. Only <able to read and write> dummy is significant at 10% level of significance and the rest dummies are significant at 1% level. The result obtained is of course inline with the Human Capital Theory predictions of increasing returns to education.

Using own savings as a source of beginning capital was found to be negatively and significantly correlated with earnings at 5% level of significance. Use of higher capital as a source of beginning capital is found to negatively affect earnings in the case of recyclable items traders. Estimated coefficient for the size of beginning capital dummy with above birr 2,500 was found negative and significant at 10% level of significance. Similarly, size of beginning capital dummy between birr 251 and 500 was also discovered to significantly and negatively correlate with earnings at 5% level of significance. All of the current capital dummies were found insignificant in determining earnings among recyclable item traders.

Differences in length of time elapsed to travel from home to work place is found to positively determine earnings at 5% level of confidence. This result is, in fact, unpredicted because it was presumed to affect earnings negatively. The result obtained probably suggests that those operators who live in relatively far areas would come earlier and spend more time in their working area than those who reside close to their working areas.

Type of working premise ownership is significant in determining earnings among recyclable items traders. The estimation result indicated that those who work on privately owned and Kebele owned working premises earn 51% and 41.6% more than those who work on informally occupied premises, respectively.

Unlike the recyclers' result, those who consider their job as neither expanding nor shrinking earn 40% less than those who consider their job as expanding. This variable is significant at 1% level of significance.

Differences in length of working time spend per day, form of acquiring business, sizes of current capital, source of raw material and market outlet were found insignificant in determining earnings among recyclable items traders. Likewise, differences among operators attitude towards the existing policies and most of operators evaluations to their job were also found insignificant.

CHAPTER SEVEN: CONCLUSION AND POLICY RECOMMENDATIONS

7.1. Conclusion

The informal sector far and wide plays an important role in creating jobs and income generating opportunities for many and providing affordable goods and services to the poor. The sector is often marked as illegal which evades taxes and generates unjustified income.

In Ethiopia, emergence of the informal economy is associated with rapid urbanization and economic growth observed in the 1960's. During the Imperial era (pre 1974), several institutional, regulatory and policy reforms were made to support the development of MSEs (the informal economy). The Derg period (1974 to 1991) was the period by which the marginalization of private sector development in the area of MSEs highly promoted. Under the new régime (post 1991), numerous policy and institutional reforms have been introduced even though their efficacy in the development of MSEs is dubious and not yet verified.

Analysis conducted using a case study approach on 150 members of an informal sector association i.e. Barrel and Bottle Traders Share Company which is located in Addis Ababa city ('*Chid Tera*' area of Merkato), has enabled this study to examine determinants of the informal sector income and policy related constraints. Accordingly, the analysis revealed that operators in the considered case study have very similar characteristics which include social (ethnic group, origin of birth place, age, gender, etc), job-specific as well as other features. Significantly reduced start-up capital, dominance of single person owned and operated type of business, insignificant role of family background in starting businesses and extremely low access to different supporting services (such as finance and training) were among the features commonly shared by most of the investigated operators. The majority of the operators work on illegally occupied public land that lacks an adequate infrastructure facilities and amenities like access road, electricity and water. It was also discovered that most of the operators face capital and working premises shortages and dislocation threats.

The empirical analysis revealed that level of schooling significantly determines earnings for the case of recyclable items traders while the opposite is true for metal recyclers only. Experience, marital status and family size variables were found significant in determining earnings among the entire metal recyclers and traders of recyclable items. Use of own savings as a source of beginning capital is found to affect earnings positively in the case of metal recyclers only. Similarly, way of acquiring a business has a strong association with earnings. The effect of the distance from home to work place and hourly length of labor market participation in determining earnings is found to be dissimilar across groups. Differences in the sizes of beginning and current capitals as well as variations in sources of raw materials and market outlets were found insignificant in determining earnings in most cases of metal recyclers and recyclable items traders. Only earning of metal recyclers' was found to be affected by their attitudes towards the contemporary MSE related policies. In general, despite varying results of the statistical significance of the different variables considered, the signs of key variables were turned out as expected and most of the overall significances were found robust, suggesting appropriateness of the model used for examining determinants of earnings.

