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SIZE AND CAUSES OF INFORMAL ECONOMY IN ETHIOPIA

BY

GEBEYEHU DEJENE

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Addis Ababa, Ethiopia

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A THESIS SUBMITTED TO SCHOOL OF POST GRADUATE STUDIES (INSTITUTE OF AGRICULTURE AND DEVELOPMENT STUDIES) ST. MARY'S UNIVERSITY, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF ARTS IN DEVELOPMENT ECONOMICS

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DECLARATION

I, Gebeyehu Dejene, declare that this thesis is my original work, prepared under the guidance of Wondimagegn Chekol (Dr.). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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St. Mary's University, Addis Ababa

May, 2018

LETTER OF CERTIFICATION

This is to certify that Gebeyehu Dejene has carried out this project work on the topic 'Size and Causes of Informal Economy in Ethiopia.' This work is original and suitable for the submission in partial fulfillment of the award of Master Degree in Development Economics.

_____ _____

Research Advisor Signature

St. Mary's University, Addis Ababa

May, 2018

APPROVED BY BOARD OF EXAMINERS

As a member of the board of examiner of the master thesis open defense examination, we certify that we have read and evaluated the thesis prepared by Gebeyehu Dejene and examined the candidate. We recommended that this thesis be accepted as fulfilling the thesis requirement for the degree of Masters of Arts in Development Economics.

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Dean, Graduate Studies Signature

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Advisor Signature

_____ _____

External Examiner Signature

_____ _____

Internal Examiner Signature

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Acronyms

ADF Augmented Dickey Fuller

CSA Central Statistical Authority

ECM Error Correction Model

GDP Gross Domestic Product

GNI Gross National Income

IILS International Institute for Labour Studies

ILO International Labour Organization

IS Informal Sector

LM Lagrange Multiplier

MIMIC Multiple Indicators Multiple Cause

NBE National Bank of Ethiopia

OECD Organization for Economic Co-operation and Development

RGDP Real Gross Domestic Product

RMSE Root Mean Square Error

SEM Structural Equation Model

SMMEs Small and Medium Micro Enterprises

VAR Vector Auto Regression

VEC Vector Error Correction

VECM Vector Error Correction Model

VIF Variable Inflation Factor

WB World Bank

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Abstract

In this paper MIMIC model is applied to study the size and causes of informal economy in Ethiopia and it covered from 1980 to 2016. This study tried to estimate the size of informal economy in Ethiopia and analyze what caused it to exist and expand.

Informal economy in Ethiopia is very high and the average size of it is 43.3%. The highest level of informal economy is recorded in 2012 which is 54.54% and the lowest is in 2013 and it is 30.94%.

All the cause variables are statistically significant in the short run except interest rate and they have the expected sign. In the long run tax burden, trade openness, unemployment and government final consumption are statistically significant in affecting the informal economy in Ethiopia. Inflation rate and interest rate are not statistically significant in the long run even though they have the expected sign.

Key words: Informal Economy, Ethiopia

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Informal economy literature deals with an expanded set of words and definitions of the informal economy. Among the most complete efforts accomplished in this field, Thomas's definition could be pointed out. Thomas (1991) explaining informal economy as: "In broad concept, informal economy refers to all activities that are not entered in national accounts due to reasons." He then divides these activities into four groups: household, informal, irregular and illegal sector. The household sector feature is that its products are less supplied in the market and absence of price causes difficulty in evaluating their value and thus it is not possible to record them in national accounts. The informal sector usually includes retail producers and their employees and also trades people with no workers and trade services, transportation and other informal services personnel. The main feature of irregular sector activities is that although the act of producing the good or service is legal and permitted, the illegal act is committed during the production or distribution procedure. All the activities categorized in this sector are more or less accompanied by a kind of illegal matter such as tax or regulations (like work laws and safeguards in workhouses) evasion, forgery in social insurances and so on. The illegal sector products consist of illegal activities such as: theft, extortion, producing, buying and selling drugs, etc. Schneider (2010) defines the informal economy as a primary legal market of producing goods and services which are purposely hidden from government officers (Maddah and Sobhani, 2014).

As Matthias (p. 2011:95) stated about informal sector forwarded by different authors and ILO in developing countries, it is characterized by the dominance of unincorporated small scale units which produce and distribute goods and services, consisting largely of independent, self-employed micro entrepreneurs or home workers (in urban areas), as well as of household enterprises and subsistence farmers (in rural areas); operating as opposed to the administrative barriers of entering the official economy with regard to the formal processes of registration, licensing and inspection of enterprises, a relatively low level of productivity as the result of limited specialization, an insufficient deployment of capital,

technology and skills, that can result in restrictions to growth and the realization of scale economies, low and unstable incomes, low employment security, poor working conditions, and exclusion from official social security benefits of those employed in the informal economy; no recognition under the law and hence no formal legal definition and enforcement of property and contract rights, combined with enhanced vulnerability to crime, predation, extortion, corruption and harassment by state authorities, restrictions in access to public services and infrastructure and thus reliance on private, informal institutional arrangements for representation, information, exchange, protection of property, credit, training, and social security (Sebsib, 2015).

Informal sector as given by Schneider and Enste (2000) is that it is all legal value-added activities that avoid taxation and remain unregistered by official statistics.

The Informal Sector refers to home based or individual establishment or activity operated by the owner with few or no employees. They are for the most part unregistered and operating on a very small scale and with a low level of organization. Most of them have very low level of productivity and income. They tend to have little or no access to organized markets, to credit institutions, to modern technology, to formal training and to many public services and amenities. A large number of them are carried out without fixed location or in places such as small shops, outlets or home-based activities. They are not recognized, supported or regulated by the government. They are beyond social protection, labor legislation and protective measures at the workplace. These activities comprise what has now come to be called the 'Informal Sector'. In the past the informal sector was largely ignored by official statistics. Little need was felt to collect data on its activities because development strategies were oriented towards modern medium and large-scale enterprises. The informal sector was considered a transient phenomenon that would dwindle away in the near future as more jobs were created during development (CSA, 2004)

According to (ILO, 2002 p.19) and (Matthias, 2011 p. 98) cited on Sebsib (2015) in developing countries poverty is even growing due to the uncontrolled rapid population growth, which is not equal with economic growth. This resulted in serious social and economic hazards in which Ethiopia is part, in turn bring rapid urban population growth as

a result of rural-urban migration. As a result, the number of unemployed people seems increasing. On the other hand, informal sectors play an important role in securing employment for large number of women in Ethiopia not only accompany them with stuff but also provide them with necessary goods and services. So, informal sector provides significant contribution to the local economic development pertaining to employment output in many African countries. However, in Ethiopia this sector has got marginalized and much less emphasis

Schneider** (2002) indicated that the size of the informal economy of Ethiopia in 2000 was 40.3% as percentage of GDP. According to Bacchetta and et.al (2009) in Ethiopia informality in 2005 was 38.5 percent of the working population of selected urban sectors but only 14.2 percent of the population living in urban areas. Tamirat* and Nega (2015) also stated that Ethiopia being one of the developing countries, it is obvious that the larger cities host a significant number of urban informal sector operators. It has become the only important livelihood option to large amount of the poor urban dwellers and recent rural urban migrants in Jimma, Addis Ababa and other major towns and cities. Although the exact number of informal operators (street vendors) is not known due to less research work in the area, their number is increasing at alarming rate due to many social problems.

There are many causes accounted for individuals to operate in the informal economy. As stated on Schneider (2002) and E. Ogbuabor and A. Malaolu, (2013) government regulation and bureaucracy i.e. entry barrier in the formal sector, tax burden, trade openness, interest rate, inflation rate, and unemployment rate of the country are among the causes of operating in the informal economy. Corruption also the main determining factor for the informal sector to expand in the country's economy.

1.2 Statement of the Problem

The size of the informal sector is of particular interest to economic policy makers concerned to promote the development of a micro entrepreneurial sector. This concern arises because of its perceived contribution to dynamic economic efficiency, possibly as a response to growing competitive pressures brought about by trade liberalization. On the other hand policy makers may be concerned that significant numbers, perhaps even a

majority of workers in developing countries have little or no social security provision. This means that they have little on which to fall back in the event of illness, unemployment or old age, beyond personal wealth and extended family support. A narrower but nevertheless important concern may be to reduce informality in order to widen the base of direct taxation (Henley and et al., 2006).

Schneider and Enste (2000) examined that Informality is ultimately undesirable for official institutions, as it erodes the tax and social security base, which can cause a vicious circle of increased taxes and/or reduced capacity at city level, thus causing companies to go underground. This ultimately weakens the economic and social foundation of cities. Informality impacts on taxes and land value capturing and hence reduced available resources for official institutions. The budgetary effect is amplified by rising costs caused by informality, associated with urban sprawl, requiring more and more capital investments and by the reversed informal process of land development (starting from inhabitation to house construction to public infrastructure to planning). Informality is indeed a cost for formal institutions.

Incorporating informality in any economic, social and political decision is essential in overcoming the undesirable side effects of informality. There are studies done by different researchers in Ethiopia in this areas but very limited in coverage. Tmirat and Nega (2015) studied on Street Vending as Safety Net for the Disadvantaged People in Jimma Town, Ethiopia (2014) studied on the Cause and Effect of informal sector the case of street vendor in Addis Ababa and Elias (2015) studied on Challenges and Prospects of Informal Sector in Alleviating Urban Poverty in yeka sub city of Addis Ababa of City Administration, Ethiopia. As to my knowledge there is no nationwide research done in this regard, that is in the case of Ethiopia. Acknowledging the study done on the causes, the size and development of informal economy in Nigeria using the direct and model approach simultaneously by E. Ogbuabor and A. Malaolu (2013) and informal economy across 110 countries in the world using the three methods of measuring the informal economy by Schneider (2002), respectively, this study will focus on measuring the causes and size of informal sector in Ethiopia using the model approach from the period 1980 to 2016.

1.3 Research Objective

1.3.1 General Objective

The general objective of this study is to examine the causes and the size of the informal sector in Ethiopia from 1980 to 2016.

1.3.2 Specific Objective

- To examine the causes of informal economy in Ethiopia
- To estimate the size of the informal economy from 1980 to 2016

1.4 Research Hypothesis

H0: Tax Burden doesn't affect informal economy.

H1: Tax burden affect informal economy.

H0: Government Final Consumption doesn't affect informal economy in Ethiopia

H1: it does affect.

H0: Unemployment rate has no effect on informal economy.

H1: it does have.

H0: Inflation rate in Ethiopia doesn't affect informal sector.

H1: inflation rate affect the informal economy.

H0: Interest rate in Ethiopia doesn't affect informal economy.

H1: it does affect

H0: Trade openness doesn't affect the informal economy in Ethiopia.

H1: it has an effect on informal economy.

1.5 Significance of the Study

This research helps in providing relevant information on the size and causes of the sector so that the concerned body such as government, policy makers, and other institutions could take proper actions to overcome the undesirable side effect of informal economy.

