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A comparative analysis of the different measures used to determine the size of the informal sector of the South African economy

by

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DECLARATION

I declare that *Estimating the size of South Africa's underground economy* is my own work, that it has not been submitted for any degree or examination in any university, and that all the sources that I have used or quoted have been indicated and acknowledged by complete references.

Shafeeqa Davids

Signature: .....

Date: 1 December 2011

ABSTRACT

Since the concept of informal sector was first introduced in a 1971 analysis of the Kenyan economy, there have been debates about the appropriate definition of informal economy, as well as the methods to estimate the size of the informal economy. In recent years, there seems to be a universally accepted definition of informal economic activity, which refers to enterprises that are unregistered, as well as registered enterprises containing workers with inferior working conditions and weak employment relationships. However, there is still lack of consensus regarding the method to estimate the size of the informal economy, as well as which aspect of the informal economy should be measured (for instance, informal employment, or informal economic activity as proportion of GDP).

In South Africa, the informal economy is expected to play a significant role mainly because informal employment is relatively high (as proportion of formal employment). The economy is characterised by a slow pace of employment creation in the formal sector and high unemployment. Yet, recent studies found that the country is an international outlier with regard to the size of informal employment as proportion of total non-agricultural employment. There are criticisms that informal employment is under-estimated due to the shortcomings in the method of Statistics South Africa. Furthermore, there is a lack of South African studies investigating the nature, reasons behind as well as the contribution of the informal economy to GDP. Hence, various researchers suggested that other approaches to measure the informal economy should be considered.

As informal economy is important to absorb the unemployed who are retrenched and those who are unable to find formal employment due to reasons like skills mismatch, economic recession, and there are important linkages between formal and informal economies. This study provided a critical evaluation of the various methods to estimate the size of the informal economy and of the results of the empirical evidence using these methods on both the South African and other (developed and developing) countries. It was found that there is no indication that the informal economy has diminished as a country develops. In contrast, it was found that, in general, in both developed and developing countries, the size of the informal economies showed an upward trend throughout the years.

The results indicate that, in the South African context, the informal economy does play a significant role to generate employment and contribute to GDP. However, the method used by

Statistics South Africa seems to have under-captured informal employment. There needs to be more research focusing on estimating the size of informal economy as proportion of GDP.

KEYWORDS: Informal economy, informal sector, informal employment, labour market trends, South Africa

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CHAPTER ONE: INTRODUCTION

1.1 STATEMENT OF THE PROBLEM

The concept of the informal sector was first introduced by Keith Hart in 1971, while he was studying the economic activities of urban Ghana (Hart, 1973). Initially it was assumed that as economies develop over time, these traditional sectors would be transformed and ultimately be absorbed by capitalism or disappear altogether (Wiego, 2011). However, Hart's fieldwork provided evidence that these informal sectors not only persisted, but expanded to include profitable and efficient enterprises as well as marginal activities, such as subsistence farming and family owned businesses (ILO, 1972). This means that the nature of the informal activities also changed over time and no longer only relates to marginal activities but also the production of goods and services that were previously only provided by the formal economy.

Over the past decades economists and policy makers, especially in developing countries, became intrigued by the activities, relative size and possible economic impact of the informal sector, also referred to as the underground, second, parallel or shadow economy. It became clear that many normal economic activities which should be measured and taxed were taking place in these informal economies (Tanzi, 1999:338). The activities of economic agents in this sector of the economy escape the attention of public officials, i.e. regulatory or tax authorities and al informal activities are thus not captured in the official statistics.

Although informal economy activity is significant in both developed and developing economies, it is important for different reasons. In a developed country the informal economy may exist as a result of a negative perception of government and because of the burden various taxes imposed. The possibility to avoid and evade the taxes convinces people to move from the formal to the informal sectors. Also the intensity of government's regulation in both the goods and labour markets encourage informal activity. When the take-home pay in the informal economy is much higher than in the formal economy (due to the absence of taxes and social security contributions) employees may decrease their hours of work in the formal economy by substituting informal employment for formal hours of work.

On the other hand, in developing countries, where unemployment is often rife, informal activity is more of a survivalist technique. Due to trade liberalisation, domestic firms in many developing countries are unable to compete with multinational corporations that have entered

their markets and this resulted in increasing retrenchments. These employees are usually low or unskilled workers who cannot easily find alternative employment in the formal sectors. New entrants into the labour market and the unemployed are thus excluded from formal participation in labour market processes and in the absence of a strong social welfare system they are forced to resort to employment or self-employment in the informal economy. In developing economies, the informal sectors are important as a source of income to allow people to sustain themselves until such time that they find formal employment. Furthermore, some researchers claim that the activities occurring in the underground economy are increasing at a rapid rate (Gutmann, 1977; Feige, 1979).

Also in South African the informal sector has become particularly important in recent years (Mohr, 2007:32). In his 2003 Presidential Address, President Thabo Mbeki specifically emphasised the importance of the informal economy: "The Second economy (or the Marginalized Economy) is characterised by underdevelopment, contributes little to GDP, contains a big percentage of our population, incorporates the poorest of our rural and urban poor and is structurally disconnected from the first and globally economy". Despite the fact that the incomes earned in the informal sector are low and employment conditions relatively poor, the sector does fulfil an important survivalist role and there are also important linkages between the different sectors of the economy. This is extremely important in the South African context, as Van der Berg (1990) estimated that involvement in informal activities increased the per capita income of Africans with as much as 50%. Given the extremely high levels of unemployment in the country[1], it can be expected that the unemployed would turn to informal sector activities as a means of survival, yet there are studies claiming that the size of the SA informal economy is not as large as expected.

Despite a vast literature pertaining to the subject of estimating the size of the informal sectors, there are not many studies on the magnitude of the informal economy in South Africa. The South African official estimates only relate to informal employment and neglect other aspects such as the sector's relative contribution to GDP. Because of its socio-economic role and important linkages to the formal sector it is important that the contribution of the informal sector in terms of income generation and employment creation should be effectively measured.

[1] The official unemployment rate is 24 % and 35.8% according to the expanded definition (Stats SA, 2010: 23-24).

The problem, however, is that different methods are used to estimate the relative size of the underground economy and the estimates according to the different methods are not always comparable. The main distinction is between various direct (survey and auditing method) and indirect approaches, also called indicator or macro-economic approaches (discrepancy between national expenditure & income statistics and between the official and actual labour force). One of the most challenging issues related to the measuring of informal activity is the multitude of methods that are used to determine the relative contribution of the informal sectors. What further complicates the situation is that the different methods measure different aspects related to informal sector activity.

But how large is the informal sector in the South African economy? What is its real contribution in terms of employment and the generation of income? The various methods provide significantly different answers to this important problem. For example, there is a significant difference between the official South African estimate, using the survey approach to determine informal employment, and the World Bank estimate according to the DYMIMIC model approach which measures contribution to GDP. Furthermore, Schneider (2006: 48), using the currency demand approach, estimated the size of the SA underground economy at 29.5% of GDP for the year 2002/03, whilst Skinner (2006), using the Labour Force approach, estimated it at between 8 -10% of GDP for the same period.[2]

These wide diverging estimates create a serious problem for policy makers in a developing country like South Africa. For example, if the contribution of the informal sector in South Africa should be underestimated in terms of informal employment and contribution to GDP, the official unemployment rate may be too high and the rate of GDP growth may be too low. This may even influence projections on the future economic prospects of the country. Furthermore, should the informal sector play a greater and increasing part in the South African economy, the government should take note of it and be much more supportive of informal economic activity.

The main research problem therefore relates to the different types of methods that are applied to measure the relative size and role of informal sectors. The study focuses on the definition of the informal sector, its nature, reasons for its existence, linkages between the sectors and the problems related to the different approaches to measurement.

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[2] The different methods are discussed in detail in Chapter three.

1.2 OBJECTIVES OF THE STUDY

- To present a conceptual and theoretical framework as basis for a study on the nature of and reasons behind informal economic activity as well as important linkages between the different economic sectors;
- To give a descriptive and critical comparative overview of the different methods used internationally to determine the relative contributions of informal sectors;
- To present some empirical evidence from other countries to illustrate the nature and extent of the problem related to the use of different methods;
- To present a case study analysis of the South African informal sector explaining its nature and role and relative size, using the different methods.

1.3 RESEARCH METHODOLOGY AND ORGANISATION OF THE STUDY

The study presents a descriptive overview of the literature related to the nature, reasons behind and role of informal sectors and the importance of proper measurement. The study is also investigative, as the different methods to determine the contribution of the informal sector, are critically explored. The nature of the research methodology is qualitative as well as quantitative and uses secondary data derived from different sources, such as the World Bank and Statistics South Africa. A case study analysis is presented to illustrate the relevance of the measurement problem in the South African context.

The report is structured as follows: Chapter Two presents the theoretical framework and focuses on the various definitions and features of informal economic sectors, on the reasons behind its existence and finally on important linkages between the formal and informal sectors. Chapter Three provides a descriptive and comparative overview of the relevant methods which are used to estimating the size and growth of informal sectors. The relative strengths and weaknesses of each of the methods are explained. It also presents empirical evidence from various countries to illustrate how the use of different methods concentrating on different aspects complicates efforts at comparison. Chapter Four presents a case study analysis of the South African situation. It explains the nature and features of the informal sector, reasons for its existence and the development of official methods by Statistics South African. It compares the official results with the results from other studies by South African researches, employing some of the methods. Chapter Five presents the general conclusion and some recommendations.

CHAPTER TWO: CONCEPTUAL AND THEORETICAL FRAMEWORK

2.1 INTRODUCTION

This chapter lays down the conceptual and theoretical framework. Section 2.2 explains how the definitions of the informal economy developed over time. Section 2.3 focuses on different models of informal economic activity and explains the linkages between the formal and informal sectors, whilst Sections 2.4 identifies the main features. This is followed by Section 2.5, which highlights the reasons why individuals participate in informal activity. Section 2.6 concludes.

2.2 DEFINING THE INFORMAL ECONOMY

The concept of the informal sector was first introduced in 1971 by Keith Hart, at a time when he studied the economic activities in urban Ghana (Hart, 1973). Hart assumed that the traditional sectors would be transformed over time through a combination of resources and appropriate policies. It was further assumed that these informal sectors would ultimately either be absorbed by capitalism or disappear altogether (Wiego, 2011). However, the existence of informal sectors remains a reality in many countries of the world. Over the years, as more knowledge on the informal economy became available, various definitions were used to describe this sector. The informal economy has also been given various titles ranging from underground, second[3], parallel, shadow, etc. (Thomas, 1992: 125). This section firstly discusses the development of the generally accepted definition of the International Labour organisation (ILO) and then refers to some others.

2.2.1 The Development of the ILO definition

The most widely accepted definition relates to the guidelines presented by the ILO. The ILO (1992:1) claimed that the informal economy will appear differently in different countries; as well as in different cities within the same country. Thus criteria used to define the informal economy varied depending on the use to which the term was applied. The definition of the 15th International Conference of Labour Statistics (ICLS) adopted by the ILO in 1993 employed the enterprise approach to identify informal employees. This was a more definitive way of defining the informal economy (ILO, 1993: 5.8 – 5.9): “The informal economy is

[3] See Section 1.1, quoting the former President Thabo Mbeki who referred to the ‘second’ economy.

broadly characterized as consisting of units engaged in the production of goods & services with the primary objective of generating employment and income to the individual concerned".

According to this definition the informal sector comprises of households with market production which relates to (Saunders, 2005:15):

- Informal own-account enterprises, comprising either all own-account enterprises, or only those which are not registered under specific forms of national legislation.
- Alternatively, the informal employers of an enterprise may be defined in terms of the size of the workforce below a specified level, or the non-registration of the enterprise or its employees.

The ILO (2002a: 13) revised the assumption that there are no linkages between the sectors[4], and the revised definition of informal activity included:

- informal employment (referring to individuals employed in the informal economy, i.e. working for small unregistered/ unincorporated businesses). This includes both employees and employers, own account workers and unpaid family members.
- informal employment, which occurs outside the informal businesses. This includes employment in the formal economy and refers to households, no fixed employer, domestic workers, casual workers, part-time workers and unregistered/ undeclared workers

In 2003, the 17th ICLS adopted the guidelines related to the expansion of the informal employment concept in order to complement the 1993 definition (Hussmanns, 2003:12). The 17th ICLS thus complements the 15th ICLS resolution: It defines informal employment as comprising of the total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period (Haussmann, 2003:14).

Table 2.1 illustrates the definition of informal employment according to the 15th and 17th ICLS methods.