7.2. Policy Recommendations

Although the economic importance of the informal activities had been recognized, the policy towards the informal economy which is essentially concerned with management and support of the development role of MSEs does not adequately concern itself further with the informal sector. The Ethiopian government has issued various policies to support and strengthen MSEs, which only remotely target the informal sector. Problems have been counted in areas of access to loan services, market linkage creations, provisions of working premises, etc. to the informal sector operators. This is as a result of absence of transparent policies that directly regulate informal sector operations and the fragmentation of responsibilities of different accountable institutions. For this, there is a need to promulgate clear and transparent policies and introduce simplified legal and institutionally coordinated procedures.

The study result revealed that the Human Capital Theory predictions vary across different groups of the informal sector. Level of education and experience were found to determine earnings differently across metal recyclers and traders of recyclable items. This implies need for targeted policy intervention towards expanding the human capital components such as specific sector-based skill development and management trainings for the informal sector operators.

Ensuring legal property rights of the informal sector operators would also improve performance of their activities. Equitable allocation of working and marketing premises would contribute a lot to improve earnings of the informal sector operators. One way to improve the sustainability of informal enterprises probably be to promote linkages between the formal and informal sector. The removal of unnecessary regulatory barriers to legally register a business could be an important tool to facilitate formalization of the informal sector operators. Creating access to finance and market linkages for the informal sector operators also need clear policy formulation and intervention which directly targets the operators.

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APPENDIX I

STRUCTURED QUESTIONNAIRE OF THE THESIS

1. Demographic and Social Characteristics of the Owners of Informal Recycling Firms

- 1.1. Interviewee code _____ 1.2. Age _____ 1.3. Sex ☐ 1. Male ☐ 2. Female
1.4. Place of birth (region) _____ 1.5. Ethnic group _____
1.6. Marital Status¹⁰: _____ 1.7. Family size _____ 1.8. Educational status¹¹ _____
1.9. Religion¹² _____ 1.10. Current living address: Subcity _____ Kebele _____
1.11. Length of living in Addis Ababa _____
1.12. If your immediate previous living address was different from A.A., Where did you live(region and specific name) _____ For how long _____

2. Basic Information Regarding the Activity

- 2.1. Type of job/activity _____
2.2. Major outputs of the firm
1. _____ 2. _____
3. _____ 4. _____
2.3. Year of operating in the business: _____
2.4. Did you engage in other job prior to this? ☐ 1. Yes ☐ 2. No
2.5. If yes for Q 2.4, what was your previous career?
1. _____ 2. _____
3. _____ 4. _____
2.6. If yes for Q 2.4, major reasons for changing the previous career?
1. _____ 2. _____
3. _____ 4. _____
2.7. Type of business ownership: ☐ 1. Sole ownership or family business
☐ 2. Partnership ☐ 3. Other (specify) _____
2.8. How do you acquire the business? ☐ 1. Self established ☐ 2. Inherited ☐ 3. Gift ☐ 4. other _____
2.9. Working premise ownership: ☐ 1. Privately owned ☐ 2. Kebele rented
☐ 3. Informally occupied ☐ 4. Private rental ☐ 5. Other _____
2.10. Amount of beginning capital (in birr): _____
Fixed Capital _____ Working (operating) capital _____
2.11. Amount of current capital in birr as of August 30/2006: _____
Fixed Capital _____ Working (operating) capital _____
2.12. Source of beginning capital: ☐ 1. Own saving ☐ 2. Loan ☐ 3. Aid ☐ 4. Other (specify) _____
2.13. If source of beginning capital is entirely /partly from loan, loan is obtained from:
☐ 1. Relatives/friends ☐ 2. Banks/formal financial institutions
☐ 3. Informal lenders/institutions ☐ 4. Other(specify) _____
2.14. If the beginning capital is from different sources , please specify the composition according to size of contribution:
☐ 1. Own saving: _____ % or _____ birr ☐ 3. Aid: _____ % or _____ birr
☐ 2. Loan: _____ % or _____ birr ☐ 4. Other : _____ % or _____ birr
2.15. If source of capital is from loan, have you settled all the liabilities you are indebted? ☐ 1. Yes ☐ 2. No

¹⁰ 1= Married , 2 = Single , 3= Divorced , 4= Widowed , 5= Other

¹¹ 1= Illiterate , 2= Reading/Writing , 3 = Primary (1-8), 4= Secondary (9-10/12), 5 = Tertiary (above 10/12)