1.6 Scope and Limitation of the Study

This study will focus on the causes and size of the informal sector in the case of Ethiopia and limited from the year 1980 to 2016. The study included six cause variables and two indicator variables. It will estimate the size of the informal economy in Ethiopia and the

causes as well regardless of the criticism of the estimation model. The problem with using secondary data is also one of the limitation of this paper.

1.7 Organization of the Study

The rest of this paper will be organized as follows: in the second chapter theoretical and empirical literatures will be reviewed; the third chapter will contain the methodology of the research; the data analysis and interpretation will be in the fourth chapter. The final chapter will contain conclusion and recommendation based on the result.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

2.1 What Is Informal Economy

From the reviews of different literatures the views of the informal sector paints different pictures of informality, some emphasizing the "marginal" nature, the others "entrepreneurial" qualities. All, however, have consistently underlined the resourcefulness and enterprise of informal sector activities. Invariably, these studies have also viewed informality as a symptom, a symptom of misguided government policies or of failed attempts at industrialization, or as in De Soto's view, a symptom of "institutional dysfunction." Not all agree, however, on whether or not the informal sector is also the solution to these conditions, or at least part of the solution, and the implications sand policy recommendations are varied. Hernando De Soto does believe that the informal sector is the solution, but not as a "shock absorber" or employer of last resort which needs to be aided by governments and international agencies. He believes it is the solution that it can help to illustrate and explain the causes of underdevelopment *(M.Painter and A.Young 1989)*.

As stated on Keith Hart (1971, 1973) cited on Gërxhani (2005), a social anthropologist, was the first person to bring the term informal sector (in a Third World context) into the academic literature to describe a part of the urban labor force, which works outside the formal labor market. Bromley and Gerry (1979) on Gërxhani (2005) added that It was considered the informal sector as almost synonymous for all categories of (small) self-employed individual and then used to refer to ways of making a living outside the formal wage economy, either as an alternative to it or as a means of supplementing income earned within it. On the other hand Swaminathan (1991) on Gërxhani (2005) has put that even though Hart's original notion of the informal sector is limited to the self-employed, the introduction of the concept made it possible to incorporate activities that were previously ignored in theoretical models of development and in national economic accounts.

The prior studies on the informal sector can be traced to the studies by the International Labor Organization (ILO) in Kenya in 1972 and Keith Hart in Ghana in 1973 (ILO 1972; Thomas 2002). However, in theory the appearance of the study on the informal sector can

be linked to Lewis (1954) which conceptualized economic development on Todaro (1987) as the emergence and growth of manufacturing sector through the absorption of labor being released from agriculture, due to the more efficient means of production in the former (Elias, 2015).

De Soto (1989) on Gërxhani (2005) also stated that the conceptualization of the informal sector took yet another meaning, it focused on the regulatory framework. In this concept, the legal status is the main element distinguishing informal activities from formal activities. It relates the emergence of the informal sector to the policies applied and to transaction costs. It suggests, therefore, that to let the informal sector develop, deregulation of the market, greater private property rights, and almost complete abolition of state intervention are needed.

According to Ralf (2001) as cited on Sebsib (2015), informal sector is a dynamic part of the economy and the labor market. Jobless economic growth, recurrent financial crises, economic downturns and highly skilled labor demands by formal sector enterprises in countries are the main features of informal economy. In many countries around the world the informal sector not only continues to grow, but has also altered its characteristics in order to be able to adapt to changing conditions which would affect the local development.

Some economists consider the informal economy as a culture in producing and feature of small economy. Others see it as safety valve that filters workers into alternative employment when the formal economy cannot produce sufficient employment to support them. This view treats the informal economy as a kind of insurance against poor economic climates. Both of these perspectives are generally positive. However, a majority of development economists believe that the informal economy is an exploitative system that needs to be eliminated or reduced in some way. Directed by Peruvian economist Hernando De Soto (1989) cited on Elias (2015) indicated the legalist interpretation this economy that the informal economy is not only exploitative, but also leads to economic stagnation and is an impediment to development. It is proposed that the informal economy is a response to overregulation by the state which poses excessive costs and barriers in accessing the formal economy. He claims that

The answer is to change our legal institutions in order to lower the cost of producing and obtaining wealth and to give people access to the system so they can join in economic and social activity and compete on equal footing, the ultimate goal being a modern market economy, which, so far, is the only known way to achieve development based on widespread business activity.

Mogensen, et. al. (1995 p. 5) on Schneider and Enste (2000) defined the informal economy as which includes unreported income from the production of legal goods and services, either from monetary or barter transactions - hence all economic activities which would generally be taxable were they reported to the state (tax) authorities. In general, a precise definition seems quite difficult that the informal economy develops all the time according to the 'principle of running water': it adjusts to changes in taxes, to sanctions from the tax authorities and to general moral attitudes, etc.

The informal sector is understood by many names such as black market, casual work, clandestine activities, community of the poor, family enterprise sector, hidden sector, informal economy, informal opportunities, intermediate sector, invisible sector, irregular sector, lower circuit of the urban economy, non-plan activities, non-westernized sector, one person enterprise, parallel economy, people's economy, petty commodity production, shadow economy, trade service sector, transient sector, underground economy, unobserved economy, unofficial economy, unorganized sector, unrecorded economic activities, unremunerated sector, unstructured sector, urban subsistence sector and so on. It is not controlled by the government (non-plan, hidden, unofficial, and unrecorded). It is not legal (illegal, black, shadow) and it is not taxable (unrecorded, parallel). But recent research and exploration on the issue has resulted in a more kind approach, where the names and definitions have used the characteristics of the sector itself (casual, family enterprise). On GDRC (2009) cited on Elias (2015) some emphasize on its poverty focus (subsistence, petty commodity, and one-person enterprise) as well as on its temporary nature (transient, intermediate). In reality, it is all of these taken together that define all the characteristics of the sector.

There is a summery table below for the types of informal activities or underground activities in the economy; which is taken from Lippert and Walker (1997, p. 5) cited on Schneider** (2002).

Table 2.1. A Taxonomy of Types of Underground Economic Activities

Type of Activity	Monetary Transactions		Non-Monetary Transactions	
Illegal Activities	Trade with stolen goods, drug dealing and manufacturing, prostitution, gambling, smuggling and fraud		Barter of drugs, stolen goods, smuggling etc. produce or growing drugs for own use. Theft for own use.	
	Tax Evasion	Tax Avoidance	Tax Evasion	Tax Avoidance
Legal Activities	Unreported income 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 neighbor help

The above table shows that how the underground economy has different forms with what they used in their transaction. It also indicated the form of how they hide tax from the government. Underground economy includes activities which are not legally allowed to be practice in the country such as trade with stolen goods and theft for own goods. Prostitution also not allowed legally or in religious way which even difficult to study its effect on the economy and related effects.

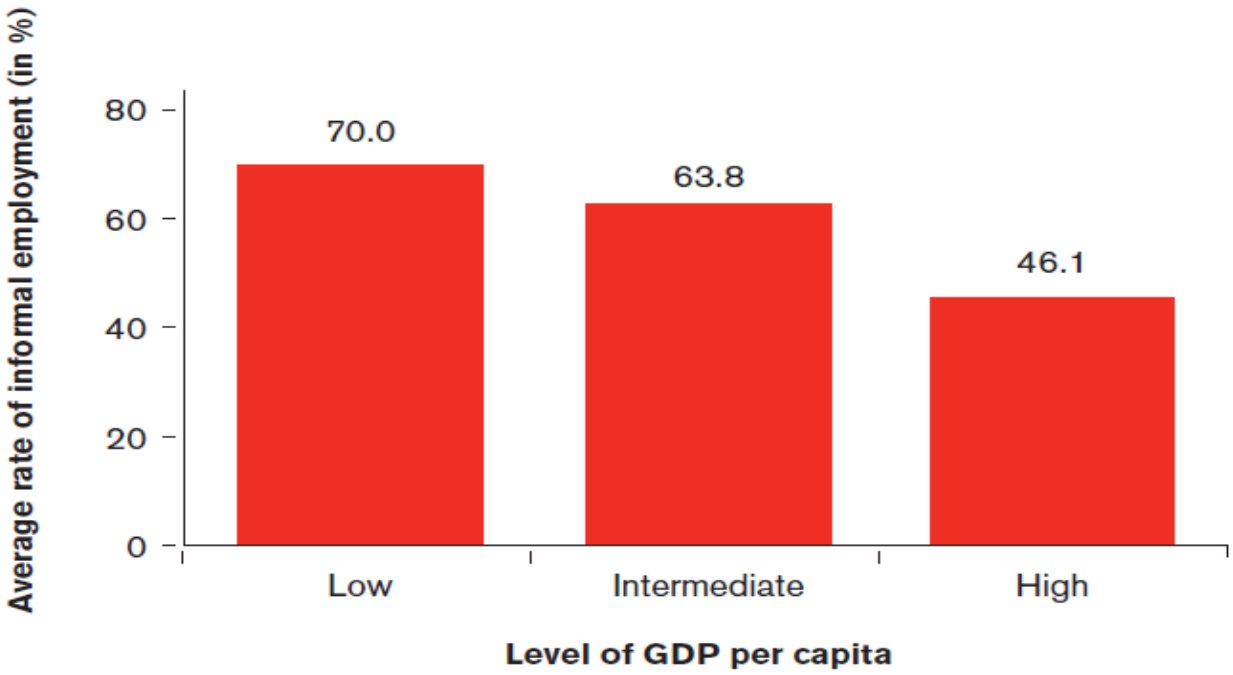
The legally accepted activities are getting informal economy because of different reasons and their transaction can be monetary or non-monetary. Unreported income from legal service and goods and do-it-yourself works are included in the underground economy.

2.2 Informality, Employment and Production

As expressed on the study by Asmamaw (2003), it is generally argued that informality has come about as a result of different factors. the coping behavior of individuals and families during socio-economic crises, the deficiencies of macro-economic policies, and the economic crises put the underprivileged in a state of harsh living conditions, the process of decentralization to cope up with the socio-economic crises encouraged individuals to engage in underground economy, and attempts by the state to apply its regulatory practices to control different activities in the economy would even force activities in the formal economy to be converted into informal businesses.

As mentioned on Bacchetta and et.al (2009) the substantial differences between informality rates as measured on the basis of employment versus production are intimately linked to variations in economic development across countries. In particular, the large regional differences in informality and the linkages of informality with skill levels can be related to differences in countries' abilities to generate growth and successfully participate in the global economy. The preceding figures also indicate that differences in labour productivity in the informal economy across countries may constitute an additional driver of international variations in economic development. In Asia, relatively low rates of informality based on production, compared with relatively higher rates of informality based on employment measures, rank this region at the bottom of informal sector labour productivity rates. Figure 2.1 shows that high rates of informality are associated with low levels of GDP per capita. This correlation suggests that factors which help to lower the size of the informal economy could also contribute to an improvement in living conditions and disposable incomes in developing economies.

Figure 2.1 Informality and economic development



Source: IILS estimates based on the IILS Informality Database.

Note: The above graph plots deciles of GDP per capita levels (in PPP) against the average size of the informal sector in the informal employment database used for this report.