[4] See early dualist model, Section 2.3.

Table 2.1: Defining informal employment: 15th ICLS vs. 17th ICLS

		Employment Relationship	
		Formal	Informal
Enterprise	Formal	1	2
	Informal	3	4

Source: Devey et al 2006b: 6

The 15th ICLS is an enterprise approach, defining informal workers as all workers employed by the informal economy. It is the sum of workers in cells 3 and 4. The 17th ICLS definition includes informal employment, irrespective of whether it is in the formal or informal sector. The number of informal employed according to the ILO definition will be the total of workers in these 2 cells (2 and 4).

2.2.2 Other definitions

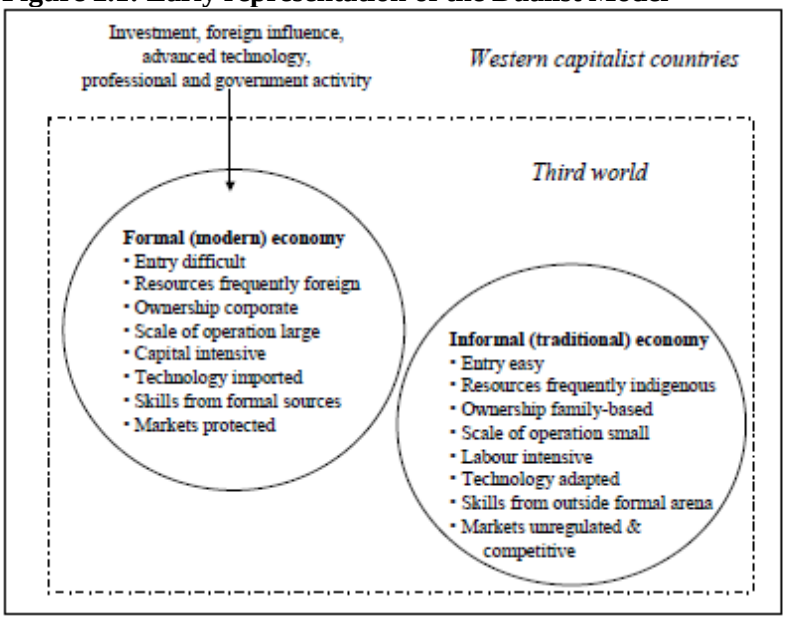
In addition to the ILO definition, there are various other ways in which informal activity is explained, for example:

- All unreported activities which goes unmeasured by society's current techniques for monitoring economic activities (Feige, 1979);
- All activities which contribute to the value added, but which are not currently registered by the national agencies (Schneider, 1986:194);
- The production of goods and services, which escapes the detection in the official estimation of GDP. These activities can be legal and illegal (Smith, 1994:17);
- All economic activities pursued without sanction of the authorities, i.e. which are excluded from the national accounts (Hartzenbergh & Leimann, 1992: 187-188);
- All currently unregistered economic activities that contribute to the officially calculated (or observed) Gross National Product (GNP) (Schneider, 2006: 4).

2.3 THE INFORMAL ECONOMY AS PART OF THE NATIONAL ECONOMY

Devey (2003: 14) provides an illustration of an early version of the dualistic model. From the illustration in Figure 2.1 it is evident that the two sectors have wide diverging features. The formal economy was characterised by factors such as: difficulty to enter the market; dependence of external inputs; economies of scale; advanced and imported technology, whilst in the informal economy entry is easy, resources indigenous and businesses small and mostly family owned.

Figure 2.1: Early representation of the Dualist Model

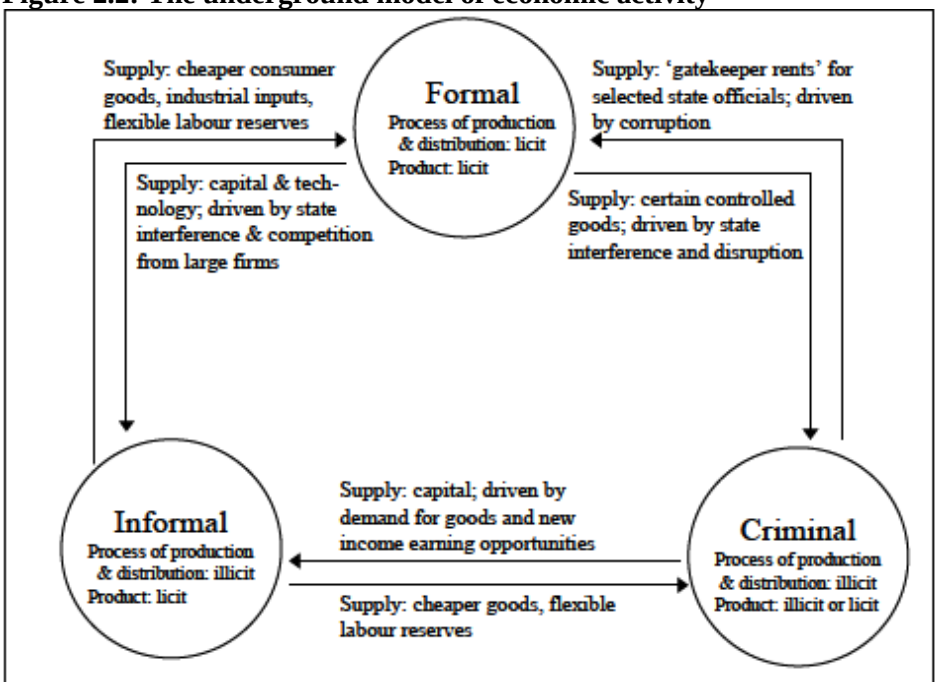


Source: Devey, 2003: 14.

With the introduction of the concept of the informal economy it was assumed that there were no linkages between these two economies (ILO, 1972: 5), as illustrated in Figure 2.1. Under the dualist view the informal economy is seen as survivalist and temporary (Rakowski, 1994: 503). The sector was believed to disappear in developing countries once an adequate level of industrialisation has been accomplished. However, this narrow view of a dualist model changed over time and alternative models appeared.

With the dualist approach there is only the formal and the informal economies, it does not account for any illegal, criminal activities occurring in the country. To detach these activities from the formal economy, the underground model was developed (Rakowski, 1994: 503). This is illustrated by Figure 2.2. The reasoning behind this is though these activities are illegitimate in its production process; the end result may be a legal product.

Figure 2.2: The underground model of economic activity

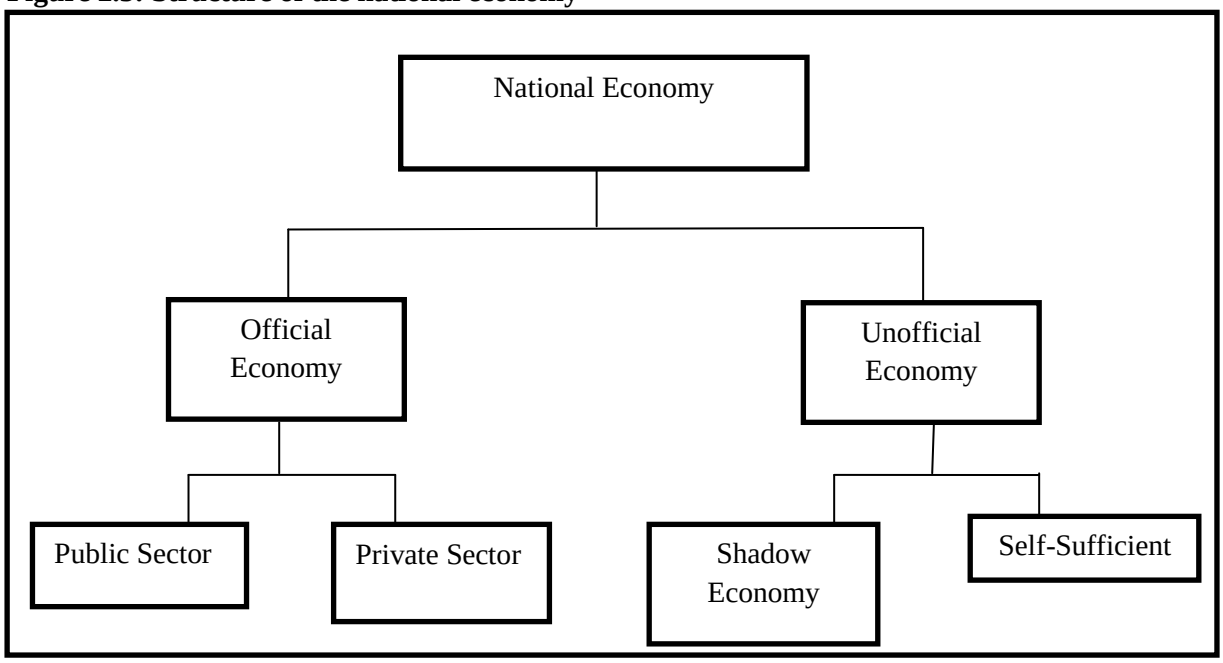


Source: Castells & Portes, 1989: 14

According to this model the informal economy originated from the following causes: economic crises, industrialisation and the attempts to counter labour regulations (Castells & Portes, 1989: 28). This was confirmed by the growth of the informal economy as a result of the economic crises in Latin America in the 1980's and in Asia in the 1990's (Devey, 2003; 16). From Figure 2.2 it is evident that the underground model acknowledges and identifies definite linkages between the formal and the informal economies.

Schneider's (2003) model of a dual economy as illustrated in Figure 2.3 shows how the national economy is divided into the official (or formal) and the unofficial (informal or secondary activities).

Figure 2.3: Structure of the national economy



Source: Schneider, 2003:5

The official economy can be divided into the public sector (comprising of general government and state-owned enterprises) and the private sector (producers of goods and services which are taxed and regulated by the public sector, but produced by households and firms). The unofficial/informal economy is that part which is not completely captured in the national accounting figures. The unofficial economy can be divided into self-sufficient (this is for individual need) and the shadow economy relating to market transactions (which are often hidden from authorities and therefore not included in the calculation of national product).

There are important linkages between the unofficial and official sectors of the national economy. Firstly it is evident from this model that informal businesses have either production or distribution relationships with enterprises of the formal economy, i.e. through the supply of inputs, finished goods and services (Moser, 1994; 20). These occur either through direct transactions or through subcontracting between the two economies.

The informal sector provides employment and secures income which will be partly spent in the formal sector. Non-agricultural informal employment accounts for more than fifty per cent of the labour force of developing countries (ILO, 2002a: 17). These percentages vary according to the specific continent. The informal economy employs 51% of the population in Latin America, 65% in Asia and 72% in sub-Saharan Africa (ILO, 2002a: 17). The

percentage of individuals employed in the informal economy is higher in developing than in developed economies. Some informal workers may also be employed in the formal sector.

This means that there are financial flows between the formal and informal sector. Wages are also paid to informal workers who are employed in the formal sector. Incomes of households in the informal sectors are also strongly supplemented by various types of social security grants. Informal enterprises may borrow from financial institutions in the formal sector. Income received in the informal economy is almost immediately spent on goods and services from the formal economy. This will boost the level of expenditure in the formal economy and ultimately stimulate economic growth.

If there is a demand in the economy for small manufacturing firms, these firms will probably originate in the informal sector. This will result in a seedbed for entrepreneurship in the informal economy as these individual businesses are operating as micro-enterprises. This will lead to an increase in competition and higher levels of economic efficiency. It will also limit the need for government intervention in the economy, resulting in an increase in the potential for economic growth.

It is meaningful that the USAID mission suggests the inclusion of the informal economy in pro-poor planning initiatives through Local Economic Development (LED) (USAID, 2011). To promote LED there is an increasing need to emphasise the importance and assist with promoting the informal economy through LED strategies and initiatives. An increase in the performance of the informal economy is achievable through improvement of the LED process as it will provide the sector with better infrastructure (Hobson, 2011: 7).

Because of the important linkages between the sectors, it is important that the specific nature and role of the informal sector should be investigated and its contribution to GDP and informal employment be accurately determined. According to the ILO (2002: 13) the accurate measurement of the informal economy will assist in the improving economic forecasts and modelling of economic performance as well as market behaviour.

2.4 MAIN FEATURES OF THE INFORMAL ECONOMY

In 1972 the International Labour Organization (ILO) in its report on to the informal economy in Kenya mentioned the following features according to which economic activity can be classified as informal:

- Easy access to the activity
- Usage of the local resources
- Family ownership of the enterprises
- Reduced scale of activity
- Labour-intensive activities
- Non-regulated competitive market
- Low qualifications and skills of the workers

Swaminathan (1991:9) referred to Sethuraman (1976) who mentioned similar features to identify informal sector enterprises. Sethuraman however added three additional features:

- Not using electricity
- No fixed hours of operation
- Operates in semi-permanent or temporary structure in a variety of locations

Some of these features are briefly discussed in the following paragraphs.