¹² 1= Christian , 2 = Muslim , 3= Other

- 2.16. If the answer for question no. 2.15 is no, major reasons for not clearing the debt
 1. _____ 2. _____
 3. _____ 4. _____
- 2.17. Have you ever faced working finance constraint? ☐ 1. Yes ☐ 2. No
- 2.18. If the answer for question no. 2.17 is yes, have you ever applied for a loan from formal financial institutions? ☐ 1. Yes ☐ 2. No
- 2.19. If the answer for question no. 2.18 is yes, have you ever got loan from formal financial institutions?
☐ 1. Yes ☐ 2. No
- 2.20. If the answer for question no. 2.19 is no, what are the major reasons not applying?
 1. _____ 2. _____
 3. _____ 4. _____
- 2.21. How long does it take from home to work place? on foot _____ by motorized transport
 _____ other(specify) _____
- 2.22. Average number of hours the firm functions per day _____ Average number of days the
 firm(business) works per week _____
- 2.23. Do you have other income generating activities? ☐ 1. Yes ☐ 2. No
- 2.24. If you have any other source of income beyond the current one, what are the sources? ☐ 1. Income from
 other job/s ☐ 2. Family income ☐ 3. Aid ☐ 4. Other _____
- 2.25. If the answer for question no. 2.24 is yes, please specify them along with the number of hours you spend
 for them.
 1. _____ hrs _____ 2. _____ hrs _____
 3. _____ hrs _____ 4. _____ hrs _____
- 2.26. Have you ever taken related formal trainings to your current practice prior to joining this sector? ☐ 1.
 Yes ☐ 2. No
- 2.27. Have you ever taken related formal trainings to your current practice after joining this sector?
☐ 1. Yes ☐ 2. No
- 2.28. If the answer for question no. 2.23 & 2.24 is no, how did you acquire the skill
☐ 1. Self thought ☐ 2. Family inherited ☐ 3. Other _____
- 2.29. Do you keep any accounts for your business? ☐ 1. Yes ☐ 2. No
- 2.30. Is the firm registered by governmental institution? ☐ 1. Yes ☐ 2. No
- 2.31. If the answer for 2.3 is Yes, type of registration ☐ 1. Permanent ☐ 2. Temporary
- 2.32. Do you pay any kind of taxes? ☐ 1. Yes ☐ 2. No
- 2.33. If you pay taxes, state type of taxes you pay?
 1. _____ 2. _____
 3. _____ 4. _____
- 2.34. If you don't pay taxes, state the major reasons reason for not paying?
 1. _____ 2. _____
 3. _____ 4. _____
- 2.35. To whom do you sell your products?
☐ 1. Directly to the customers ☐ 2. To local retailers/wholesalers
☐ 3. To manufacturers ☐ 4. To exporters
- 2.36. Do you supply to domestic manufacturers? ☐ 1. Yes ☐ 2. No
- 2.37. State the major types of raw materials you employ
 1. _____ 2. _____
 3. _____ 4. _____
- 2.38. Major sources of raw material / inputs
 1. _____ 2. _____
 3. _____ 4. _____
- 2.39. Do you use domestically produced raw materials for your production process?



☐1. Yes ☐2. No

2.40. If the answer for 2.39 is yes, state the major sources.

1 _____ Source _____ 2 _____ Source _____
3 _____ Source _____ 4 _____ Source _____

2.41. Where do you store your raw materials/produces?

3. Employment, Income and Expenditure

3.1. Information about employees (excluding the owner/s)

	Employees Category	Name of the employee	Sex ¹³	Age	Family size	Educational Status ¹⁴	Terms of employment	Experience in the activity (by years)	Get training in relation to the current activity? ¹⁵	Relation of the employee with the owner ¹⁶	Average working hrs per day	Average daily wage for employee
1	Paid employees											
2	Unpaid employees											

3.2. Are the enterprise's workers given paid leave? ☐ 1. Yes ☐ 2. No

3.3. Does the enterprise provide fringe benefits to its employees? ☐ 1. Yes ☐ 2. No

3.4. The number of employees during the last five years : 1998 E.C. _____ 1997 E.C. _____ 1996 E.C. _____ 1995 E.C. _____ 1994 E.C. _____