The informal sector is a sector that is unregulated and hence not directly affected by labour market policies such as severance or payroll taxes. We find that labour market policies that apply only to the formal sector nonetheless affect the size and the composition of employment in the informal sector. This is important since there is substantial economic activity in the informal sector in many economies, particularly in developing countries. Estimates for some Latin American countries put the informal sector at more than 50% of the urban work force. The informal sector is also important in many transition countries as well as in some developed economies. Although much of the literature treats the informal sector as a disadvantaged sector in a segmented labour market framework, this interpretation is not consistent with recent empirical evidence from Latin America. Under a segmented or dual labour market interpretation, one would expect jobs to be rationed in the primary sector and workers to be in the secondary or informal sector involuntarily and to be queuing for formal-sector jobs. Maloney (2004) cited on J. Albrecht and etal (2008)

presents evidence for several Latin American countries that challenges this view and instead interprets the informal sector as an unregulated micro-entrepreneurial sector (J. Albrecht and etal 2008).

The World Bank (2006) indicated that the fundamental question facing policymakers in Ethiopia and development partners as is why job creation has been so lackluster, and what policy tools can be used to boost productivity and accelerate expansion of decent employment opportunities. Yet key labor market metrics are not well understood, and need to be established to inform the study and to better frame the policy questions and debates. Basic analysis is needed to establish consensus on measured employment indicators, incidence and duration of unemployment, labor force participation, and earnings distribution, disaggregated by region, age, gender, education, skill and occupation.

In Ethiopia, available evidence on labor market outcomes points to persistently high rates of poverty in urban areas, relatively low labor market participation and consistent underemployment (as measured by survey respondents looking for additional work). While the reported level of urban unemployment is surprisingly high, this may partly reflect imprecise measurement. The available evidence suggests that unemployment is concentrated among prime age workers (15-30 years). This labor market situation would make Ethiopia an outlier among low income countries in Africa. Unemployment durations are also protracted—mean unemployment duration is just under 4 years. Analysis is needed on unemployment, to untangle measurement questions and to address questions related to stand in line (for public sector jobs) and the role played by information (or lack thereof) about available opportunities.

2.3 Informal Sector in Developed and Less Developed Countries and Transition Countries

A study done in Kenya indicated that most studies estimated the share of informal sector in many developing countries as of GDP is accounted for 35-50% (IEA-Kenya 2012). K. Gërxhani* (2005) summarized that a comparison of studies on the informal sector in developed countries and studies in less developed countries has shown that they converge on some basic criteria –undeclared labor, tax evasion, unregulated or unlicensed

enterprises, illegality or criminality– used to characterize it. The essential divergence is related to the use of the 'survival' criterion. Consequently, studies in developed countries show that the informal sector offers possibilities for growth, whereas research in less developed countries provides evidence that survival is the main characteristic of the informal sector there. As Pardo (1995) on K. Gërxhani* (2005) observes, survival always 'legitimizes' law avoidance in extreme situations, where a conflict between morality and individual rationality emerges: agents justify their actions by lack of choice.

The informal sector will probably always exist. K. Gërxhani* (2005) from different researchers has put that although the consequences differ between developed and less developed countries, this phenomenon deserves full attention from all the societal agents involved. In spite of several (short run) positive outcomes, with the exception of some neoclassical economists and public choice theorists (De Soto, 1989; Buchanan et. al, 1990), there is a general agreement that, in the long run, the informal sector should be reduced in size or formalized. It also suggested by Schneider and Enste (2003) that although a reduction of the size of this sector is very difficult, it can only be possible when a low regulatory burden by a trustworthy state is combined with a democratic involvement of citizens in respecting the rule of law.

As shown in many studies the motives for individual participation in informal activities converge, to a large extent, for developed and less developed countries. The few specific differences are related to institutional country differences. The relationship between the formal and informal economy has been analyzed in the literature but the outcome is still ambiguous. The literature on developed countries argues more towards the positive effect, while in less developed countries, a negative relationship appears to be more dominant.

From many reasons for the existence of informal sector regarding developing countries, the low rate of industrialization and productivity, and the presence of surplus labor are listed as principal reasons why a dualistic system arose in the cities of the third world (Breman, 1980) cited on K. Gërxhani* (2005). In addition, it is accepted that due to the old economic mechanism (low technology and intensive use of cheap unskilled and semi-skilled labor) that these countries have, informal activities emerge and grow quite rapidly.

This is basically one of the reasons why the informal sector in less developed countries is considered to be a sector for survival.

With respect to transition countries, studies depicted that the distinctive reasons of informalization are mainly related to the political, economic and social institutional causes of their transformation from centrally planned into free market economies. As cited on K. Gërxhani* (2005) they involve: insufficient economic development (e.g., Kaufmann and Kaliberda, 1996, mention the low degree of economic liberalization and macroeconomic instability); a high tax burden and a complicated tax system (Thieβen, 2003); a weak and complex legal and institutional framework (which is mainly due to the gap between the destruction of old institutions and the construction of new ones); inefficient enforcement mechanisms; a high level of corruption and bureaucratic incompetence among the government agents (Johnson et al., 1998a); the general lack of confidence in state institutions; the *laissez passer* approach towards the informal sector (i.e., the tolerance and insufficient control by the government); civil wars in some of these countries; and finally, the 'path dependency' (i.e., the conflict between the established economic and social norms in the past and the reaction to a new reality in the present) (K. Gërxhani*, 2005).

2.4 Informal Sector in Africa

The drastic expansion of urbanization over the past four decades has made urbanization one of the defining features of the twentieth and twenty-first centuries. Rapid urbanization, dominant economic informality, gender inequality and the unplanned nature of urban settings characterize most African cities. While urbanization in Africa is experiencing expansion – largely triggered by rural– urban migration and natural population growth rates in cities – it has failed to bring about inclusive growth, leading to the rise of slums and the prevalence of economic informality. Urbanization is complicated by planning ideologies that exclude rather than include. In particular, the planning ideologies to a large extent exclude women and individuals involved in economic informality (N. Kinyanjui, 2014).

As put on N. Kinyanjui, (2014) different researchers Harris (1992 : x) cited on observes that cities in developing countries are characterized by vast squatter settlements, shanty towns, a poor supply of basic amenities, rapid environmental degradation, traffic jams, violence, crime and urban sprawl that eats into the countryside. Murray and Myers (2006 :

1) observe that African city life has been reduced to a dystopian nightmare manifested by limited opportunities for formal employment, a lack of decent and affordable housing, failing and neglected infrastructure, the absence of social services, pauperization, criminality and increased inequalities. Robinson, (2002) also stated that due to these flaws, cities in Africa and the developing world are considered structurally irrelevant in the realm of world cities and attract hardly any global investment (N. Kinyanjui, 2014).

The rapid urbanization, dominant economic informality, gender inequality and unplanned nature of African cities make them different from cities in Europe, North America, Asia and the Middle East. According to UN-HABITAT (2006), Africa will experience the most rapid urban growth in the world until 2050. It is estimated that Africa's urban population will reach 742 million by 2030, up from 294 million in 2000. The projected 152 per cent increase in Africa's urban population will be fairly large compared with Asia's (94 per cent) and Latin America's (55 per cent); this rapid growth in population is attributable to rural–urban migration as well as to natural birth rates in cities.

In his work on backwash urbanization (Mabogunje 1984), he argued that urbanization in sub-Saharan Africa is not based on economic development but is more the product of failed development policies in both cities and rural areas, with the failure of development in rural areas generating rural–urban migrants who flood the cities. He stated that this backwash urbanization has resulted in the peasantization of cities, whereby peasant migrants with rural origins dominate the cities and introduce peasant-type lifestyles and norms of survival. These peasant-type strategies are reflected in housing and in the city environment (N. Kinyanjui, 2014).

2.5 Informal Sector in Kenya

Different researcher cited on N.Kinyanjui (2017) pointed out different issues on informal sector in Kenya. Informal economy in Kenya is commonly referred to as 'jua kali' literally meaning hot sun. The name was coined by the traders and was used to describe the kind of activities they engage in, mostly done under blazing sun. It is mainly concerned with production, distribution and sale of household, farming and industrial items (Mpapale 2014). Informal economy or sector in Kenya is normally viewed as comprising of micro

and small enterprises which are not well organized mostly activities of petty traders operating in the streets in the main urban areas. Most of them use labor intensive technology and are unregistered (IEA-Kenya 2012 & Simiyu 2010). “They produce and distribute basic goods and services in unregulated competitive markets that lie outside the regulatory framework of either national or municipal government” (Ouma 2010). In 1993, 910,000 micro and small enterprises were identified in the National Baseline Survey and they employed about 2 million people. In the second baseline survey in 1999, 1.3 million such enterprises were identified employing about 2.4 million people (IEA-Kenya 2006). Mpapale (2014) stated that most of these businesses are non-agricultural and are non-account, they run from pockets and briefcases and are characterized by sole proprietorship with minimal employees if any, who are mostly casual. They lack formal organization, they use very low technology and they mostly don’t have fixed business place.

With the emergence of phone money transfer technology in Kenya, most businesses are transacted and money transferred through the phone or received as liquid cash. The phone money transfer systems can also be used by the vendors as their banking system which means they don’t have to bank their money with traditional banks. Typically, the activities of informal sector are not regulated by laws such as environmental, labor and taxation. However, the activities are subjected to the local authorities like chiefs and local government which regulate business orderliness as well as legality. Most of these activities are not included in the Gross Domestic product because their production is not accounted for and they generally don’t remit any taxes except for the business permit fee they pay to the local governments (IEA-Kenya 2012).

Some studies estimate that informal businesses account for 35-50% of GDP in many developing countries. Similarly, in Kenya, the informal sector is quite large, estimated at 34.3% and accounting for 77% of employment statistics .Over 60% of those working in the informal sector are the youth, aged between 18-35 years, 50% being women (Ouma et al 2009) on IEA-Kenya (2012). The First 1993 Small & Medium Enterprises (SME) baseline survey revealed that there were approximately 910,000 SMEs employing up to 2 million people. The second SME baseline survey (1995), estimated the size of the SME sector at 708,000 enterprises employing up to 1.2 million people. As cited on IEA-Kenya (2012) the Sessional Paper No. 2 of 2005 mentioned that compared to the other sectors of

the economy, the contribution of the SME sector to the country's Gross Domestic Product (GDP) increased from 13.8% in 1993 to over 18% in 1999. Economic Survey (2012) estimated that the contribution to the GDP by this sector stands at over 25% (IEA-Kenya 2012).

According to Macharia (1997: 105) cited on Njeri Kinyanjui (2014) the Kenyan state is based on a social structure permeated by networks that operate along familial, ethnic, friendship and overwhelmingly patrimonial lines that affect its performance. Second, he links it to the prevailing strong social networks that lead to informal-sector dynamism. These networks attract more people into the city and determine entry, choice of sector and transfer of skills. As more people join economic informality, they contribute to the growth and expansion of the African city.