Enterprises in the informal economy are generally family owned and employ only a few workers.[5] Activities are also mostly labour intensive, use local resources and require a low level of skill. Individuals employed in this sector of the economy predominantly have only primary school education or they are totally uneducated. Gerxhani (2004: 273-274) claims that only 4% of individuals operating in the informal economy completed an education level exceeding primary level, while 51% completed primary school. The majority of persons associated with informal enterprises have fewer than six years of schooling. There is also a difference between the level of education of informal employees versus that of employers in the sector. Informal employers generally have a higher level of education than employees in the sector.

Demographic indicators determine the employment as well as earning possibilities (Sethuramann, 1976: 74). A large portion of the informal employees are women. Women constitute 35% of the labour force in developing countries and 67% participate in the informal

[5] Regarding the size of the informal enterprise, when there are fewer than 5 regular workers, the enterprise is classified as small before the employees are classified as informal in general. But there are exceptions: fewer than 50 workers are used as criterion by Devey et al. and Essop and Yu; fewer than 10 workers is used in a study by Bekkers and Stoffers (1995) to define informal enterprises in Pakistan.

economy (McKeever, 1998: 1224). Women in the informal economy also earn lower wages than their male counterparts and have the less desirable, unskilled jobs. Women in this sector are also more likely to be employees rather than employers. Jobs in the informal economy are also gender specific, with women mainly participating in order to survive (Devey, 2003: 22-23).

The income of informal workers is also relatively lower than that of formal employees (Devey; 2003: 23). Working conditions of the employees in this sector are poor, with irregular hours of work and even irregular days to be worked. Characteristics of the labour market in this sector are lack of social benefits, sub-minimum wages and poor working conditions (Gerxhani, 2004: 273-274).

Informal enterprises normally operate in semi-permanent or temporary structures and often do not use electricity. These enterprises also in general do not rely on formal financial institutions for funding. The location of work also varies between small shops, homes, workshops on the street, etc. (ILO, 2002: 9). As a result of these different locations the World Bank (2001a) suggested 'location' as an easy basis according to which informal activity can be identified. The World Bank identified four categories of informal workers on this basis:

- dependent and independent home-based workers;
- street traders and street vendors;
- seasonal and temporary workers on building sites or road works;
- workers in-between the streets and home, such as waste collectors.

The informal economy can be described as the unregulated non-formal portion of the economy which produces goods and services as a means to earn an income/wage (Becker, 2004: 12). Furthermore, Schneider (2003:5) distinguishes between legal and illegal informal activities. Legal activities relate to income from self-employment, wages, salaries and assets from unreported work. Mohr (2007:31) refers to hawking, trading on flea-markets and backyard repair work as legal informal activity. Under illegal activities there are monetary (trade with stolen goods, manufacturing of and dealing in drugs, prostitution, gambling, etc) and non-monetary or barter transactions (barter of drugs, stolen goods, smuggling, growing drugs, theft for own use). These types of transactions provide ample opportunity for tax avoidance and tax evasion. Additional types of jobs include casual workers in restaurants and hotels, casual or day labourers in construction and agriculture, sub-contracted janitors and security guards, garment makers, and assemblers (ILO, 2002a: 9)

2.5 REASONS FOR PARTICIPATING IN INFORMAL ACTIVITY

Whereas individuals from a developing economy has no alternative but to participate in the informal economy as they are unable to find employment in the formal economy (Gerxhani, 2004: 271-273).

The reasons for participating in informal activity are determinants of the relative size of the informal sector.

2.5.1 Fluctuations in economic activity

Growth in the informal economy can be explained in terms of business cycles. Economists recognised that during economic crises and downturn informal employment has the tendency of expanding (Giles, 1997:1). A study by Loayza *et al* (2005: 7-17) proves that informal activity has a counter cyclical relationship with business cycle. Giles (1997) further claims that necessity or choices are drivers for growth in the informal economy. Necessity refers to the individual being obliged to participate in the informal economy as a survivalist strategy. This is as a result of being retrenched from his/hers formal employment due to a downturn in economic activity. A choice driver refers to an individual who takes up employment in the informal economy as an entrepreneurial effort. The major operating cost of any business is labour. Therefore, during economic downturns employers tend to retrench workers, leaving them to find other means of income. They mostly turn to the informal sector as a means of survival (Ranis & Stewart, 1999; Tokman, 2001). This also results in a deterioration of employment standards.

It should be noted that an increase in economic growth does not automatically imply that informal employees will move back to the formal economy. A country may experience an increase in economic growth without an accompanying increase in formal employment. This phenomenon is referred to as jobless growth[6]. In such a case the economy may be unable to create sufficient jobs for the unemployed and the new entrants to the labour market, which will increase the level of unemployment in the formal economy and ultimately the size of the informal economy.

[6] There are two ways to define jobless growth; first definition entails that an increase in real GDP is accompanied by a decrease in the level of employment in the country. The second definition states that there is an increase in real GDP but the rate of unemployment is also increasing (Altman, 2006: 9).

In many developing countries, the public and private sectors of the formal economy are unable to create enough jobs to absorb the labour force and these countries have high unemployment rates. As a result of this, the level of self-employment rises as the only means of survival (Hobson; 2011:3). Individuals from a developing economy have no alternative but to participate in informal activity as they are unable to find employment in the formal economy (Gerxhani, 2004: 271-273). The informal economy is seen as a temporary solution to their dire situation (Meng; 2001:15).

As a result of fluctuations in economic activity, the informal economy is particularly important in the poorer countries for the opportunities that they provide in terms of employment and income generation. The informal economy should thus be seen as complementary to the formal economy as it fills the gap which the government and the formal economy are unable to do (Choi & Thum, 2005:2).

2.5.2 Regulatory environment

Another important factor contributing to the growth of the informal economy is the increase in the intensity of regulation in the formal economy. Many economic agents are driven from the formal to the informal economy in their attempt to escape the rising regulatory costs associated with the formal economy, i.e. licence fees, registration costs, taxes as well as labour and goods market regulation (Loayza, 1996:1). With increased regulation there is a decrease in the freedom of employees and employers in the formal sector (Schneider, 2005:7). Regulation in this instance refers to barriers to entry into these markets (such as licensing), the labour restrictions on foreigners, as well as the labour laws of a specific country (Greenridge *et al*, 2009:5). Regulation also leads to an increase in the indirect cost of labour in the formal economy, reducing the demand for this labour in the formal sector of the economy. This will cause an increase in the number of individuals entering the informal economy.

Regulation has been seen as the principal factor to explain the bottleneck caused by economic policy. Regulation hinders the growth of employment in the formal economy, motivating individuals to withdraw their supply of labour from the formal economy and instead presenting it in the informal economy. A study by Loyaza, Oviedo & Serven (2005) linked the lower levels of economic growth to higher levels of regulation within countries. This is particularly the case with regulation in product and labour markets. It creates an incentive for firms to work outside of the legal framework.

One of the conditions of employment is related to the minimum hours worked. The rigid time structure inhibits the flexibility that some individuals prefer. This is especially true in the case of females in the work place. There is an extent of freedom associated with participating in the informal economy, related to flexibility of working hours and working conditions. Studies on the gender segmentation of the informal economy indicate that there are more women participating in the informal activity and one of the reasons is flexibility in their working hours. Furthermore, in addition the feminisation of labour has led to an increase in the number of women participating in the labour market. This has led to an increase in the supply of labour by women, affecting the number of hours worked, the number of self-employed and the number of part-time workers. Flexible working hours allows females to maintain a balance between their family responsibilities and work.

2.5.3 The tax policy arrangement / tax morale

There is an agreement amongst most researchers in this field (Feige, 1989; Tanzi, 1999; Schneider, 2002) that tax and social security contributions is a major factor as to why individuals participate in informal activity. Tax morality relates to individuals' readiness to leave the official economy and enter into the activities of the informal economy. Participation in informal activity allows for the under-reporting of income and opportunity to evade taxes (Gerxhani, 2004:273-274). The cost of labour is indirectly increased by factors such as tax payments and social security contributions. These factors are mainly prevalent in the formal economy and may therefore drive economic activity into the informal sector. Increases in either or both of these factors will drive the growth of the informal economy (Schneider, 2003: 5) and are especially relevant in the case of developed countries.

Individuals that are active in the informal economy often participate with the intention of evading and avoiding taxes (Gerxhani, 2004:273-274). The greater the potential tax liability, the greater the distortion between gross and net earnings, resulting in a greater incentive for individuals to participate in the informal economy. Schneider (2002) and Kaufmann and Johnson (1998) found statistical evidence which substantiate their argument that the tax policy of a country impacts on the existence and expansion of the informal economy. For example, in the case of Austria and Scandinavia studies proved that both the indirect and direct tax policies of these countries strongly influenced the extent of informal economic activity (Schneider, 2005:6).

This can be explained as a substitution effect of increasing taxes where the tax policy acts as incentive for individuals to withdraw their participation in the formal economy and rather to participate in the informal sector with the belief that they will escape from government's regulatory measures. This relief comes in the form of avoiding and evading taxation and not having to comply with the regulations related to both the product and labour markets.

2.5.4 Migration

Firstly, rural to urban migration impacts on the size of the informal sector. An influx of migrant workers from rural to urban areas results in an increase in the number of job seekers in these areas. If these migrant workers are unable to find work in the formal economy they tend to participate in the informal economy. These migrants are normally low or unskilled workers who move to urban areas with hope of finding work (Zhoa, 1999:11). Empirical evidence indicates that the main reason for migration to urban areas is potential higher wages. It may be that these individuals earn a higher wage as a migrant than they would have if they remained in the rural areas and worked as non-farm and farm sectors (Zhoa, 1999:11). Farm sectors refer to employment in the agricultural sector, i.e. some sort of farm work, while non-farm refers to employment in all other sectors. Furthermore, the belief amongst these migrants is that their employment in the informal economy is temporary and that if they remain in the urban centers long enough, they will eventually manage to finds employment in the formal economy (Meng, 2001:15).

Secondly migration from poorer countries to countries that are perceived to be richer also influences the size of the informal sector. Many unemployed people from previously colonised countries migrate to the countries of the colonial powers in search of employment opportunities and may be temporarily or permanently active in informal sectors.

2.6 CONCLUDING REMARKS

This chapter firstly provided an overview of the literature on the informal sector. It defined the informal sector and explained the development of the formal definition under the guidance of the ILO. The latest definition includes informal employment in the formal sector. It then explained how economic thought regarding the informal sector developed, from the early version of the dualistic model, where it was assumed that there were no linkages between the sectors to the more recent thinking according to which important linkages between the sectors are acknowledged. When investigating the nature of the informal sector,

it is best to analyse the economy holistically and not the different sectors in isolation as many linkages exists between these two economies. Viewing them independently can result in an inaccurate view of the performance of the economies.

The chapter also focus on the main features of informal activity, which may be legal or illegal, registered or unregistered. Enterprises are mostly family owned, make use of local resources and are labour intensive. Incomes are relatively low and working conditions insecure. A high proportion of informal employees are woman who find the less rigid environment more conducive to their needs. Employees in the sector are mostly unskilled with only a few years of formal education.

It is also interesting why people are active in the informal sector. It developing countries with great unemployment and poverty, informal activity is more of a survivalist strategy than a sign or entrepreneurship and it relates to the extent of unemployment in the formal sector. Individuals from more developed economies choose to partake in the informal economy for more autonomy, flexibility and freedom as opposed to a survivalist strategy. Their decision is influenced by the possibility to avoid and evade taxes and the extent of regulation.

An increase in informal activities will increase the level of interaction between the two sectors of the economy. From the literature it is clear that developed as well as developing countries experienced an increase in the relative size of their informal sectors in recent years. Policy makers, particularly in developing countries, can no longer ignore the important role of the informal sectors in terms of employment and poverty relief.

However, as explained in Section 1.1 there is no consensus on which methods would be the most appropriate to determine the relative size of the informal sector and the different methods also focus on different aspects related to the role of the informal sector. Chapter three presents a critical overview of the different methods that can be used to measure the relative size of informal economic activity in a country.