¹³ 1=Male, 2 = Female

¹⁴ 1= Illiterate , 2= Reading/Writing , 3 = Primary (1-8), 4= Secondary (9-10/12), 5 = Tertiary (above 10/12)

¹⁵ 1= Yes , 2= No

¹⁶ 1= Family member, 2= Relative, 3= Friend, , 4= Other (specify) _____

7. Expenditure and Income (birr)

4.1. Size of initial capital expenditure by category

S. no	Capital expenditure category	Amount of expenditure at the time of purchase (birr)	Average age of capital equipments (as of August 30/2006)	Condition of the materials at purchasing time ¹⁷	Amount of expenditure for purchase from sep. 1/2006 to august 30/2006	Amount of expenditure for major repair /maintenance from sep. 1/2006 to august 30/2006	Value of disposed or sold capital equipments from sep. 1/2006 to august 30/2006	Current Value of capital equipment
	Machinery							
	Power driven							
	Hand driven							
	Equipment and tools							
	Transport equipments							
	Building and other structures							
	Office furniture and others							
	Other capital items(specify)							
	Sub total							

4.2. Does the firm employ rented machineries or any other fixed assets? ☐ 1. Yes ☐ 2. No

4.3. If the answer for question no. 4.2. is yes , specify the major reasons for renting.

1. _____ 3. _____
2. _____ 4. _____

¹⁷ 1= New, 2= Second hand, 3= Self made , 4= Second hand but substantially improved, 5= Other(specify) _____

4.4. Operating expenses on average on monthly basis as of September 1 and August 30, 1998 E.C.in detail.

S.No	Expenditure type	Value in birr	Remark
1	Raw materials		
2	Goods/services for sale/resale		
3	Other supplies (telephone expenses, post, stationary etc)		
4	Rental fee for buildings, machinery and other fixed assets		
5	Minor maintenance/repair		
6	Electricity		
7	Water		
8	Energy (Charcoal, wood etc)		
9	Labor (salary, wage etc)		
10	Transport		
11	Other expenses		
	Total expenses		

4.5. Net income/loss statement as of September 1 and August 30, 1998 E.C.in detail.

- 4.5.1. Revenue generated (total gross value) during a peak month (in birr) _____
 4.5.2. Revenue generated (total gross value) during a slack month (in birr) _____
 4.5.3. Average annual revenue (total gross value) in birr _____
 4.5.4. Number of months the enterprise worked on average during the last year _____
 4.5.5. Financial statement of the firm as of September 1 and August 30, 1998 E.C.in detail.

S.no.	Cash inflow	Value in birr	Remark
1	Income from sales of output/Service (cash)		
2	Income from sales /renting of capital equipments		
3	Receivable money		
	Total		

5. Problems and plans

- 5.1. Three major problems faced during starting the business , according to the order of importance
 1st _____
 2nd _____
 3rd _____
- 5.2. Three major problems faced during operating the business , according to the order of importance
 1st _____
 2nd _____
 3rd _____
- 5.3. Three most important types of supports required from governmental/other bodies?
 1st _____
 2nd _____
 3rd _____
- 5.4. Are you currently working with full capacity? ☐1. Yes ☐2. No
- 5.5. If the answer for Ques. 5.4. is no, state the level of capacity you are currently working with

- 5.6. How do you evaluate your business? ☐1. Prospecting ☐2. Dieing ☐3. No change ☐4. Other

- 5.7. Do you have any other branch other than this ? ☐1. Yes ☐2. No
- 5.8. How do you evaluate the impact of the current government policy and regulations on your activity?
☐1. Supportive ☐2. Discouraging ☐3. Neither supportive nor discouraging ☐4. Other
- 5.9. What kind of insecurities do you feel currently in operating the business?

1 _____ 2 _____
3 _____ 4 _____

5.10. Do you have a plan to continue the current activity? ☐ 1. Yes ☐ 2. No

5.11. If the answer for Ques. 5.4. is yes, what are future plans ?

5.12. Any other comment to add?

Declaration

I, the undersigned, declare that this thesis is my own original work and has not been presented for a degree in any other university, and that all source of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Eyasu Kumera

Signature: 

Date: 14 July 2008



Confirmed by:

Name: Teshome Mulat

Signature: 

Date: 14/07/08

Place and date of submission: Addis Ababa University, 14 July 2008