2.6 Formalization of Informal Sector

Based on a review of the literature and of donor experience, USAID (2005) cited on Bacchetta and et.al (2009) focuses on external factors and identifies seven categories of barrier to formalization from the entrepreneur's perspective: (a) regulatory barriers, (b) administrative barriers, (c) fees and financial requirements, (d) corruption in public administration, (e) socio-cultural attitudes, (f) lack of key business services, and (g) criminality.

While views diverge on whether governments should pursue active formalization policies and how such policies should be designed, specialists agree on a number of issues. There is no unique strategy that would apply in all circumstances. The success or failure of formalization measures depends on the measures themselves as much as on the specific political, economic, social or cultural circumstances of their implementation. A strategy that has worked in a particular country or for a particular sector may be inappropriate in another country or sector.

Bacchetta and et.al (2009) reviewed that the legalist view would suggest that a reduction of barriers to formality and improved access to finance will suffice to induce unofficial firms to register, borrow capital, take advantage of all the benefits of official status and, by doing so, improve their productivity and possibly start to trade and to grow. The

structuralist view would rather suggest that a strong enforcement of regulation and a fight against tax evasion will eradicate informality. Finally, the dualist view suggests that the best approach to the elimination of informal firms is to support the creation of new formal firms and the development of existing formal firms.

2.7 Theoretical Literatures

It is depicted that there are a number of approaches which explain why individuals engage in informal economy. Cited on A. Ntlhola (2010) that among them the dualist approach explains the informal sector as a set of subsidiary activities that provide incomes for the deprived; those who are incapable (for various reason) of accessing employment in the formal sector (Reimer, 2003). According to Gorden (1982: 188) informal sector growth, "is due to the fact that not enough modern job opportunities have been created to absorb surplus labour, due to a slow rate of economic growth and/or a faster rate of population growth." The dual labour market and training results the existence of formal and informal sector operation.

The structuralist approach explains the informal sector as a set of subordinated sector units and workers that serve to decrease the input and labour costs for the large formal enterprises, and thereby, increase the competitiveness of formal enterprises. Productivity gains in the formal sector are in part, reliant on an enlargement in the informal enterprises. The nature of formal sector development accounts for the persistent growth of informal production interactions. Trade Liberalization, unemployment rate and skill-biased technological progress contributes to informal sector operation.

The legalist approach explained that the most common technique of distinguishing between the informal sector and the formal sector considers the nature of technology used and whether business activity escape regulation. de Soto (2000) cited on A. Ntlhola (2010) subscribes to the belief that the informal sector consists of „plucky" small business innovator who decide to labour informally with an intention to evade the expenses, time and process of formal registration. It is also indicated that, micro-entrepreneurs will carry on to operate informally so long as administration regulations are weighty and costly. Tax evasion is the main cause for engaging in the informal economy.

The Continuum Approach according to Chen (2007: 2) is that, "economic relations – of production, distribution and employment – tend to fall at some point on a continuum between pure „formal" relations (i.e. regulated and protected) at one pole and pure „informal" relations (i.e. unregulated and unprotected) at the other, with many categories in between" A. Ntlhola (2010). The linkage between informal and formal sector economies that is the dependency of informal sector employment on formal sector employment is the characteristics of this approach.

According to Ishengoma and Kappel (2008) cited on A. Ntlhola (2010), business constraints that is explained by Micro-business enterprise approach and this is focused on small medium and micro enterprises (SMMEs) and (limited access to finance, high taxes, and lack of market access) may, on one hand, limit physical capital accumulation, while on the other hand, constrain a firm's ability to undertake its daily operations by reducing the capacity to make business decisions. Limited labour absorption in the formal sector is a more complex problem than merely the adoption of a relatively capital-intensive structure of production induced by underpricing capital and overpricing labour**.**

According to Todaro-Lewis model approach rural-urban migration due to lack of employment opportunities or due to the perception of better opportunities in the urban areas is the main reason for individual to operate in the informal sector in urban areas.

The table below as indicated by A. Ntlhola (2010) summarized the above theories in the following way.

Table 2.2 Theories on the informal economy.

Theories	Findings
Dualist Approach	i. The formal sector is dominated by the key industrial sector while the informal sector is largely a subsistence economy.

	ii. The dual labour market: formal and informal or primary and secondary. iii. Primary labour market offers high salaries and wages and better working conditions while the secondary labour market offers lower wages and insecure employment.
Structuralist Approach	i. Unemployment is mostly amongst the least skilled. ii. Unemployment and informal sector growth are positively correlated. iii. High wages in the formal sector and unemployment are positively correlated particularly amongst unskilled individuals.
Legalist Approach	i. Tax evasion is the main cause of informal enterprise operation. ii. Informal enterprises operate informally because the process of formalising is time-consuming and costly iii. Certain rules and regulations (e.g. labour laws) hamper the formal economy, and, therefore, private enterprises shift to the informal sector economy.
Continuum Approach	

	i. Characterized by „first“ economy and „second“ economy. ii. The linkage that exists between the formal and informal sector is through the support informal sector receives from the formal sector (i.e. deliveries, promotion materials, name on signboard, discount price and credit). iii. The existence of the informal sector enhances the profitability of the formal sector. For instance, if formal sector markets are potentially highly scattered, the informal sector acts as an intermediary, through which the formal sector can access such markets.
Micro-Business Enterprises Approach	i. The growth of Small and Medium Micro Enterprises (SMMEs) is slowed due to limited access to finance and lack of market access. ii. The (opportunity) cost of informality seems to be much lower than the cost of operating formally. iii. The informal sector, where capital is a scarce factor, is largely labour-intensive.
Todaro-Lewis Model Approach	

	i. There is a positive relationship between formal sector growth and rural-urban migration. ii. Migration causing labour surplus in the urban areas contributes to the growth of informal sector employment. iii. Informal sector expansion is dependent on the growth of the formal sector and labour supply.

Maddah and Sobhani (2014) reflected some contributing factors to operate in the informal sector. These are inflaton, unemployment, trade openness and economic corruption.

1) Inflation: Rise in general level of consumer goods prices means that there will be more difference between expenses and incomes of households. Inflation is a reflection of decrease in people's and firm's purchasing power and this increases the incentive to enter the informal activities in order to compensate the economic expenses due to inflation. Rise in the general level of prices leads to decrease in the purchasing power of the minimum income essential to subsist a living and this is an influential factor in justifying entrance to the informal activities. On the other side, increase in prices can lead to higher taxes inclusion on increased income of people and firms and therefore encourage participation in informal activities.

2) Unemployment: Higher rates of unemployment can perform as an expanding factor on the informal sector, especially in developing countries. Unemployment and lack of occupation are equal to lack of income and required sources to entail a living. In this situation people have high incentives to participate in the informal activities.

3) Economy’s openness degree: Any trade restriction and closed trade sphere, rises incentives to get involved in illegal exchanges and goods trafficking. Trade obstacles increase formal import expenses to the country. In this situation, it will create high

incentive in law-evading trade factors that are exempted from custom bureaucracy and paying taxes, to trade illegally.

4) Economic corruption: In economic literature, corruption is usually known as using government power for personal profit. Economic corruption and bribery as main factors in employers' tendency to the informal activities. High economic corruption accompanied by tax burden, severity of laws and regulations, and government size are among the most effective factors on the informal economy.

Authors note that there are several factors which explain 78-98% of the variance of the shadow economy. Taxation and social security contributions, quality of public institutions, public services, and regulations of labor market, transfer payments and tax morale are mentioned among those driving forces of the shadow economy. [Kabaj 2009] cited on Malaczewska (2013) suggested that one determinant of the shadow economy is high unemployment rate. This is consistent with increase in size of the shadow economy which happened in most OECD countries in 2009 during the economic crisis. [Rosser et al. 2000] on Malaczewska (2013) also showed positive relationship between income inequality and the size of the shadow economy in transition economies.

According to Schneider and Dreher (2006) on Malaczewska (2013) the level of corruption has a significant influence on the shadow economy. This influence is ambiguous and depends on level of economic development. In high-developed countries the shadow economy and corruption are mutually substitutable, while in the case of developing countries - complementary.

Schneider** (2002) on the other hand stated that an increase of the informal economy leads to reduced state revenues which in turn reduces the quality and quantity of publicly provided goods and services. Ultimately, this can lead to an increase in the tax rates for firms and individuals in the official sector , quite often combined with a deterioration in the quality of the public goods (such as the public infrastructure) and of the administration, with the consequence of even stronger incentives to participate in the informal economy

Malaczewska (2013) also explained that government spending can be treated as socially useful expenses (useful government expenditures) or as government consumption (from household point of view - wasteful government expenditures). In the first case it represents when some part of government spending contributes to the welfare of society and is used to provide public goods and services. In the second case it represents when government expenditures constitute government consumption and are only used to meet the government needs. It is assumed balanced budget so that government expenditure equals government expenses. It can be treated as a government consumption or as an expenses that contribute to increased social welfare and for the provision of public goods and services. Let the parameter ψ represents how much taxes and penalties paid by households are returned to them in the form of socially useful government spending.

Increasing wages in the formal sector have ambiguous impact on the size of the shadow economy depends on the value of parameter ψ. When the share of useful government expenditures is low (low ψ or ψ=0), then increase in wages in the formal sector leads to increase of the size of the shadow economy and taxation. Therefore, if the government intends to use this instrument (increasing wages in formal sector, e.g. by increasing minimum wage) in order to reduce the shadow economy, it brings the opposite result. On the other hand, when the share of useful government expenditures is high (high ψ), then increase wages in the formal sector lead to decrease the size of the shadow economy, despite an increase in taxation.

Also ambiguous relationship is obtained for the effect of changing parameter ψ on the size of the shadow economy and tax burden. It appears that if wage in the shadow economy is significantly larger than the gross wage in the formal sector, then increase of the share of useful government spending leads to the increase of the shadow economy, despite the lower taxes. In this case, increasing ψ will not decrease the size of shadow economy. On the other hand, when wage in the shadow economy is smaller than gross wage in formal sector (but higher than net wage), the increase of ψ will lead to a decline in the shadow economy, even while the taxation has been increased (Malaczewska, 2013).

In addition Interest rates act as the cost of holding money in the form of cash. It is expected that a higher interest rate on bank deposits increases the opportunity cost of holding currency. Thus a rational expectation

is that an increase in this rate will make economic agents hold less cash and opt for deposits while a lower rate will act as a disincentive to holding deposits (E. Ogbuabor and A. Malaolu, 2013).

It is stated that the informal sector represents a fundamental component of the economic structure of many developing, transition, and even developed countries. Gennari (2005) cited on A.Ntlhola (2010) put informal sector activities as a key form of organization of output and a vital source of employment and income opportunities, not only in rural, but also in urban areas. Shinde (1998) on A.Ntlhola (2010) reflected that However, there is general consensus that the informal sector should be reduced in size or formalized in the long-run. Growth of the informal sector is a key element of the prospect of all African nations for one reason: their present high unemployment rate will compress both local markets and foreign trade opportunities. According to Read and Staines (2004) on A.Ntlhola (2010) the informal sector growth reflects no difficulty with which informal businesses can enter and grow within the economy. However, informal business entities will have a greater contribution to the economy if they can operate in the formal sector. Typically, the informal sector largely comprises economic activities not regulated by environmental laws, labor laws or taxation, but is subject to the regulations of the local authorities (i.e. local municipalities) for orderly business operation. Some examples of retail-based activities (which comprise the majority of the informal sector activity in African countries) are: market vendors; road-side stalls; shoe-shining; hawkers; home dress-making; spaza shops; street vendors etc. these activities are generally not added to the Gross Domestic Product (GDP) calculation through business surveys.