CHAPTER THREE: METHODS OF ESTIMATION & EMPIRICAL EVIDENCE

3.1 INTRODUCTION

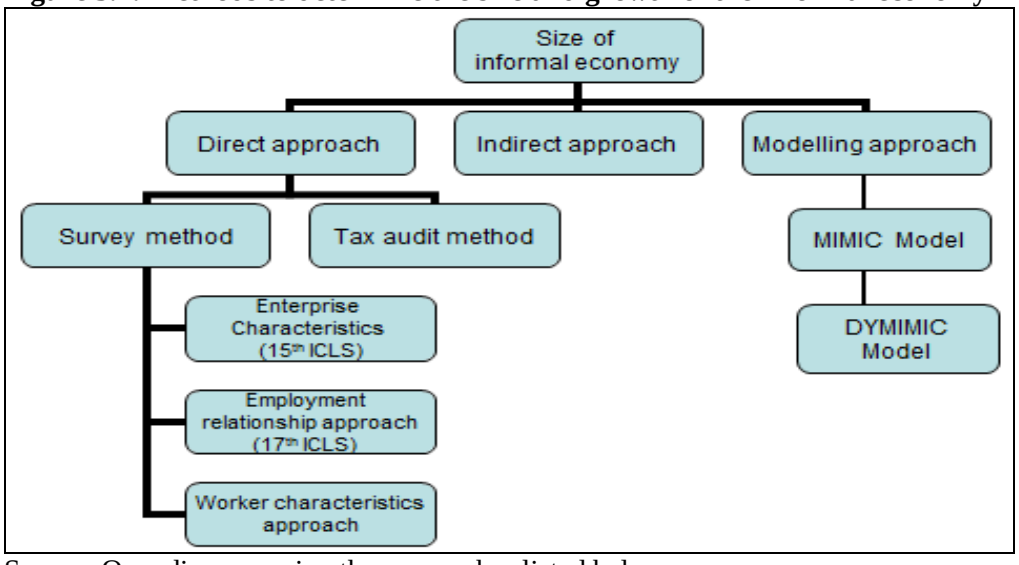
This chapter provides an appraisal of the different methods that are used to determine the relative size and growth of the informal economy. The aim with this chapter is to illustrate the nature and extent of the problem related to use of such a variety of methods by official institutions as well as international researchers.

It firstly (in Section 3.2) classifies the various methods into different categories. Sections 3.3 to 3.5 present a descriptive and comparative overview of the different approaches. Section 3.6 presents empirical evidence from developed, transitional and developing countries on the size and growth of their respective informal sectors[7] and on the various estimates achieved by using the different methods.

3.2 APPROACHES TO MEASUREMENT

To estimate the size and growth of the informal economy, a number of methods can be used. These methods can be classified into three categories: direct, indirect and model approaches with some subcategories under each as illustrated in Figure 3.1. The different models are discussed in the following sub-sections.

Figure 3.1: Methods to determine the size and growth of the informal economy



Source: Own diagram using the approaches listed below

[7] The size and growth of the South African informal economy are discussed in Chapter 4.

The anagram above shows the various methods to measure the informal economy. Direct approaches refer to the survey and tax audit approach. In terms of the indirect approaches there are numerous ways of estimating the size of the informal economy. This study will focus on the following five methods: the discrepancy between national expenditure and income approach, the discrepancy between actual and observed labour, the transaction approach, the currency demand approach and the physical input method. There are two methods under the model approach namely to the MIMIC and DYMIMIC approach.

3.3 DIRECT APPROACHES

Direct approaches are also known as micro approaches. These approaches employ a survey-based technique to quantity the informal economy. There are two types of direct approaches, namely the survey and tax auditing methods.

3.3.1 Survey method

This method uses a well-designed survey and sample base to quantify the size of informal employment (Schneider, 2003:44). To obtain the necessary and correct information from participants, the structure of the survey is vitally important. The survey has to be phrased in such a way that the information gathered is what the researcher requires to substantiate his/her argument. It "…includes prompts describing different types of work and payment and allows a relatively precise identification of work that is in legal terms taxable" (OECD Employment Outlook, 2004:2). When conducting a survey, the researchers realise that they cannot expect all citizens to participate, due to the limitations of the study. These limitations refer to cost and time constraints when conducting a survey. It is impossible to interview all the citizens of a country. Therefore, a sample will be used which will represent the country as a whole. The sample is normally based on voluntary responses from individuals operating in the informal economy or through tax audits or other compliance methods. In general, three phases are involved in a survey approach which is known as the 1-2-3 survey (Saunders, 2005: 65). The phases are as follows:

- Gather information pertaining to the labour force.
- Distinguish informal employees from formal workers.
- Gather information about the income and expenditure.

This approach gives the researcher detailed information on the nature of informal economic activities as well as on the structure of informal employment, in terms of self-employed or

employees in the informal economy. It does not quantify the size of the informal economy in terms of value. To identify the informal workers, there are three commonly used approaches under the survey method:

- *Enterprise-based*: An individual is identified as an informal worker as long as the employment is with an informal/unregistered enterprise.
- *Employment relationship*: An individual is identified as an informal worker if certain employment benefits are lacking or if the employment is characterised by inferior working conditions, such as lack of medical aid, pension fund, paid leave, permanent employment or retirement benefits. The individual is classified as an informal employee irrespective of the company's registration (Heintz & Posel 2008).
- *Worker characteristics*: This approach is most commonly used in Latin America (Henley, Arabsheibani & Carnerio, 2006; Gasparini & Tornarolli, 2007). Characteristics of the workers such as educational attainment, skills level of occupation, remuneration, as well as public/private sector status are used to identify informal workers.[8]

The main advantage of the survey approach is that it provides detailed information; for example on the demography and work profile of the informal workers, such as race, gender, the province they are residing in, skills level, etc. However, the results from this type of approach are very sensitive to the way in which the survey has been formulated (Schneider, 2002:30). The detailed information retrieved from a survey not only gives researchers valuable insight into the structure of the informal economy, but also into its geographical patterns.

This approach is not without shortcomings. The main disadvantage is an issue that is experienced with all surveys, which relates to the individuals' willingness to cooperate fully. Furthermore, it is difficult to quantify undeclared work with the survey approach (Giles, 1997). According to Saunders (2005:65), complete coverage of the informal economy, without omissions and duplications, is difficult due to the cost implications and limited resources. These estimates are then used to reflect the situation within a country.

[8] An individual working in the public sector will be defined as a formal worker because these workers have written contracts, retirement funds, etc.

In addition, respondents are often hesitant as they are required to declare their participation in the informal economy and they fear that they will be caught. Their responses would thus be uncertain and unreliable. The reason for their fears relates mainly to tax evasion or illegal or unlicensed activities. This approach makes it extremely difficult to determine any real estimate in monetary terms (Schneider, 2002: 31).

This approach is used in countries such as Canada, Britain, Germany, USA, Brazil and South Africa. In South Africa, this has been the most commonly used approach over the years. (See Chapter Four for more specific information.)

3.3.2 Tax auditing method

This method aims to assess the discrepancy between the amount of income declared for tax purposes and selective checks[9]. Selective checks refer to the tax audits conducted by the Internal Revenue Service (IRS)[10]. However, such selective checks are standard practice in most countries. The difference between the income submitted for tax purposes and that which is calculated by tax audits leads to information on the size of the informal economy (Frey and Pommerehne, 1984). This approach provides information on the strongest evaders, in particular the self-employed who have better opportunities for concealment (Frey & Schneider, 2000). It has become evident that fiscal auditing programs are very effective in this regard (Schneider, 2003:45). The tax auditing method is designed to measure the amount of undeclared taxable income. It can also be used to calculate the size of the informal economy. However, the primary objective of this approach is more efficient tax collection. Estimating the size of the informal economy is thus only a secondary objective.

This approach also has problems. Schneider (2003:45) claims that the disadvantage of this approach is that the tax payers surveyed by this method are not randomly selected, but is rather chosen based on submission of their (tax) returns. As explained earlier, the main aim is revenue maximization. But, by these random checks the authorities pick up tax evasion with may be rife in the informal economy. It also does not provide a holistic view of the income earned in the informal economy. The income that the authorities discover is but a portion of the income earned in this sector. Therefore, this approach would provide a lower bound estimate, but the trend can be significant. The estimates based on this technique do not provide complete information about the size of the informal economy and therefore the

[9] Selective checks are to validate tax returns.
[10] The IRS is the USA tax institution.

results tend to be biased (Greenridge, Holder & Mayers, 2009: 202). Another shortcoming of this method is that it only uncovers a fraction of the income earned in the informal economy (Saunders, 2003:45). It is also unable to reveal all incidence of tax evasion and is limited to taxable activities (Frey & Schneider, 2000).

This approach is used in a number of countries such as Canada, Italy and the USA, etc.

3.4 INDIRECT APPROACHES

These are mainly macroeconomic approaches, also known as indicator approaches. These methods use various macroeconomic indicators to determine the size and development of the informal economy over a period of time.

3.4.1 Discrepancy between national expenditure and income

This method estimates the size of the informal economy based on the discrepancy between national income and national expenditure. There are three methods to estimate Gross National Product (GNP), in essence measuring the same thing, although at different points in the circular flow[11] (Mohr & Fourie, 2008). Therefore all three of these methods should yield the same result in principle. The national accounting of the income method of calculating GNP should thus equal the expenditure method of GNP, ex-post.

The income approach takes into account income earned by various factors of production, i.e. labour, capital, land, intellectual property & entrepreneurship. The factor income earned by each factor of production is as follows: wage (labour), rent (land), interest (capital), royalties (intellectual property) and profit (entrepreneurs) (Mohr & Fourie, 2008).

The expenditure approach is an output accounting method which focuses on expenditure within an economy. It provides a detailed analysis of total spending; focusing on real growth rates.

GDP = **C** + **I** + **G** + (**X** - **M**)

Where:

- **C** = household consumption expenditures / personal consumption expenditures,

[11]There are three methods to calculate GDP, namely the income, the expenditure and production methods. However, for this approach we will only focus on the income and expenditure methods.

- **I** = gross private domestic investment,
- **G** = government consumption and gross investment expenditures,
- **X** = gross exports of goods and services and
- **M** = gross imports of goods and services.

This approach is effective as it uses two independent datasets which measures the GNP while using the same concepts. The discrepancy between expenditure & income methods estimates the net effect of the informal economy by establishing the difference between the two aggregates. This approach can be used to estimate particular components of the informal economy. It is, however, only applicable if there are two independent data sources measuring the same thing which may not always be the case (Saunders, 2005:66). The gap between the expenditure method and the income method can be used as an indicator of the scope of the informal economy (Schneider, 2003: 33). The income approach estimates of GDP are at factor cost, whereas the expenditure method is at market prices (Mohr & Fourie, 2008). The results of the income approach first have to be converted to market prices before any analysis can be done. To convert to market price, the two approaches need to be converted to Gross National Income (GNI) and Gross National Expenditure (GNE). These discrepancies are seldom reflected in the official report of GDP.

The differences are due to the fact that the activities of the informal expenditure are mainly paid for in cash. There is no way of monitoring this income. This would result in an under-estimation of income in the economy, thereby leading to the discrepancy between income and expenditure (Jeffreys & Walters: 10[12]). The data is normally revised if large discrepancies exist. Saunders (2005, 63-64) claims that the final reported difference, known as the residual item, is not efficient for the estimation of the informal economy. Therefore, many statisticians are weary about these discrepancies and would want to minimise it as much as possible. In the calculation of GNP, many factors which are initially included in the calculation are later removed, such as seasonality. It is for this reason that the first estimate should be used to determine the size of the informal economy, instead of the published results which are manipulated and would give a questionable estimate (Schneider, 2003: 33).

This approach has been used in countries such as Germany, Italy, Canada, and USA.

[12] Year of publication is unknown.

3.4.2 Discrepancy between official and actual labour force

This approach relies on survey data to estimate the size of the economically active labour force in the informal economy (Saunders, 2005: 68). If there is a decline in the participation rate of the labour force in the official economy, it is assumed that there would be an associate increase in the activities of the informal economy. In this regard, it is assumed that the total labour force participation rate is constant and that a decrease in the rate of participation in the formal economy could be an indication of an increase in the participation in the informal economy, *ceteris paribus* (Contini, 1981).

A weakness of this approach is that a decrease in labour force participation can be as a result of a number of other reasons. It can be attributed to demographical reasons (fertility rates, mortality, etc.), the impact of HIV/AIDS on the supply of labour, immigration and emigration (Barker, 2007: 17-23). Furthermore, it is possible to have an outcome where individuals are actively participating in both the informal and formal economies, thus rendering this approach less reliable.