As pointed out on Schneider** (2002) a change in the size of the informal economy may be reflected in the following indicators:

(I) Developments of the product market. An increase in the informal economy means that inputs (especially labor) move out of the official economy (at least partly); this displacement might have a depressing effect on the official growth rate of the economy. Changes in size of the informal sector mean that inputs, particularly labor, are redirected from or to the formal sector which most likely has effects on formal GDP size and fluctuations. Other, complementarity effects are also likely. For example, a considerable part of the income earned in the informal sector is spent on goods and services produced

by the formal sector. As production market indicator we use real GDP and as noted above it is difficult to determine the expected sign of the estimated coefficient.

(II) Developments of money markets. If activities in the informal economy rise, additional monetary transactions are required. Informal sector transactions are paid mostly in cash in order to avoid being registered by tax authorities and thus changes in the informal sector introduce changes in the demand for cash, other things equal. Therefore we expect positive sign of the estimated coefficient on IS in the measurement equation that represents developments on money markets. Our indicators are currency in circulation or currency in circulation divided by M2.

(III) Developments of labor markets. Increasing participation of workers in the hidden sector results in a decrease in participation in the official economy and vice versa. Increases in informal sector activity requires more labor input and therefore leads to decreases in the participation in registered economically active population. We use as an indicator on this market the rate of economically inactive male population. We choose to work only with male population since female labor force participation in the last forty years has been predominantly driven by factors unrelated to shadow economic activity. To achieve identification of the model we fix to unity the coefficient on IS in this measurement equation.

We can also see the economic effect of informalisation (informal economy) in the following way. The shift of labour supply, the shift in demand of products, and also it induced product diversity.

From different authors point of view T.Njoda and Feubi Pamen (2016) summarized the above points in the following way. The traditional model of a competitive labour market predicts that, in the presence of a (fixed) downward-sloping labour demand curve, the shift in supply arising from rural informal workers influx should unambiguously lower the real wage of urban formal workers with whom informal workers directly compete (Harris and Todaro, 1970; Rozensweig, 1988; Fields, 1989). In addition, as long as the formal labour supply curve is upward sloping, informalisation should also reduce the amount of labour supplied by the formal workforce, given the formal sector wage rate.

Demand conditions determine how people split their income between formal and informal products, capital and labour. The informal economy is typically characterized by strong economic dynamism, rapid entry and exit and flexible adjustment to change in demand (Chen, 2012). However, if capital is mobile across sectors, the informal economy can benefit from increased demand for its goods and services and informal wages could rise. A change in the size of the informal sector over time may be reflected in the following indicators:

One of the commonly-cited benefits of informalisation is that the diversity of the population is enhanced. Diversity is a benefit in and of itself, which might increase welfare. Informality has reached many levels of activity ranging from mid-size subcontracting firms to microenterprises, workshops, sweatshops, and home-based production. Alongside the processes of informalisation tied directly or indirectly to core production, developing countries have continued to experience the growth of subsistent activities generated by the inability of their economies to absorb the unemployed and underemployed (Cosar, Guner and Tybout, 2010). The result has been the tremendous heterogeneity of informal activities (T.Njoda and Feubi Pamen, 2016)

According to A.Ntlhola (2010) few would deny that unregistered economic activity is a fact in every country although there is a general disagreement about its size. Diversity of opinion is nevertheless understandable as it is clear that obtaining information about unregistered economic activity is very difficult due to the unwillingness of those engaged to admit it. Arguably, knowing more about shadow sectors of the economy, is of great importance to policy makers for various reasons:

(i) Large informal sectors imply that the statistics on which policy decisions are made are wrong or, at least incomplete, thus rendering ineffectiveness and unwanted side-effects that may question the usefulness of such policies.

(ii) There is interaction between the formal and informal sectors that is at least twofold. The informal sector withdraws resources from the formal economy and enjoys certain public goods without paying for them. At the same time, as Schneider and Enste (2000)

pointed out that nearly two-thirds of the income earned in the informal sector is spent on goods and services provided by formal economic activity.

(iii) In the absence of information about the informal sector policy makers do not have feedback on the policies implemented. In other words, since the effects of policies on the informal sector are generally unobserved it might be the case in many situations that despite observed desired effects in the formal sector, the overall economy is worse off. An example can be the design of social security systems. Previous studies have found that social security and unemployment insurance are desirable, however these can be designed in such a way that give people incentives to look for jobs in the informal sector while receiving unemployment benefits and at the same time can provoke lower net job creation in the formal sector due to high social security contributions. Kolev and E. Morales (P.∗, 2005) cited on A.Ntlhola (2010) concluded that ill designed social welfare system may increase the share of the informal sector in the economy.

2.8 Empirical Literature

Losby et al (2002:14) cited on Tamirta and Nega (2015) stated that the informal sector economic activities are rapidly expanding globally, especially in developing counties. According to Manganga (2007:4) on Tamirta and Nega (2015) in Africa for instance, informal sector activities accounted for almost 80% of nonagricultural employment, over 60% of urban employment and over 90% of new jobs for approximately the past decades. It was also pointed out that the informal economy can no longer be considered a temporary phenomenon, neither in Africa nor in other parts of the world. Moreover, it serves as a safety net for the disadvantaged people in developing countries. People, who could not get credit, could not be absorbed by the formal sector due to lack of adequate skills, become increasingly engage in it. It is a very essential activity for the survival of people in cities who could not fulfill their needs through formal sector. Thus, it has become a shield for the disadvantaged people of many of the developing countries' larger cities.

Schneider (2002) also used the three methods of estimation of the informal sector in different countries. Estimates of the size of the informal economy in 110 developing, transition and OECD countries are presented. The average size of the informal economy, as a percent of official GNI in the year 2000, in developing countries is 41%, in transition

countries 38% and in OECD countries 18%. A large burden of taxation and social security contributions combined with government regulations are the main determinants of the size of the informal economy. It is this research which studied the size of informal economy in Ethiopia and it was 40.3% in 2000.

Informal sector operators by urban centers and occupations as studied by CSA (2004) that has adopted the nine major occupation classifications recommended by International Labour Organization is that there is high concentration of operators in areas of Crafts, and Related Trades Workers (48.93 percent). The second largest occupational group is Elementary Occupation in which 24.70 percent of the total operators in the Informal Sector are engaged in. The third largest occupational group is Service Workers and Shop and Market Sales Workers, which constitutes about 21.46 percent.

In the case of employees, the largest occupation group is Crafts and Related Trades Workers constituting 60.70 percent. Service Workers and Shop and Market sales Workers occupational group is the second largest, which accounts for 32.97 percent of the total employees. The third highest occupational group for employees is the Elementary Occupations Occupational group, constituting 8.41 percent.

The distribution of Informal Sector workforce by major occupational group at national level indicates that the majority of the workforce are in the Crafts and Related Trades Workers which is about 51.27 percent, the second dominant occupational group that has engaged a significant number of the workforce is Service Workers and Shop and Market Sales Workers. This occupational group has absorbed about 21.76 percent of the total persons engaged.

Using dynamic panel data estimation technique the researcher tried to estimate the relationship between tax burden and the size of informal economy. Specifically the researcher used simple model of optimal taxation and endogenize the determination of taxes and introduce a friction into the model by allowing producers not fully to trust that the government will actually impose the announced tax rate. In equilibrium, if producers' trust in the government is lower (higher), the government announces a lower (higher) tax rate on the formal sector, but more (fewer) producers choose to stay in the informal

economy. The idea here is that, once tax authorities internalize the response of agents when setting tax policy, governments that lack credibility may face very steeply decreasing returns to raising taxes and consequently may opt for lower tax rates. Since governments with less credibility are more likely to mistreat formal producers ex post facto, those economies will also tend to have smaller formal sectors (Elgin and S.Garcia, 2012**).**

E.Ogbuabo**r** and A. Malaolu (2013) was motivated mainly by the need to empirically examine the magnitude of economic loss attributed to informality in Nigeria. Specifically, the objective of the study is to examine the size, development, and causes of the informal sector of the Nigerian economy. In recent times, multiple indicators multiple causes (MIMIC) models are applied to time series estimating the size and development of the informal economy for a particular country. However, in order to obtain more accurate estimates about the size, development and causes of the informal economy in Nigeria, this work applied an error correction MIMIC (EMIMIC) model which estimates the co integration equilibrium relationship and the error correction short run dynamics. The results show that since 1970, the size of the informal economy has hovered between 53.6 – 77.2% of GDP, and that the average size of the informal economy was about 64.6% of GDP. Specifically, the results indicate that informal sector was about three-quarters of GDP in 2010. Furthermore, the results show that unemployment, tax burden, government regulation, and inflation are the most important drivers of informality in Nigeria.

Maddah and Sobhani (2014) concluded that the existence and growth of the informal economy causes a decrease in government revenues and undesirable performance in economic policies. Part of economic activities in developing countries is appertained to the informal economy. In this article, the impact of macroeconomic variables such as inflation and unemployment rate along with economy's openness degree and economic corruption indices on informal economy’s share in 98 developing countries during (1999-2007) has been tested empirically in the framework of panel data model. The results confirmed the direct relation between inflation rate and unemployment with the informal economy's share in the investigated countries. In this model, the elasticity of informal economy's share in gross domestic product of countries relative to the two macroeconomic key variables, inflation and unemployment rate, is obtained equal to (0.19) and (0.04), respectively. Thus

it can be stated that economic condition of developing countries has a positive and significant impact on the informal economy volume. On one side, inflation decreases the purchasing power of people and leads to spread of poverty and indigence. On the other side, with unemployment, there is no job and income to subsist people's lives in society. These circumstances encourage people to participate in the informal activities in order to get rid of the restrictions.

Women in The Informal Sector: Retrospect's And Socioeconomic Response in Dessie Town, Ethiopia: The Case of Parallel Trading as examined by Sebsib (2015) using mixed sequential for qualitative and quantitative methods is that parallel trading sector is dominated by less educated women, operated by the legal age requirement to work, divorced and widowed in marital status, women in parallel trading increase when the number of families also increases. The major pushing factors for the involvement of women in parallel trading were marriage obstacles (divorce and widow) and sustenance. However, most of them find themselves jobless and dependent on the patriarchal gains before they joined parallel trading.