3.4.3 Transaction approach

In 1979 Feige developed the transaction method by utilising information on the overall volume of transactions in the total economy (Greenridge, Holder & Mayer, 2009: 206). This model is based on the assumption that there is a constant relationship over time between the volume of transactions and the official GNP (Feige, 1996). This in turn can be used to estimate the value of unrecorded income. This approach uses the Fisherian quantity equation to estimate the size of the informal economy.

The equation is as follows (Schneider, 2003:35):

$$M * V = p * T$$

Where: M= money; V= Velocity; P = Price and T = Total transactions.

If the total value of transactions i.e. both the official and the unofficial transactions are unknown then it is possible to estimate the total value of payments (MV).

$$(py)* = (py)r + (py)u$$

And

$$CVc + DVd = PT$$

Where

- $(py)*$ = Total income;

- $(py)r =$ Recorded income;
- $(py)u =$ Unrecorded income;
- $C =$ Currency;
- $Vc =$ Currency velocity;
- $D =$ Checkable deposits;
- $Vd =$ Checkable deposits velocity and
- $PT =$ Total transactions

Assumption: if the total transactions are proportional to total income then the equation will be stated as follows:

$$(PT)/(py)^* = k^*(CVc + DVd)/(py)^*$$

And

$$(py)u = [(CVc + DVd)/k^*] - (py)r = (py)^* - (py)r$$

k^* is the benchmark parameter

One of the assumptions of this approach is that a benchmark year is determined and for this year it is assumed that there was no undeclared income. In addition, for the benchmark year (or base year) the size of the informal economy in the country would equal zero. As a result of the benchmark parameter (k*), it is then possible to estimate the amount of unrecorded income. The second assumption of this approach is that it implies that to establish the benchmark it must be assumed that accurate data exists for a particular period of time where all income is properly recorded (Saunders, 2005: 69-71).

One of the weaknesses of this approach relates to the second assumption of the model. This refers to the velocity of money and the relationships between the value of total transactions (p^*T) and total (unofficial + official) nominal GNP. By relating total nominal GNP to total transactions, the size of the informal economy can be calculated by subtracting the official GNP from the total nominal GNP. To assume that all variations between total value transactions and the official GNP is as a result of the informal economy is another weakness of the transactional approach. As stated by Schneider (2003), extremely doubtful results will be obtained from this approach due to the amount of data that the model requires.

This approach has been used in countries such as the USA, Germany, Britain, Canada, Italy and Cyprus.

3.4.4 Currency demand approach

The currency demand approach was first introduced by Cagan in 1958 He calculated the correlation between the currency demand and the tax burden for the United States over the period 1919 to 1955 (Schneider, 2003: 45). In 1977, this approach was used by Gutmann who applied it without the use of any sophisticated statistical procedures, i.e. econometric modelling, to estimate the correlation between the demand for currency and tax policy. Gutmann simply decomposed the US money supply, M1, into two components, currency and demand deposits (Georgiou, 2007: 6). In this approach it is assumed that all informal economic activity takes place using cash as a means of exchange and therefore an increase in the demand for cash would indicate an expansion of the informal economy (Greenridge et al, 2009: 207).

This approach was further developed by Tanzi in 1980 & 1983. Tanzi used econometric estimates of the currency demand approach for the US between 1929 and 1980 to calculate the activities of the informal economy. His approach assumes that the informal economy operates on a cash basis, leaving no observable traces for the authorities to track. Thus an increase in the size of the informal economy would be an increase in the demand for currency.

An equation for the demand for currency has econometrically been estimated over time. In this model all possible conventional factors such as the generation of income, payment habits and interest rates are incorporated (Schneider, 2003:45). Also included in the equation are variables such as the direct and indirect tax burden, government regulation as well as the complexity of the tax system, which are all contributing factors why people participate in informal activity.

The basic regression equation for the currency demand is as follows (Tanzi, 1983):

$$In(C/M2)t = \beta 0 + \beta 1 In(1+TW)t + \beta 2 In(WS/Y)t + \beta 3 InRt + \beta 3 In(Y/N)t + \mu t$$

$$With\ \beta 1 > 0, \beta 2 > 0, \beta 3 > 0$$

Where Ln denotes natural Logarithms

- C/M2 is the ratio of cash holdings to current & deposit accounts;
- TW is a weighted average tax rate;
- WS/Y is a proportion of wages and salaries in the national income (to capture changing payment and money holding patterns);
- R is the interest paid on saving deposits (to capture the opportunity cost of holding cash) and
- Y/N is the per capita income.

Thus any excess increase in currency which is unexplained by the conventional or normal factors mentioned above is attributed to the rising tax burden and the various other reasons why people participate in the informal economy, as explained in Section 2.5. The model assumes the same income velocity for currency used in the informal economy as for the M1 in the official economy (Caridi & Passerini, 2001).

According to Schneider (2003: 45), this is the most commonly used approach, although there are shortcomings. In their survey of the Norwegian informal economy Isachen & Storm (1985) discovered that only 80% of activities in the informal economy were paid for in cash. This leads to the conclusion that the informal economy could have been larger than estimated, as this approach excludes bartering. The second criticism is that most of the studies using this method only consider the tax burden as a cause of informal activity. As explained in Section 2.5, there is an array of other factors that could also be considered such as tax payer attitude, the impact of regulation, etc.

The currency demand approach entails that any increase in the demand for currency relates to the expansion of the informal economy. This is however not always the case. An increase in demand for currency is not always as a result of informal activity only. In 1996, Feige found that the reason for the increase in currency demand deposits was largely as a result of the slowdown in the demand deposits and not due to an increase in informal activity.

The assumption that there is no informal economy is largely disputed. Relaxing this assumption would imply an upward adjustment in the size of the informal economy (Schneider, 2003:47). In addition to this, econometric results are sensitive to choice of period. This means that the results could have been influenced by exogenous shocks which may have occurred during the period.

This approach has been used in a number of countries such as the USA, Germany, Britain, Canada, Italy, Cyprus, Belgium, Denmark, Finland, France, Switzerland, Netherlands, Norway, Australia, New Zealand and South Africa.

3.4.5 Physical input method: electricity consumption

The physical input method assumes that the ratio of electricity used to the GDP can be econometrically estimated and that any deviation from the expected levels can be attributed

to informal economic activity (Flemming, Roman & Farrell, 2000: 400). There are two methods to this approach because of different assumptions by Kauffmann- Kaliberda and Lackó.

3.4.5.1 Kaufmann – Kaliberda Method

This method measures the overall economic activity in both the official and unofficial economies. The method assumes that consumption of electricity is the single best physical overall indicator for economic activity. It implies that the growth in the total electricity consumption is an indicator of growth of overall GDP. Their argument is that the growth in the consumption of electricity relates to the extent of economic activity (Saunders, 2005: 75). This is a proxy measurement as it may act as a reason for the growth in both economies. By using this proxy for the overall economy, the difference between the growth rate of the formal economy and the consumption of electricity indicates the size of the informal economy.

Schneider (2003: 50-52) criticised this approach because not all informal economic activity require large volumes of electricity. (Examples may be fisherman, taxis and vendors selling things on the street.) Thus only part of the informal economy will be captured when this approach is used. Secondly, over time there have been various technological improvements which could have resulted in the more efficient use of electricity. Furthermore, there could also be considerable difference in the price elasticity of electricity consumption across countries.

3.4.5.2 Lackó method

This method assumes that a certain part of the informal economy is associated with household consumption of electricity. It is further assumed that in countries where the informal economy's consumption of household electricity is high, the rest of the informal activity will also be high, as many informal goods and services are provided from the participants' homes. The method assumes that part of the households' consumption of electricity is used to participate in the informal economy.

The Lackó method uses regression analysis to describe the impact of these factors which determine the consumption of electricity by households. The following equation is used to illustrate the effect of these factors on the informal economy (Saunders, 2005: 76):

$$In(ER)t = \alpha 1In(C)t + \alpha 2In(AG)i + \alpha 3In(G)i + \alpha 3In(Q)i + \alpha 5In(PR)i + \alpha 5In(H)i + \mu i \qquad eq(1)$$

With

$$\alpha 1 > 0, \alpha 2 > 0, \alpha 3 > 0, \alpha 3 > 0, \alpha 5 > 0, \alpha 6 > 0$$

And

$$Hi = \beta 1(T)i + \beta 2(S - T)i + \beta 3(D)i \qquad eq \quad (2)$$

$$\beta 1 > 0, \beta 2 > 0, \beta 3 > 0$$

Where:

- i = country;
- ER = per capita household electricity consumption (kWh);
- C = per capita real consumption of households, (at purchasing power)
- AG = agricultural ratio in total official GDP;
- G = index for the weather differences;
- Q = the total ratio of other energy sources other than electricity;
- PR = real price of consumption of one kWh of residential electricity;
- H = per capita output of the informal economy;
- T = the ratio of the sum of paid personal income, corporate profit and taxes paid on goods and services to GDP;
- S = the ratio of public social welfare expenditure to GDP;
- D = the sum of dependents over 13 years and inactive earners per 100 active earners.

To obtain the per capita output of the informal sector the second equation has to be substituted into the first equation, i.e.

$$Ln(ER)_t = \alpha_1 Ln(C)_t + \alpha_2 Ln(AG)_i + \alpha_3 Ln(G)_i + \alpha_3 Ln(Q)_i + \alpha_5 Ln(PR)_i + \alpha_5 Ln(\boldsymbol{\beta_1}(T)_i + \boldsymbol{\beta_2}(S\text{-}T)_i + \boldsymbol{\beta_3}(D)_i) + \mu i$$

However, this still does not determine the informal economy's contribution to GDP. To be able to obtain this estimate the contribution of one unit of electricity to GDP has to be known. To determine the size of the informal economy, the contribution per unit multiplied by the number of units will give this sector's contribution to GDP.

According to Schneider (2003:52) not all informal economic activity requires large volumes of electricity. Other energy sources may be used as substitutes. Furthermore, informal economic activities do not take place only in the household environment. It is also questionable which base value to use in order to calculate the size of the informal economy for all countries, especially, for transitional and developing countries.

The electricity consumption method was used in countries like Russia, Ukraine, Uzbekistan, Slovenia, Slovakia, Poland, Romania, Bulgaria, Canada, Germany, Italy, Britain and the USA.

3.5 MODEL APPROACH

There are two versions of this approach namely the Multiple Indicator – Multiple Cause (MIMIC) and the Dynamic Multiple-Indicator Multiple-Cause (DYMIMIC) models which will be explained in this section. These approaches make use of structural econometric models[13]. They treat the size of the informal economy as an unobservable latent variable that is linked on the one hand to a collection of observable indicators which reflect changes in the size of the informal economy, and on the other hand to a set of observed causal variables which are believed to be important driving forces behind informal economic activity (Tedds, 2005:10).

3.5.1 MIMIC Model Approach

The MIMIC model approach is greatly dependent on the unobserved (latent) variables in econometrics (Georgiou, 2007: 27). It is divided into two parts, i.e. the measurement model and the structural model. The measurement model links the unobserved variables are linked to the observed variables. The structural model specifies the casual relationships between the unobserved variables. In the informal economy the only unknown variable is assumed to be its size.

Frey and Weck-Hannenman were the researchers who attempted to measure the informal economy using this method in 1983. They however did not define what they meant by the informal economy. There are four determinates of informal activity, namely the burden of the state on economic agents (e.g. the actual and perceived tax burden; the share of public employees in total labour force), tax morality, the unemployment rate and the level of economic development.

There are three indicator variables in the MIMIC approach, namely male labour force participation rate, hours worked and real GDP growth.

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[13] These models specify the statistical relationship that is believed to hold between the various economic quantities pertaining to the particular economic phenomenon under study.

A disadvantage of this approach is that the model fails to define the informal economy. Furthermore the use of public employees as share of the total labour force as an indicator of the burden of regulation is questionable. The number of regulations would seem to be a more obvious and direct measure. Georgiou (2007: 28) claims that the complexity of morality which cannot simply be measured by an index is another shortcoming of the Frey and Weck-Hanneman approach. He states that the attitudes towards tax are governed by historical, social and cultural factors.