According to different researchers cited on T.Njoda and Feubi Pamen (2016) the informal modern sector is often a dynamic actor in the process of economic development, frequently outpacing the growth of the formal modern sector (Van Der Hoeven, 2010). The informal sector is difficult to quantify (Hart, 1971), but this sector plays in both developed and developing countries a vital role: it is estimated to contribute between 16 and 75 % of the GDP many nations (Amini, 2004). In many developing countries over 70 % of the working age population is employed in the informal sector of the economy. Moreover, the informal sector represents a parallel economy that is directly affected by conditions within the formal economy (Coate, Handmer and Choong, 2006).

All the above studies indicated the importance of studying the size and the cause of the informal economy in a country. As it is stated above informal economy has its own advantage and disadvantage in a particular country. It is essential implementing proper policy on informal sector to exhaustively extract its advantage and to mitigate its disadvantage.

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 Research Approach and Design

Informal economic activity is a fact of life around the world, and there are strong indications that it is increasing. Most societies attempt to control these activities through various punitive measures or through education, rather than through reforms of the tax and social security systems which could improve the dynamics of the official economy. Gathering information about informal economic activity is difficult because no one engaged in such activity wants to be identified. Obtaining accurate statistics about the allocation of a country's resources in this sector is important for making effective economic policy decisions. Hence, it is crucial to know who is engaged in this activity and with what frequency and magnitude such activities occur (Schneider and Enste, 2000).

This study used quantitative research approach for the analysis of the data and estimation of the size of informal sector.

The researcher used causal/explanatory research design because it allows for the explanation of how the explanatory variables affects the indicator variable so that it helps to understand the relationship between the independent variables and the latent variable.

3.2 Population, Sample Size and Sampling Procedure

This study covered the period from 1980 to 2016 and study the size and causes of informal sector in Ethiopia.

3.3 Data Sources and Data Collection Method

The data this study used are secondary and it is collected from the National Bank of Ethiopia (NBE), World Bank (WB) and Central Statistical Agency (CSA) of Ethiopia and from other sources.

3.4 Data Analysis Method

Multiple Indicators Multiple Causes (MIMIC) model is applied in this study since it is the most appropriate model to estimate the size of informal economy in a particular country.

As stated on different literatures including Schneider** (2002), World Bank (WB) (2007), and Emenike and A. Malaolu (2013) the size or the magnitude of informal economy in the country can be measured by three methods or classes. The first is direct method, the second is indirect approach or indicator approach and the third is the model approach.

3.4.1 The Direct Approach

The direct method is microeconomic in nature and uses either voluntary survey data or the results from tax audits to construct estimates of total economic activity and its official and unofficial (measured and unmeasured) components. Voluntary surveys typically ask respondents to declare or reveal their incomes, labor status, or impressions of levels of tax compliance in their industry. This method has been criticized for its sensitivity to how the questions are raised, and its confidence in the respondents' willingness to truthfully tell their income.

Tax audit based measures define the magnitude of the informal economy as the difference between the income declared in tax returns and the income actually found after an audit. A potential problem in extrapolating or estimating to the national economy is that audits are usually nonrandom and, hence, may not be representative. In both cases, the applications of these methods have been limited to a few developed countries because of the paucity of the available data (WB, 2007).

3.4.2 Indirect Method

Schneider (2002) stated that indirect approach, is called macroeconomic approach or indicator approach, make use of various economic and social indicators that provide information about the development of the informal economy over time. There are five indicators for measuring trends of the informal economy, namely: gap between national expenditure and income statistics; Discrepancy between the official and actual labour force; Currency demand or the ratio of currency to demand deposit; Transaction approach; and Electricity consumption method.

The main criticisms of this approach are that not all informal transactions are performed in cash, it gives only a very rough indication of the informality, the assumption of the same

velocity of money in both the formal and informal economy, the assumption of the base year informal economy to be zero or negligible, and etc.

3.4.3 The Model Approach

It explicitly considers multiple causes that lead to the existence and growth of the informal economy, and to its multiple effects over time. The empirical method is based on the statistical theory of unobserved variable, theory which considers multiple causes and multiple indicators of the phenomenon to be measured (Emenike and A. Malaolu, 2013).

World Bank (2007) put that MIMIC or structural equation model is the most popular model and it postulates that the magnitude of the unofficial economy can be modeled as a latent or index variable. While this variable is unobservable, its causes (for example, and increase in the tax burden) and effects (such as an increase in the demand for currency) can be observed directly.

A system of equations forms the basis of this model: one set model the effects (or indicators) as a function of the latent variable; the other group model the magnitude of unofficial economy as a function of the causal variables. The parameters in this system of equations are estimated simultaneously, typically using maximum likelihood. The fitted values of the latent or index variable obtained from the reduced form equation are used to produce an estimate of the unofficial economy.

The model approach has been criticized Breusch (2005) cited on WB (2007) since it has been shown that its results are sensitive to transformations of the data, to the units of measurement, and to the sample used. Another criticism is that no theory is used in order to determine which variables to include as indicators or as causes.

Moreover, the shadow estimates, while relying on the MIMIC model to generate trends over time, appear to rely on traditional currency demand or the physical input methods for the initial levels, which makes it vulnerable to criticisms.

Cited on Emenike and A. Malaolu (2013), Buehn and Schneider (2008) indicated that the MIMIC model explains the relationship between observable variables and an unobservable variable by minimizing the distance between the sample covariance matrix and the

covariance matrix predicted by the model. The observable variables are divided into causes of the latent variable and its indicators. The MIMIC model consists of two parts. The first is the structural equation model and the second is the measurement model. The structural equation model is given by:

$\eta_t = \mathbf{y}'\mathbf{x_t} + \zeta_t$, ……..(1)

Where: $\mathbf{x}t = (x_{1t}, x_{2t}, \ldots, x_{qt})$ is a (1*q) vector of time series variables as indicated by the subscript t . Each time series x_{it}, i = 1, 2, …, q is a potential cause of the latent variable η_t . $\mathbf{y}' = (\mathbf{y}_1, \mathbf{y}_2, \ldots, \mathbf{y}_q)$, is a (1*q) vector of coefficients in the structural model describing the "causal" relationships between the latent variable and its causes. Since the structural equation model only partially explains the latent variable η_t, the error term ζ_t represents the unexplained component. The MIMIC model assumes that the variables are measured as deviations from their means and that the error term does not correlate to the causes, that is:

$\mathbf{E}(\eta_t) = \mathbf{E}(\mathbf{x_t}) = \mathbf{E}(\zeta_t) = 0$ and $\mathbf{E}(\mathbf{x_t}\zeta'_t) = \mathbf{E}(\zeta_t \mathbf{x}'_t) = 0$. The variance of ζ_t is abbreviated by Ψ while Φ is the (q *q) covariance matrix of the causes x_t.

The **measurement model** represents the link between the latent variable and its indicators, that is, the latent unobservable variable is expressed in terms of observable variables. It is specified by:

$\mathbf{y_t} = \lambda\eta_t + \varepsilon_t$, …… (2)

where: $\mathbf{y}_t = (y_{1t}, y_{2t}, \ldots, y_{pt})$ is a (1* p) vector of individual time series variables y_{jt} , j = 1, 2, …, p. $\varepsilon_t = (\varepsilon_{1t}, \varepsilon_{2t}, \ldots, \varepsilon_{pt})$ is a (p *1) vector of disturbances where every ε_{jt} , j = 1, 2, …, p is a white noise error term. Their (p *p) covariance matrix is given by Θ_ε. The single λ_j, j = 1, 2, …, p in the (p *1) vector of regression coefficients λ, represents the magnitude of the expected change of the respective indicator for a unit change in the latent variable. Like the MIMIC model's causes, the indicators are directly measurable and expressed as deviations from their means, that is, $\mathbf{E}(\mathbf{y_t}) = \mathbf{E}(\varepsilon_t) = 0$.

Buehn and Schneider (2008) derived the MIMIC model's covariance matrix, and considered the concepts of cointegration and error correction models extensively. They extended the general MIMIC model to include these concepts and as a result developed an error correction MIMIC (EMIMIC) model which comprises equations 3 and 4 below:

By putting equation (1) into equation (2), they obtained:

$\mathbf{y_t} = \Pi\mathbf{x_t} + \mathbf{z_t}$, ……(3)

where: Π□□□λ y' and z_t □□λ□t □□□t . The error term **zt** in equation (3) is a (p □1) vector of linear combinations of the white noise error terms □t and □**t** from the structural equation and the measurement model, that is, $z_t \sim (0, \Omega)$.

Δyt □□□Δxt □□Bvt □□□z $_{t-1}$**□□w t** , ... (4)

Where: Δy_t □□**y** $_t$ □□**y** $_{t-1}$, Δx_t □□x_t □x_{t-1}, z_{t-1}□□**y** $_{t-1}$−□Πx_{t-1}, and □□, □□, and □□are coefficient matrices in this□dynamic, short run model specification. Furthermore, in this specification □□□□λα′ is the [p □□(q □□r)] coefficient matrix of□the first differences of the I(1) causes, and □□□□λβ′ is the (p □□r) coefficient matrix of the I(0) causes. The matrix **K** □□λκ′ is the (p □□p) coefficient matrix for the long run disequilibrium's error correction term and $w_t \sim (0, \Omega)$ is a white noise□disturbance.

3.5 Model Variables

The variables are selected depending on the previous researches and literatures and expecting the cause and the indicator variable are correspondent to the latent variable (informal economy).

3.5.1 Cause Variables

There are six variables which are taken as a causes for informal economy convenient for this research.

1. Tax Burden

An increase of the tax burden is a strong incentive to engage in the informal sector, ceteris paribus. The tax burden is measured by the total share of tax as a percentage of GDP. It is the ratio of total tax revenue to GDP.

2. Real Government Consumption

An increase in the size of the public sector, and degree of regulation of the economic system, provides an incentive to participate in the informal sector. Real government consumption as percentage of GDP as proxy of all state regulatory activities. A positive

sign of this coefficient means more state in the market and subsequently an increase in regulation, gives an incentive to operate in the informal economy.

3. Unemployment Rate

The relationship between unemployment rate and the informal economy is ambiguous. Cited on Emenike and A. Malaolu (2013) Buehn and Schneider (2008) explained that whether the unemployment variable exhibits a positive or negative relationship depends on income and substitution effect. Income losses due to unemployment reduces demand in the informal sector as well as the formal economy. A substitution takes place as unemployed workers turn to the informal sector where cheaper goods make it easier to counter vail utility losses. This may stimulate additional demand in the informal economy. If the income effect exceeds the substitution effect, a negative relationship develops with the informal economy and vice versa.

4. Inflation

It is one of the factors that determine the demand for money in circulation and the informal economy. High inflation affects the economy in various ways such as wiping out of small businesses and stimulating black markets. The higher the inflation, the larger the expected size of the informal economy.

5. Interest Rate

Interest act as the cost of holding money in cash. The higher interest rate on bank deposits increases the opportunity cost of holding money in cash. It is expected that an increase in the interest rate will make economic agents hold less cash and choose to deposit their money while a lower bank deposit interest rate acts as a disincentive to deposit money. Interest rate have a negative effect on the currency in circulation outside of banks and hence the informal economy. In this study the average saving interest rated is used.

6. Trade Openness

Openness of the economy to international trade may encourage the importation of contra band goods which is smuggled in to the economy that increases the activities of the criminal segment of the informal economy. Trade openness is measured as the ratio of total trade to

GDP. It is expected that the more open the economy is the higher the size of the informal economy and a positive relationship is expected.

3.5.2 Indicator Variables

To indicate activities in the informal economy the study used monetary aggregate M1 and real GDP index. Real GDP chosen as a reference variable since it is crucial to the problem of identification and the theoretical consequences it implies of the informal economy. Buehn and Schneider (2008) cited on E. Ogbuabor and A. Malaolu (2013) stated that assigning a positive or negative unit values to this variable makes it easier to find out the relative magnitude of the other indicator variables. It is not possible to determine the nature of the relationship between this variable and the informal economy.

E. Ogbuabor and A. Malaolu (2013) also stated that transaction in the informal economy are carried out using cash or money that is drawn from a current account. Some researchers used the ratio M1/M2 and some others used real cash M1 as indicator variable to measure the size of informal economy.

To study the French shadow economy, Buehn and Schneider (2008) used the monetary aggregate M1 and a GDP volume index as indicator variables. They stated that these variables are particularly suitable for this purpose as a result of the following considerations. Transactions in the shadow economy are typically carried out using cash or money that is drawn from a current account at a moment's notice. We therefore expect a positive relationship between the shadow economy and M1. The lower the officially measured GDP, the fewer possibilities people have to earn money in the official economy, and the likelier they are to be driven into the shadow economy. In the short run, we expect this negative relationship to exist. In the long run, however, the official and the shadow economy are complements rather than substitutes, and the variables will thus exhibit a positive relationship. One possible explanation is that when the official economy grows, the shadow economy grows as well since favorable economic conditions do not discern between the official and unofficial economy. The demand for maintenance and other services in the shadow economy in particular increase in the long run as a result of higher

consumption (e.g. cars) in the official economy. Based on this concepts RGDP volume index is used as indicator variables for this study.

CHAPTER FOUR

4. DATA ANALYSIS AND INTERPRETATION

Informal economy in Ethiopia is very high. It covered from petty trader who fight hunger to importation of huge goods to obtain large profit. If Informal economy expand in the country it discourage working in the informal economy. I couldn't say informal economy has no benefit to the country. Informal economy specially where there is large number of poor people lives and where large number of people are not satisfying the criteria to join the formal economy it is one way of getting money. On the other hand it is common in countries where there is unequal development of cities.

So it needs a policy which doesn't harm the poor who participate in petty trade and a policy which brings the large businesses which participate in the informal economy to the formal so that the economy as well as the society benefits from them.

The analysis of the data is as per the methodology stated in chapter three and different steps are followed and different tests are applied.

4.1 Unit Root Test of the Variables

The analysis is began by pre testing the data by conducting Augmented Dickey Fuller (ADF) unit root test of stationarity with both intercept and trend and intercept. The result of this test is shown below.

I have used the following short names for the analysis.

Indicator variable:

Rgdp- Real gross domestic product

Cause variables:

taxb- Tax burden-tax as a percentage share of GDP

unemp- Unemployment rate

inflr- Inflation rate

intrr- Saving interest rate

trope- Trade openness

gvtfc- Government final consumption

Latent variable

shinfeco- Share of informal economy.

Table 4.1 ADF Test with Intercept Result

ADF test with intercept			
Variable	test statistic	5% critical value	order of integration
Rgdp	-7.357	-2.975	I(1)
taxb	-10.698	-2.975	I(1)
inflr	-5.488	-2.969	I(1)
intrr	-5.471	-2.972	I(1)
trope	-4.988	-2.972	I(1)
gvtfc	-4.673	-2.972	I(1)
unemp	-9.428	-2.972	I(1)

Table 4.2 ADF Test with Trend Intercept Result

ADF test with trend and intercept			
Variable	test statistics	5% critical value	order of integration
Rgdp	-7.302	-3.564	I(1)
taxb	-10.663	-3.564	I(1)
inflr	-5.739	-3.556	I(1)
intrr	-5.389	-3.56	I(1)
trope	-7.087	-3.56	I(1)
gvtfc	-4.614	-3.56	I(1)
unemp	-9.363	-3.56	I(1)

As shown from the above table all the cause variables are not stationary at level both with intercept and trend and intercept. All the cause variables are stationary at order of integration I(1) with intercept and trend and intercept. The indicator variable Rgdp also non stationary at level with intercept and trend and intercept and stationary in the first difference with both intercept and trend and intercept. To run VECM model the variable must be non-stationary at level and they become stationary when they are differenced.

4.2 Estimation of the Size of the Informal Sector

The structural equation model were used to create an index for the informal sector. The index were used for calibration of the size of the informal sector as percentage of the official GDP.

In calibration there is a need to have a calibration benchmark and a base year that this benchmark is studied. I took the base year 2000 and the share of the informal economy in Ethiopia in this period is 40.3% and taken as calibration bench mark. This is because as to my knowledge this is the most recent country wide study of Ethiopian informal economy by Schneider** in 2002 on its study on Size and Measurement of the Informal Economy in 110 Countries around the World* in 2002. Therefor the size of informal economy of Ethiopia is estimated as follows by adopting the bellow estimation method from Buehn and Schneider (2008) and E. Ogbuabor and A. Malaolu (2013).

$infecon_t$ = calibration benchmark * ($\frac{\text{fitted value latent variable}_t}{\text{fitted value of latent variable}_{2000}}$)

Where, infecon: the latent variable which is informal economy

t: time (year) 1991,1992… 2016

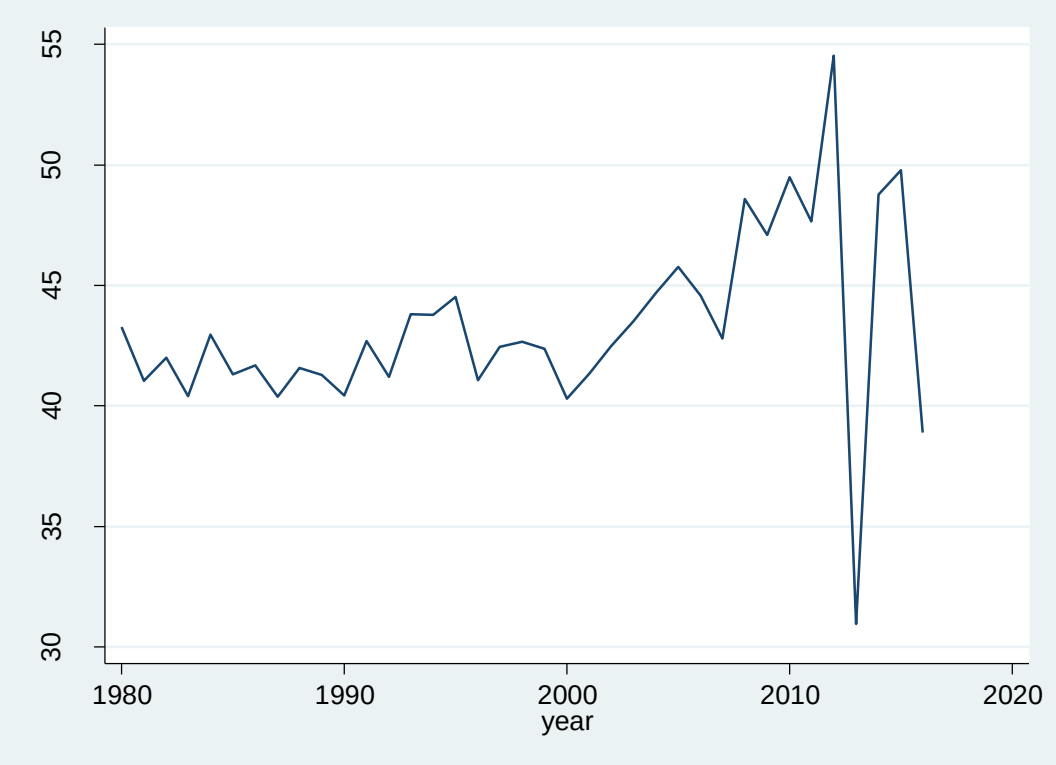
Table 4.3 Estimates of the Size of the Ethiopian Informal Economy

Year	Size of informal economy in percentage
1980	43.27
1981	41.04
1982	42.01
1983	40.42
1984	42.96
1985	41.31
1986	41.68
1987	40.39
1988	41.59
1989	41.29
1990	40.43
1991	42.68
1992	41.19
1993	43.82
1994	43.78
1995	44.52
1996	41.07
1997	42.45
1998	42.65
1999	42.37
2000	40.30
2001	41.34
2002	42.47
2003	43.52
2004	44.69
2005	45.78
2006	44.56

2007	42.79
2008	48.58
2009	47.11
2010	49.48
2011	47.65
2012	54.54
2013	30.94
2014	48.76
2015	49.78
2016	38.89

Source: STATA result of the size of the informal economy in Ethiopia.

Figure 4.1 Trend of informal economy in Ethiopia over time



The size of the informal economy in Ethiopia as shown in the above table is highest in 2012 which 54.54% and the lowest is in the next immediate year 2013 which is 30.94%. Overall the average size of informal economy in Ethiopia from 1980 to 2016 is 43.3%.

4.3 Relationship Between the Causes of Informal Economy and Informal Economy

As we have seen in the methodology part MIMIC model have two parts, the structural equation model (SEM) and the measurement model. The structural equation model shows the relationship between the cause variables and the latent (informal economy) whereas the measurement model shows as the relationship between the latent (informal economy) and the indicator variable (Rgdp)

The size of informal economy is non stationary at level and stationary at first deference with intercept with a test statistic value of -6.089 and stationary in trend and intercept with a test statistic value of -7.569. That means they have no unit root at 5% critical value of -2.969 and -3.556, respectively.

First there is a need to test whether they have co integration relationship or not. By applying the Johansen co integration test we know there is a co integration between the cause and the latent variables.

4.4 Lag Order Selection

Before running of any test or running of any model like the Johansen co integration test, the VAR model or the VECM model we need to know how many number of lags we should use. By using the system equation model VAR diagnostics and tests and VEC diagnostics and tests lags 1 is selected by different criteria. Both the system equation model gave the same result and have the same value for each criteria. Therefor it is summarized under the table below.

Table 4.4 lag order selection

lag	LR	FPE	AIC	HQIC	SBIC
0		2103.82	27.5165	27.6198	27.8465
1	141.54	519.317	-402.313*	-399.315*	-392.742*
2	111.1	647.124	26.015	26.8419	28.6553
3	308.45	5.59397*	-368.119	-365.122	-358.548
4	11304		-401.826	-398.828	-392.255
5	977.49*		25.5631	27.1136	30.5137
6	14.117		18.3061	20.5801	25.5669

As shown in the above table the first and the second criteria of selection of lags to be included in the analysis chooses lag 5 and lag 3, respectively. The last three criteria chooses lag 1. Since majority must be granted lag 1 should be included in running the model and the tests.