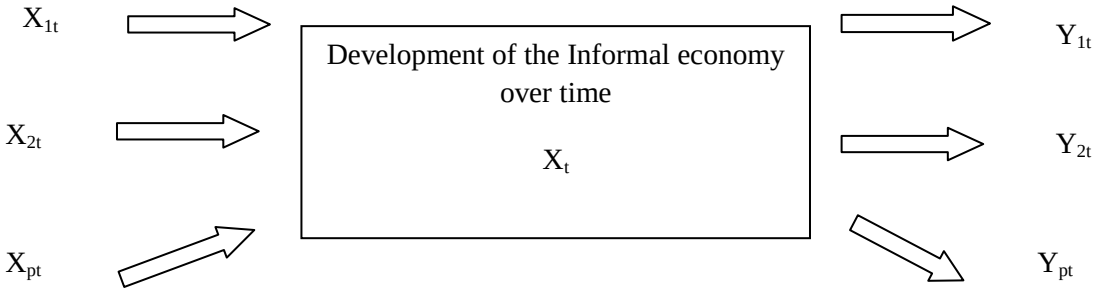
3.5.2 DYMIMIC Model Approach

This model approach explicitly considers multiple causes leading to the existence and growth of the informal economy, as well as multiple causes (e.g., the overall tax burden, the regulation burden and tax morality) and multiple effects (e.g., changing developments in the financial market, labour market and production market[14]) of the development of the informal economy over time (Schneider, 2003: 35).

This empirical method is rather different from any of the other previously discussed approaches. It is based on the statistical theory of unobservable variables; which considers multiple causes as well as multiple indicators. A factor analysis approach is used to measure the informal economy as the unobservable variable over time.

The DYMIMIC model generally consists of two parts: unobserved variables and observed indicators (Schneider, 2003:35). The model specifies a causal relationship among the unobserved variables. The diagram below is an illustration of how this model works. The approach has three cause variables which are denoted by the X-variables and three indicator variables denoted by Y as illustrated in Figure 3.2.

Figure 3.2: Diagrammatical illustration of DYMIMIC model



Schneider, 2002:31.

[14] These markets represent very important linkages between the sectors. See Section 2.3.

There are three types of cause variables which are distinguished in the model (Bruhn, Karamann & Schneider, 2007 & Schneider, 2003):

- The burden of direct & indirect taxation, both actual and perceived;

  This provides a strong incentive to work in the informal economy. The model assumes that a decrease in tax moral implies an increase in the size of informal activity.

- The increased burden of regulation is a strong incentive to leave the formal economy.

- The lack of punishment for participating in illegal informal activities increases the incentive for individuals to participate in the informal economy.

According to Giles (1999), there are three indicators in the DYMIMIC model:

- Monetary indicator: This implies that an increase in the informal economy would result in an increase in monetary transactions.

- Labour market indicator: A decrease in the labour participation rate in the official economy will result in an increase in the participation rate in the informal economy. In the same way, increased activities in the informal economy could also possibly result in shorter working hours in the formal economy.

- Production indicator: An increase in the hidden economy will result in inputs moving out of the official economy which could lead to a decrease in the official growth rate of the economy.

Schneider (2003: 35) acknowledges that the DYMIMIC Model approach has shortcomings. Firstly, instability exists within the estimated coefficients with respect to changes in sample size. There is also instability in the estimated coefficient with respect to alternative specifications, indicating that any change in the cause variables and/or the period of estimation will yield different results. Secondly, there is a difficulty in obtaining reliable data on cause variables, other than the tax burden.

This is the most in-depth and comprehensive model to estimate the size of the informal economy. However, it requires an extensive amount of data which is not readily available (Greenridge et al, 2009: 208). Furthermore, the estimation technique tends not to be statistically robust, because small changes made in the specification to the model may cause significant influence to the final result (Saunders, 2005: 80).

The DIMIMIC model approach has been used in a number of countries such as Russia, Ukraine, Uzbekistan, Slovenia, Slovakia, Poland, Romania, Bulgaria, Canada, Germany, Italy, Britain and the USA.

3.6 EMPIRICAL EVIDENCE

This section provides results of international studies which applied some of the methods as discussed in the previous section. It will firstly present findings from developed countries, then from countries in transition and finally from developing countries because the size of the informal economy should differ according to the different levels of development. According to the literature the role of the informal economy is larger in a developing country than in a developed country.

3.6.1 Evidence from developed countries

This subsection provides a review of findings of studies in developed countries estimating the size of their informal economies using some of the methods explained in Sections 3.3, 3.4 and 3.5. In this section the informal economies of Germany, Canada and the U.S.A will be discussed.

3.6.1.1 Germany

According to Mummert and Schneider (2002:3), the empirical evidence of the informal economy in Germany is structured in a similar way as those in OECD countries. The estimate of the German informal economy in 1975 is 3.6% of official GDP, according to the survey approach[15]. Langfedt (1983) estimated the German informal economy using the discrepancy between official and actual employment for the period from 1970 to 1980. These estimates were substantially larger than those achieved by the survey approach. In 1970 and 1980 the approximate size of the informal economy was 23% and 34%, of GDP respectively. Lipper and Walker (1997) estimated the size of the informal economy using the discrepancy between national income and expenditure. Their estimates for 1970 & 1980 were 11% and 13.4% respectively.

[15] The sizes of the informal economies in OECD economies are in excess of 10% of the official GDP (Schneider & Ernst, 2000:32)

Table 3.1: The informal economy in Germany as percentage of GDP

	Method	Source	1970	1975	1980	1985	1990	1995	2000
Direct Approach	Survey Approach	Schneider and Enste (2000)		3.6%					
Indirect Approach	discrepancy between official and actual employment approach	Langfedt (1983)	23.0%		34.0%				
	discrepancy between income and expenditure approach	Lipper and Walker (1997)	11.0%		13.4%				
	Currency demand approach	Kirchgässner (1982)	3.1%	6.0%	10.3%				
		Langfeldt (1984)	12.1%	11.8%	12.6%				
		Schneider and Enste (2000)	4.5%	7.8%	9.2%	11.3%	11.8%	12.5%	14.7%
Model approach	MIMIC	Frey and Weck (1984)	5.8%	6.1%	8.2%				
	DYMIMIC	Pickardt and Sarda (2006)			9.4%	10.1%	11.4%	15.1%	16.3%
	DYMIMIC	Schneider (2003, 2005)	4.2%	5.8%	10.8%	11.2%	12.2%	13.9%	16.0%

Source: Bühn, Karmann & Schneider; 2007: 46

From the empirical evidence it is evident that various approaches yield different estimates for informal activity for similar time frames. Table 3.1 gives the various estimates of size of the German informal economy using the currency demand approach and the model approach. It then becomes evident that various authors, although using the same approach, obtained different estimates. This is not just the case with the currency demand approach. This is as a result of the lack of consensus about the definition of the informal economy and what should be measured when its size is estimated.

3.6.1.2 Canada

Table 3.2 gives the various estimates for the Canadian informal economy. For these estimations six of the methods discussed in section 3.2 and 3.3 were used. Again the estimations vary greatly. The estimate achieved by the survey method indicates that the Canadian informal economy as % of GDP increased by 0.1 percentage points between the two periods. The transaction approach indicates that it grew by 5.8% for the same period. Furthermore, the methods yield different estimates for the same period. On the other hand, the household survey yields an estimate of 1.4% of GDP for the 1986/1990, the physical input method yields an estimate of 11.2% of GDP, the currency demand approach developed

by Tanzi gives an estimate of 12% of GDP and the transactional approach (Feige' s method) an estimate of 21.2% of GDP for the same period.

Table 3.2: The informal economy in Canada as percentage of GDP

Method		1970/1975	1976/1980	1981/1985	1986/1990
Direct approaches	Survey of House Holds (HH)			1.3%	1.4%
	Tax Auditing			2.9%	
Indirect approaches	Physical Input Method (Electricity): (Kaufmann-Kaliberda Method)				11.2%
	Currency Demand Approach	5.1%	6.3%	8.8%	12.0%
	Transaction Approach		26.5%	15.4%	21.2%
Model Approach	MIMIC		8.7%		

Source: Schneider 1999:50

3.6.1.3 United States of America

Table 3.3 shows the various estimates of the American informal economy. There are four time periods used for estimating the American informal economy, i.e. 1970-1975, 1976-1980, 1981-1985, and 1986-1990. The table further gives the results obtained for these four periods using seven of the methods discussed in Sections 3.2 and 3.3. It is evident from the table that the findings from the various methods differ. The estimate achieved by the survey method indicates that the American informal economy as a percentage of GDP grew by an average of 0.95 percentage points between the three periods. It is further evident that four of the seven methods showed an increase in activity from the period 1981/1985 – 1986/1990. This is illustrated by the increase in percentage points in case of the following methods: tax auditing, discrepancy between income and expenditure, physical input and currency demand. However, the tax auditing method yields an estimate of 10.0% of GDP for the 1986/1990, the physical input method yields an estimate of 9.9% of GDP, the currency demand approach developed by Tanzi yields an estimate of 6.2% of GDP and the transactional approach (Feige' s method) yields an estimate of 19.4% of GDP for the same period.

Table 3.3: The informal economy in the USA as percentage of GDP

Method		1970/1975	1976/1980	1981/1985	1986/1990
Direct approaches	Survey of House Holds (HH)	3.7%	4.5%	5.6%	
	Tax Auditing	4.9%	6.3%	8.2%	10.0%
Indirect approaches	Physical Input Method (Electricity): (Kaufmann-Kaliberda Method)			7.8%	9.9%
	Discrepancy between expenditure and income	3.2%	4.9%	6.1%	10.2%
	Currency Demand Approach	3.5%	4.6%	5.3%	6.2%
	Transaction Approach	17.3%	24.9%	21.2%	19.4%
Model Approach	MIMIC		8.2%		

Source: Schneider 1999:50

3.6.2 Evidence from economies in transition

This section provides a literature review of empirical evidence for various transition economies and the estimates of their informal economies[16].

3.6.2.1 Former Soviet Republic

The physical input (electricity) method and the DYMIMIC method were implemented to approximate the size of the informal economy of the Former Soviet Countries. Table 3.4 shows the results for the periods 1990-1993, 1994-1995 and 2000-2001. According to the physical input method conducted by Johnson, Kaufmann, and Shleifer in 1997, the average unweighted size of the informal economy is 32.8% of GDP. Georgia has the largest shadow economy with 43.6 % of "official" GDP, followed by Azerbaijan with 43.8 % and Armenia, 39.4 %. The countries with the smallest values are Uzbekistan and Latvia, with 20.3% and 24.3% respectively. There was a 7.6 percentage point increase in the growth of the average unweighted size of this economy. For the period 1994-1995 the informal economy for the former Soviet Countries was an estimated 40.4% of GDP (Physical input method).

[16] It should be noted that the structure of this section differs from the previous section as the literature does not allow a similar representation. Furthermore, there were fewer methods employed in these countries.

Table 3.4: The size of the informal economies in the former Soviet countries

	Size of the informal economy (as % of GDP)				Informal economy's labour force (as % of working-age) population 1998/99
	Physical Input (Electricity) Method[17] Using Values from		DYMIMIC Method[18]		
Former Soviet States	Average 1990-93	Average 1994-95	Average 1990-93	Average 2000/01	
Armenia	39.4%	40.3%	40.1%	45.3%	40.3%
Azerbaijan	43.8%	59.3%	45.1%	60.1%	50.7%
Belarus	34.0%	39.1%	35.6%	47.1%	40.9%
Estonia	33.9%	38.5%	34.3%	39.1%	33.4%
Georgia	43.6%	63.0%	45.1%	66.1%	53.2%
Kazakhstan	32.2%	34.2%	31.9%	42.2%	33.6%
Kyrgyzatan	34.1%	37.2%	35.2%	39.4%	29.4%
Latvia	24.3%	34.8%	25.7%	39.6%	29.6%
Lithuania	26.0%	25.2%	26.0%	29.4%	20.3%
Moldova	29.1%	37.7%	29.3%	44.1%	35.1%
Russia	27.0%	41.0%	27.8%	45.1%	40.9%
Ukraine	38.4%	47.3%	29.4%	51.2%	41.2%
Uzbekistan	20.3%	28.0%	22.1%	33.4%	33.2%
Unweighted average	**32.8**%	**40.4**%	**32.9**%	**44.8**%	**37.1**%

Source: Schneider, 2005:5

The DYMIMIC method's average unweighted estimate is similar to that achieved by the physical inputs method. A result of 32.9% of GDP was achieved for the 1990-1993 period. However, even though the average is similar to the physical input (electricity) method, the DYMIMIC model yielded larger estimates for all of the individual countries. However, the ranking order of the estimates is the same as the other method. The countries with the largest informal economy are still Georgia and Azerbaijan, both 45.1% of GDP and Armenia with 40.1% of GDP. Uzbekistan is still the country with the smallest informal economy. According to the DYMIMIC model the GDP increased by 11.9 percentage points between the two periods. All Former Soviet Countries experienced strong growth in the informal economy. Only three countries, Armenia (5.2%), Estonia (4.8%) and Kyrgyzstan (4.2%) experienced growth of 5% and less.