4.5 Johansen Co Integration Test

The Johansen co integration test tell us whether there is co integration between the causes and the informal economy using trace statistic criteria and max statistic criteria. And it allow us to run error correction model. The table below show the existence of co integration between variables and I decided to run Error Correction Model (ECM).

Table 4.5. Analysis of Johansen co integration relationship using trace statistic

Maximum rank	Trace statistic	5% critical value
0	184.1935	124.24
1	124.7191	94.15
2	74.8899	68.52
3	43.3242*	47.21
4	16.5760	29.68
5	4.9535	15.41
6	0.0019	3.76

Based on the above table 0(zero) on the first column means there is no long run associations between the latent and the cause variables. Unfortunately I reject the null hypothesis (no co integration) since the value of trace statistic is greater than the 5% critical value. At 1(one) on the first column the null hypothesis said there is one co integration relationship but I reject on the same reason. At 3(three) I accept the existence of long run association since at that point the trace statistic value is less than the 5% critical value. The above method is reconfirmed by the next table. The procedure is similar. The only difference is that in the above table the 5% critical value is compared with the value of the trace statistic but in the next table it is compared with the max statistic value.

Table 4.6. Analysis of Johansen co integration relationship using max statistic

Maximum rank	Max statistic	5% critical value
0	59.4745	45.28
1	49.8292	39.37
2	31.5647	33.46
3	26.7482	27.07
4	11.6224	20.97
5	4.9517	14.07
6	0.0019	3.76

From the above table at 2(two) in the first column the value of the max statistic is less than the 5% critical value indicates the existence of long run association between the causes and the latent variable.

4.6 Autocorrelation Test

To test autocorrelation Durbin-Watson criteria is applied. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation. The d- statistic value of this test is as follows:

Durbin-Watson d-statistic (1, 35) = 1.948276

It indicated that there is no autocorrelation problem.

More over the LM test tell us whether there is residual autocorrelation or not. The value of the chi2 is 49.8691 with a p-value of 0.63857. Since the value p-value greater than 0.05 or 5% there is no autocorrelation in the residual.

4.7 Hetroscedasticity Test

Breusch-Pagan Heteroscedasticity tests is applied to test whether there is hetroscedasticity in the data or not. This test imply the two following hypotheses.

H0 (null hypothesis): data is homoscedastic or no hetroscedasticity.

Ha (alternative hypothesis): data is heteroscedastic.

Therefore, if the p-value associated to a heteroscedasticity test falls below a certain threshold (0.05), we would conclude that the data is significantly heteroscedastic. In this study the value of the Breusch-Pagan chi square is 0.09 with a p-value of 0.0760 which is greater than 0.05. Therefore the null hypothesis is accepted and there is no hetroscedasticity problem.

4.8 Multicollinearity Test

To test multicollinearity this study used Variable Inflation Factor (VIF) criteria. A VIF of 1 means that there is no correlation among one predictor and the remaining predictor variables. The general rule of thumb is that VIFs exceeding 4 warrant further investigation, while VIFs exceeding 10 are signs of serious multicollinearity requiring correction. But in our case the value of VIF is 1.35 and it is very close to 1. So there is no multicollinearity problem among the predictor variables.

4.9 The long Run and Short Run Parameter Estimates

The result of the estimates of the parameters are summarized in the following table.

Table 4.7 summaries of parameter estimates

variables	**Long run coefficient (P-value)**	**Short run coefficient (P-value)**
taxb	1.327(0.001)	0.405(0.000)
inflr	0.014(0.303)	0.067(0.000)
intrr	-0.093(0.497)	-0.324(0.120)
trope	1.294(0.000)	0.101(0.000)
gvtfc	0.009(0.033)	0.253(0.000)
unemp	0.238(0.027)	0.175(0.000)
Residual1		0.633(0.000)
Test statistic		
F-statistic	83.55	56.45
Prob>F	0.0000	0.0000
R-squared	0.9471	0.9015
Adjusted R-squared	0.9358	0.8823
Root MSE	0.0168	0.0043

The F-statistic tell us the overall significance of the explanatory variables in affecting the dependent variable. Its null hypothesis is the coefficients of all predictor are zero whereas the alternative hypothesis is that the coefficients of the predictor variable are not zero. If the p-value of the F –statistic is less than 0.05 then we can reject the null hypothesis. In our case the P-value is 0.0000; so the null hypothesis is rejected and that means the coefficient of all the predictor variables are not zero in this model.

The coefficient of determination (R-squared) or adjusted R-squared tells us the goodness of fit of the model. Their difference is that R-squared measures the proportion of the variation in the dependent variable explained by the independent variables whereas Adjusted R-squared does the same but it adjusts the statistic based on the number of

independent variables in the model. That is the adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance. The more their value close to 1 the more the explanatory power of the independent variable. In this study the long run Adjusted R-squared value is 93.58% and it is very close to 1. That means 93.58% of the change in the informal economy in the long run is explained by the change in all cause variables considered in this study.

The smaller the value of the Root Mean Square Error (RMSE), (very close to 0 (zero) <0.05), reflects the model's good ability to accurately predict. Root Mean Square Error (RMSE) is the standard deviation of the residuals (prediction errors). Residuals are a measure of how far from the regression line data points are; RMSE is a measure of how spread out these residuals are. In other words, it tells you how concentrated the data is around the line of best fit. In this study the long run value of the Root MSE is 0.0168 which indicated the good predicting quality the model.

From the above estimation result all the causes have a significant short run effect on the informal economy of Ethiopia. In the long run some variables though they have the expected sign they are not statistically significant. Lets us see each variables one by one.

Tax Burden

This variable have the expected sign and the coefficient of this variable in the long run is 1.327 with a p-value of (0.001) and the short run coefficient is 0.405 with a p- value of (0.000). This variable is significant both in the long run and in the short run. An increase in the tax burden could impose on the participant of the formal economy to shift in to the informal economy and also it open the door for new entrants to choose the informal economy to formal economy.

Inflation Rate

It has the expected sign. The value of the long run and the short run coefficients are 0.014 with a p-value of (0.303) and 0.067 with a p-value of (0.000), respectively. Inflation rate is statistically significant both in the short run and in the long run. High inflation forces

small businesses to be out of market that they couldn't compete in the formal economy. It encouraged them to participate in the informal economy.

Interest Rate

Interest rate have the theoretically expected sign both in the long run and in the short run. But in the long run as well as in the short run they are not statistically significant. The long run and the short run coefficients with correspondent p-value is -0.093(0.497) and -0.324(0.120), respectively. Both in the long run and in the short run a rise in the deposit interest rate encourage people to put their money in the bank rather than investing in the informal economy.

Trade Openness

It has the expected sign and it is significant both in the long run and short run. The value of the coefficients in the long and in the short run are 1.294 with a p-value of (0.000) and 0.101 with p-value of (0.000), respectively. The more open the economy to the international market encourage the importation of contra band goods which expands the informal economy in the country. The result showed this variable have significant effect both in the long and short run on the informal economy.

Government Final Consumption

The values of the coefficients of this variable in the long run and in the short run are 0.009 with p-value of (0.033) and 0.253 with p-value of (0.000), respectively. In Ethiopia this variable is statistically significant in the short run as well as in the long run and also it has the expected sign in short run as well as in the long run. The more the government spent on final consumption goods and services means there is more publicly provided goods and services which is directly related to government revenues. The lower government revenue results lower level of publicly provided goods and services in quantity as well as in quality. Which in turn results to increase in tax rate on the formal sector. On the other hand it open the door for businesses that distort the normal function of the market by hiding products to create shortage and sale at a higher price.

Unemployment Rate

The value of the long run coefficient of this variable is 0.238 with a p-value of (0.027) and the value of the short run coefficient is 0.175 with a p-value of (0.000). Both the long run and the short run value of this variable is statistically significant and has a positive sign. That means unemployment and informal economy are directly related and unemployment is one of the causes of informal economy. As we have seen unemployment has two effect. A negative sign means an income effect where as a positive sign of this variable showed a substitution effect. In Ethiopia substitution effect exceeds the income effect both in the long run and in the short run. This means the more unemployment in the country force people to join the informal economy to fulfill their need since the formal economy couldn't absorb the unemployed labour force. On the other hand the higher unemployment create higher demand in the informal economy finding cheaper products. This encourages the informal economy to expand.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusion

From the result of this study the size of informal economy on average is 43.3%, which is very high. And all the cause variables gave the expected sign in the short run and in the long run even though there are variables which are not statistically significant. Interest rate and inflation rate are not statistically significant in the long run and the only variable which is not statistically significant in the short run is interest rate. All the other variables are statistically significant in short run and in the long run.

Unemployment in Ethiopia is growing over time. Large number of people are joining the labour force that is especially from universities every year. If the economy couldn't absorb these labour force that is the formal economy, they join the informal economy. The government of Ethiopia is currently working on it. That is expanding industries by foreigner as well as home investors by creating favorable condition on investment in different areas. It has also big budget for youths to work in partnership. But is not enough. The study told that informal economy is expanding not only unemployment created by graduate students every year. It also expand by peoples who couldn't have skill to be employed in the formal economy; we can say this unemployment is structural unemployment.

The tax revenue of Ethiopia is growing from year to year even though the rate of growth is small. In Ethiopia an increase in tax burden encourages informal economy. Compared to the economy of Ethiopia the tax revenue is low. Which indicates the tax moral in Ethiopia is very low.

Openness to the world market is the main cause of informal economy. The growth of the share of export and import to gross domestic product shows the country is getting more open to the international market. It open the door for importing of non-standardized products into the market. It also encourage importing of contra band products in the economy.

We have seen also high expenditure on government final consumption encourages participation in informal economy. It means that high state in the market and increase in state regulatory activities. Based on study relaxing it and letting business to provide those goods and services might have significant effect in discouraging informal economy. It also open an opportunity for new businesses to participate in this area.

The deposit interest rate in Ethiopia is not that much attractive. The benefit from investing on tradable goods or on others is greater than the benefit from interest income which forces people not to put their money in the bank. It couldn't be able to one option for individuals and businesses with large capital to deposit their money in the bank. Rather it motivates them to try investing their money on the informal economy.

Inflation also one of the cause of informal economy in Ethiopia. Higher inflation wipe out small businesses and make them out of the market and forces to engage in informal economy. Even though inflation is expected when the economy of the country grows controlling it is one important method to sustain small businesses in the market.

5.2 Recommendation

The size of Informal economy in Ethiopia is very high on average. The expansion of this sector is accounted on different factors. It is recommended that

- Decreasing the size of informal economy through different methods like formalization of this sector or by studying the most influential measure to decrease it would benefit the country in different ways; it can be in the form of tax revenue or in the form social security contribution.
- Almost all the cause variables stated in this study are the main cause of informal economy in Ethiopia. Maintaining those variables convenient for the economy would decrease the unwanted activities in the country and it helps to overcome the side effect of the informal economy.
- This sector in Ethiopia needs more emphasis and more study is required in this area from different direction. This study can be a base for other researcher interested in this area.

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