Furthermore, the table presents data of the percentage of the active labour force participation rate in the informal economy in each of the former Soviet Countries. The previous two

[17] Using Values from Johnson et al. (1997). The physical input method uses the Kaufmann – Kaliberda method as discussed in section 3.4.5.1.
[18] Using the currency demand method estimate for the base year.

methods used are unable to give this type of information, but with the survey approach it is possible. This was discussed in detail in Sections 3.3, 3.4 and 3.5. From the table, it is evident that Georgia and Azerbaijan employ the highest proportion of individuals in the informal economy, with more than 50% of their working age population actively participating in this sector. This further corresponds with the other methods. These two countries are the largest in terms of the DYMIMIC model as well as the Physical input method. Lithuania employs the lower number of workers. It is estimated that about 20.3% of this country's workers participates in the informal economy. The unweighted average of workers employed in the informal economies of the former Soviet Countries is 37.1%

3.6.2.2 Eastern European Countries

Table 3.5 gives the results obtained from estimates by different researchers using the same method of estimation. As discussed in Section 3.4.5 there are two techniques for measuring the informal economy with the physical input method, i.e. the Kaufmann-Kaliberda and the Lacko methods. Table 3.5 shows the estimates for the informal economies of Eastern Europe using these two methods. The Johnson, Kaufmann, and Shleifer study was conducted for the period 1990 to 1995, whereas the Lacko study was conducted for three periods 1990, 1992 and 1994. It is evident from the table that the Lacko Physical input methods yields larger estimates than the Johnson, Kaufmann, and Shleifer method. The largest difference can be seen for Poland (in 1994). The difference between these two estimates is 17.6%!

Table 3.5: Estimates using the physical input method

Country	Source	Method	1990	1991	1992	1993	1994	1995
Czech Republic	Johnson, Kaufmann, and Shleifer	Kaufmann-Kaliberda Method	6.7%	12.9%	16.9%	16.9%	17.6%	11.3%
	Lacko	Lacko Method	15.2%		19.9%		15.4%	
Hungary	Johnson, Kaufmann, and Shleifer	Kaufmann-Kaliberda Method	28.0%	32.9%	30.6%	28.5%	27.7%	29.0%
	Lacko	Lacko Method	26.7%		34.8%		31.0%	
Poland	Johnson, Kaufmann, and Shleifer	Kaufmann-Kaliberda Method	19.6%	23.5%	19.7%	18.5%	15.2%	12.6%
	Lacko	Lacko Method	30.8%		33.0%		32.8%	
Slovakia	Johnson, Kaufmann, and Shleifer	Kaufmann-Kaliberda Method	7.7%	15.1%	17.6%	16.2%	14.6%	5.8%
	Lacko	Lacko Method		11.2%	14.7%		22.3%	

Source: Hanousek and Palda (2004: 8)

3.6.3 Evidence from developing countries

This section provides some empirical evidence for various countries in South America and the estimates of their informal economies. Only data on the developing countries in South America was available for the analysis.

3.6.3.1 South America

Table 3.6 gives the estimates for various South American informal economies. These estimates were derived with the physical input (electricity) demand approach for the 1990's. From Table 3.6 indicates that there are only estimates for ten of the Latin American countries. The estimates of the informal economies of Guatemala, Mexico, Peru and Panama fall in the 40 – 60% of GDP bracket. The remaining six countries' estimates fall within the 25 – 35% of GDP bracket. It is apparent that the second bracket is smaller than the first, where the latter is 20 basis points. This makes it difficult to observe the similarities between the two estimates achieved using the physical input and DYMIMIC model approaches.

Table 3.6: Estimates based on the physical input (electricity) demand approach in late 1990s

Guatemala	40 – 60%
Mexico	
Peru	
Panama	
Chile	25 – 35 %
Costa Rica	
Venezuela	
Brazil	
Paraguay	
Columbia	

Source: Schneider, 2002:7.

Table 3.7 shows the results obtained for Latin America using the DYMIMIC and currency demand approach. The DYMIMIC model gives an unweighted average of 41.1% of GDP for Latin America for the period 1999/2000, before increasing by about one percentage point in each of the next two periods, to reach 43.4% in 2002/2003. Furthermore, Chile yielded the lowest estimate in all three periods under study (approximately 20% as % of GDP), using the DYMIMIC model.

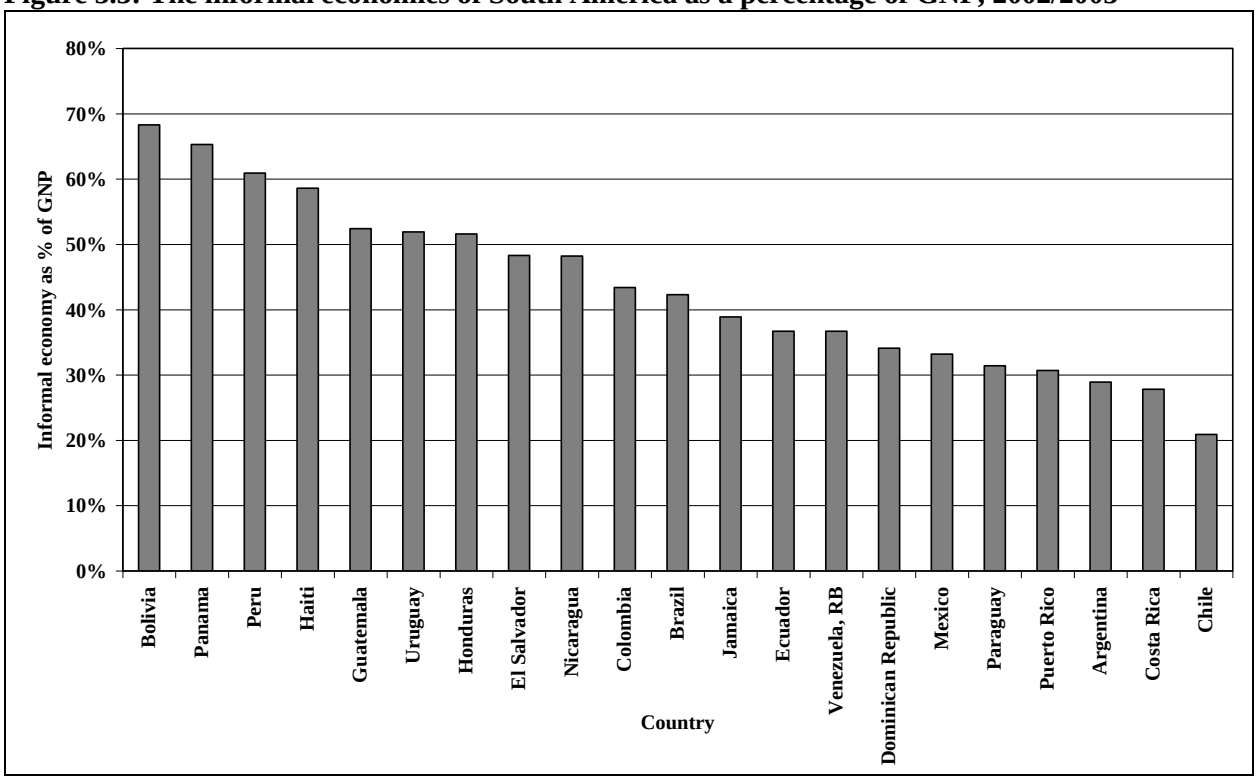
Table 3.7: Estimates based on the DYMIMIC approach

Country	Shadow economy (in % of official GDP) using the DYMIMIC[19]		
	1999/2000	2001/2002	2002/2003
Argentina	25.4%	27.1%	28.9%
Bolivia	67.1%	68.1%	68.3%
Brazil	39.8%	40.9%	42.3%
Chile	19.8%	20.3%	20.9%
Colombia	39.1%	41.3%	43.4%
Costa Rica	26.2%	27.0%	27.8%
Dominican Republic	32.1%	33.4%	34.1%
Ecuador	34.4%	35.1%	36.7%
El Salvador	46.3%	47.1%	48.3%
Guatemala	51.5%	51.9%	52.4%
Haiti	55.4%	57.1%	58.6%
Honduras	49.6%	50.8%	51.6%
Jamaica	36.4%	37.8%	38.9%
Mexico	30.1%	31.8%	33.2%
Nicaragua	45.2%	46.9%	48.2%
Panama	64.1%	65.1%	65.3%
Paraguay	27.4%	29.2%	31.4%
Peru	59.9%	60.3%	60.9%
Puerto Rico	28.4%	29.4%	30.7%
Uruguay	51.1%	51.4%	51.9%
Venezuela	33.6%	35.1%	36.7%
Unweighted Average	**41.1**%	**42.2**%	**43.4%**

Figure 3.3 is a graphical illustration of the results of the estimates for the 2002/2003 from Table 3.7 by representing the size of informal economies in South American countries in a descending order. From the figure, it is evident that Bolivia has the largest informal economy in South America (68.3% of GNP). Chile, with 20.9% of GNP, has the smallest informal economy, as mentioned above.

[19] Using the currency demand method estimate for the base year.

Figure 3.3: The informal economies of South America as a percentage of GNP, 2002/2003



3.6.4 Summary of empirical evidence

From the results as discussed in Sections 3.6.1-3.6.3, it can be concluded that various methods estimated different sizes for the informal economy of the same country. The discrepancy was quite big according to some studies.

What is clear from the empirical evidence is that the use of all these different methods makes it extremely complicated to derive meaningful conclusions from comparisons. The different methods capture different aspects related to informal economic activity. For example, it measures the contribution in terms of informal employment, in terms of contribution to GDP or it measures electricity consumption in the informal sector as % of total electricity consumption. These are all very relevant aspects, but apples need to be compared with apples.

In addition, the results of the analyses show that, in general, the size of the informal economy has grown over the years in both developed and developing countries. In fact, the results indicate that even in developed countries, the informal economy does contribute significantly to the country's total income or production.

3.7 CONCLUDING REMARKS

This chapter provided a descriptive overview of the various direct and indirect methods that are used internationally to estimate the size and growth of the informal economy. The relative strengths and weaknesses of each of the methods were highlighted. It is obvious that all methods have aspects that need to be carefully considered when findings are interpreted and compared.

The second part of this chapter provides empirical evidence of estimates of the size of the informal economies in various countries using some of the methods discussed in the first part of the chapter. It is clear that the very different methods that are used render any logical comparison of the size of the informal sectors almost impossible. Even for developing countries the different methods give very different results.

What is clear from the findings of the different studies (despite the fact that different methods were used) is that the informal sectors in developed, transitional and developing countries are all increasing. This is a matter that should be seriously considered by policy makers. If an informal sector employs almost one third of the workforce or contributes almost one third of the national product, it is a sector that needs not only to be recognised, but also supported with appropriate policies in order to fulfil its important role, especially in developing countries with a high level of unemployment such as South Africa. Chapter four will focus on the relevance of the research problem (as explained in Section 1.1) in the South African context.

CHAPTER FOUR:
THE INFORMAL SECTOR OF THE SOUTH AFRICAN ECONOMY

4.1 INTRODUCTION

This chapter presents a case study analysis of the informal sector in the South African economy. Section 4.2 presents a general overview of the sector and focuses on its specific features, on the reasons why people in South Africa would participate in informal activity and on important linkages between the informal and formal sectors of the economy. Section 4.3 explains the evolution of the South African official method, the survey approach, whilst Section 4.4 discusses and compares the findings from studies that used other methods to determine the relative size of informal activity.

4.2 A GENERAL OVERVIEW OF THE INFORMAL ECONOMY

4.2.1 Features of the informal economy

Types of informal employment in South Africa, according to Rogerson (1996: 7), include hawkers (fruit, fish, meat or crafts), babysitters, street barbers, garbage searchers, traditional herb collectors, spaza shop workers and street vendors. These activities have been extended to include car guards, who work at shopping centres and other public places in urban areas, such as libraries (Blaauw & Bothma, 2003: 41). Mohr (2007: 82) refers to Vosloo (1994) who made an interesting distinction between legal and illegal informal sector activities in South Africa and who mentioned specific activities by producers, distributors and services in each of these categories:

- <u>legal / socially acceptable</u>

  Producers: self-employed artisans, shoemakers, dressmakers, tailors, craft makers
  Distributors: hawkers, flee-market traders, petty traders, runners, shebeeners
  Services: Taxi-operators, money lenders, musicians, photographers, traditional healers

- <u>illegal / socially unacceptable</u>

  Producers: dagga producers, counterfeiters
  Distributors: pickpocketers, burglars, robbers, embezzlers, traffickers, black marketeers
  Services: hustler, pimps, prostitutes, smugglers, credit sharks

Demographic features: The majority of the individuals who find employment in the informal economy are Africans. In South Africa, as in other developing countries, more women are

involved in informal employment than men. Women are also more likely than men to be employees and not employers. The majority of women are employed as domestic workers, as well as elementary occupations, such as street venders, spaza shop workers, construction workers. In general, these job opportunities yield very low average incomes. The average hourly income of women in the informal economy is lower than that of men, irrespective of whether they are employees or self-employed (Wills, 2009: 2).

Relative Wages: For those workers participating in informal sector activities, it is a survivalist strategy which provides them with a low income in one of this sector's marginal activities (Muller, 2003: 18; Blaauw & Bothma, 2003: 44). In South Africa, the average income of informal employees is considerably less than their formal counterparts. The average hourly income of an informal worker is a third to a quarter of that of a formal employee. However, this is not the case with all informal activities. There are other activities where the average earnings are higher than in the case of employment in the formal economy (drug dealers, etc).

Working conditions, benefits, nature of employment: Jobs in the informal sector are characterised by a lack of benefits and are mostly non-permanent (Wills, 2009: 3). The majority of informal employees work the conventional number of hours per week (Wills, 2009: 29). For example, the largest percentage of individuals works between 36 and 40 hours per week. A further 29 per cent work between 41 and 50 hours per week. This implies that working hours are not really flexible, which is often cited as a reason why woman would chose to work in the informal sector. (See Section 2.5)

People who are active in the informal sector are either employees or employers or self-employed (Muller, 2003: 21). However, the informal workers in South Africa are more likely to be self-employed. For instance, in 2007, looking at the non-agricultural informal workers, it was estimated that 61 percent were self-employed, while the remaining 39 percent worked as employees.

Geographical dispersion: The informal economy is larger in non-metro areas of South Africa than in metro areas, 24% of individuals living in metro areas were employed in the informal economy compared to the 36% in non-metro areas (Wills, 2009: 2). By employing an employment based definition of informal work, the number of individuals in non-agricultural employment is estimated to have been 3.96 million in 2005. There was however a decline in

the 2007 estimate to 3.65 million. The reason for the decline is attributed to the formalisation of remuneration employment which occurred over this period (Heintz and Posel, 2008).

Level of skill: The South African labour force is relatively unskilled and the jobs created in the formal economy require skilled labour. These unskilled workers cannot easily find jobs in the formal economy and have to resort to the informal sector or informal jobs in the formal sector. This phenomenon is known as structural unemployment as there is a structural mismatch between the skills demanded by the formal economy, and the skills level of the unemployed. Furthermore, due to this low level of skill Barker (2007:62) claims that employers in the informal sector have little incentive to train workers and this negatively affects labour productivity and stable employment patterns.

4.2.2 Reasons for participating in informal activity

Unemployment: One of the major macroeconomic issues in South Africa is unemployment. Unemployed people have no choice but to try and find some form of income by supplying labour in the informal economy (Schlemmer & Levitz, 1998: 7). Informal employment in a developing country like South Africa occurs mainly as a means of survival rather than entrepreneurial motive, as informal sector workers are mainly unemployed individuals who are unable to find work in the formal sector. South African researchers agree that employment in the informal economy is seen as the second best alternative to finding employment in the formal economy (Blaauw, 2005)

Lack of national system of social security: The formal economy is insufficiently equipped to absorb the entire labour force. The new labour market entrants and the unemployed are thus excluded from the formal economy and in the absence of a strong social welfare system they are forced to take up employment in the informal economy. This results in an increase in the level of self-employment as it the only hope of survival for many (Hobson; 2011:3). They see the informal economy as a temporary solution to the current situation (Meng; 2001:15). As South African has no developed system of social security, this is where the informal economy could play a pivotal role (Barker, 2007, 7). The major forms of grants in South African are related to child support, old-age and disability. There is no provision for a person who is unemployed, but has never worked before.

Rigid regulatory environment: Rigid regulatory and licensing requirements may encourage small entrepreneurs to go informal. This will negatively impact on the tax base and on

government revenue, which will impact on the provision of public goods and services (Fleming *et al*, 2005:6-11). The South African labour regulation contributes to the rigidity and inflexibility of the formal labour market, which results in a decrease in the demand for labour. Compliance to labour legislation (related to employment equity, skills development) and other regulation leads to an increase in the indirect cost of labour in the formal economy. The increase in the relative cost of labour may negatively affect employment in the formal sector and provides an additional incentive for these individuals to participate in the informal economy (Schneider, 2002:14).

Trade liberalisation: The democratisation of South Africa has led to the opening up of the economy. This entailed adhering to a trade liberalisation program that impacted negatively on the manufacturing sector (Whiteford & Van Seventer, 1999: 3). The result was that local industries in South African (e.g., textiles in the Western Cape) were not been able to compete with its international counterparts, such as China where labour is relatively cheap and labour regulation is much less rigid. Various manufacturing businesses closed down and others reduced their size of operation which led to an increase the number of retrenched workers in the country. Many of these workers joined the informal sector.

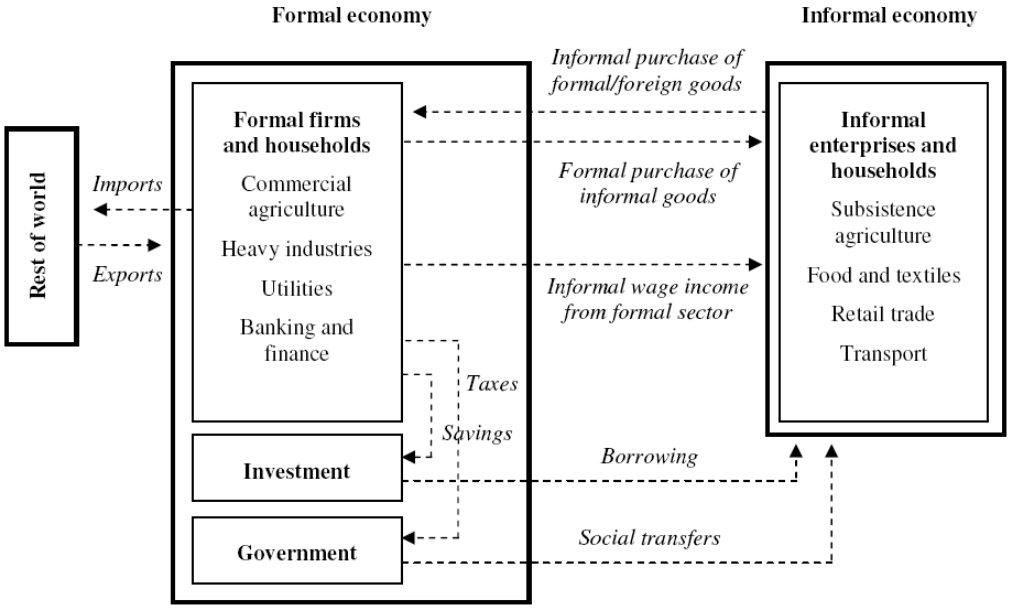
This is also one of the negative effects of globalisation. Trade policy is often seen as being biased towards the multinational corporations. This is detrimental to local business as it leads to an increase in competition in the industry and multinational corporations are able to produce at lower prices due to economies of scale[20] (Saunders, 2005:138). Due to globalisation and trade liberalisation, domestic firms have been unable to compete with the multinational corporations which have entered the market. This has led to the closing down of industries and an increase in retrenchments. Barker (2007:157) confirms that trade liberalisation has put South African in a position of competitive disadvantage regarding "…low-wage, unskilled labour-intensive activities".

4.2.3 Linkages between formal and informal sectors

Thurlow and Davies (2009:9) used the following model to illustrate the linkages between the formal and the informal sectors of the South African economy.

[20] The more goods produced the cheaper the cost of production cost.

Figure 4.1: Formal-Informal linkages



Source: Thurlow & Davies (2009:9).

Their description is called the South African Formal-Informal Model (SAFIM).

The evaluation of the formal and informal economies cannot be analysed in isolation as the two economies are linked. The formal economy produces most of the commodities that it consumes. The individuals in this sector also pay their taxes to government and invest their savings in formal financial institutions. The informal economy produces a smaller array of products and they cannot formally trade with the rest of the world.

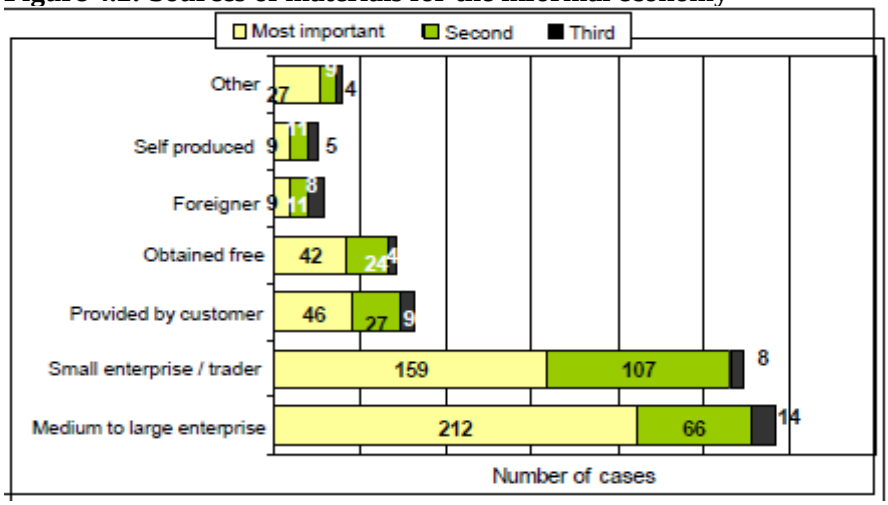
There are four significant linkages between informal activities and the national economy which are depicted in Figure 4.1 by the dotted lines. There are various flows which links formal and informal economic activity:

- *Income and expenditure flow:* Firstly, the informal economy earns income via the goods market by selling goods and services to the formal economy. Thurlow and Davies (2009: 12) state that a similar pattern exists between the formal and informal households' share of expenditure in the informal market.
- *Informal wage flows from formal sector*: The second flow, originating from the labour market, relates to wages earned by informal workers who are informally employed in the formal sector.
- *Financial flows*: Informal enterprises and households are able to borrow from formal financial institutions to cover the cost of their purchases from the formal economy.

- *Social transfers*: The final flow refers to social transfers (old-age pensions, child-support and disability grants) from government to households in the informal economy. In South Africa, informal households are the main recipients of social transfers.
- Thurlow and Davies (2009: 12), states that the informal economy is exempted from direct taxes, but informal enterprises and households do pay indirect taxes (such as VAT and excise duties which are included in price of products) on their purchases made from the formal economy.

Skinner (2005) conducted a survey of the informal economy of Durban which provides empirical evidence of the linkages between the formal and informal economy. Figure 4.2 illustrates the reliance on the formal economy for the supply of raw materials. Sixty per cent of the responding enterprises cited the most frequent source of materials to be medium to large enterprises. This illustrates a strong forward linkage between the two economies. The second most important source is the small enterprises/traders, with more than fifty per cent of the respondents identified them as source. A percentage of these small enterprises may be part of the formal economy. However, the study did not identify the proportion that was informal. According to the results of the study the supply of material was not only from the formal economy. A percentage of informal enterprises also sourced their material from foreigners.

Figure 4.2: Sources of materials for the informal economy



Source: Skinner, 2005

The activities in the informal economy are substantial, with a projected contribution to GDP of between 6 and 12 % (Mahadea, 2001: 191). Official statistics from the 2011 Quarterly labour force survey estimates that 19.14% of the labour force is employed by the informal

economy. Given the magnitude of the informal economy it has become vital to measure this economy accurately[21].

4.3 EVOLUTION OF THE SOUTH AFRICAN APPROACH

The official approach of measuring the informal economy in South Africa is via the survey method[22]. This is conducted by Statistics South Africa (Stats SA). Until 2007, Stats SA has used the enterprise approach proposed by the ILO in the 15th ICLS to define informal employment. In 2008, Stats SA, in its approach to estimate informal employment, adopted the employment relationship characteristics when identifying informal employees.

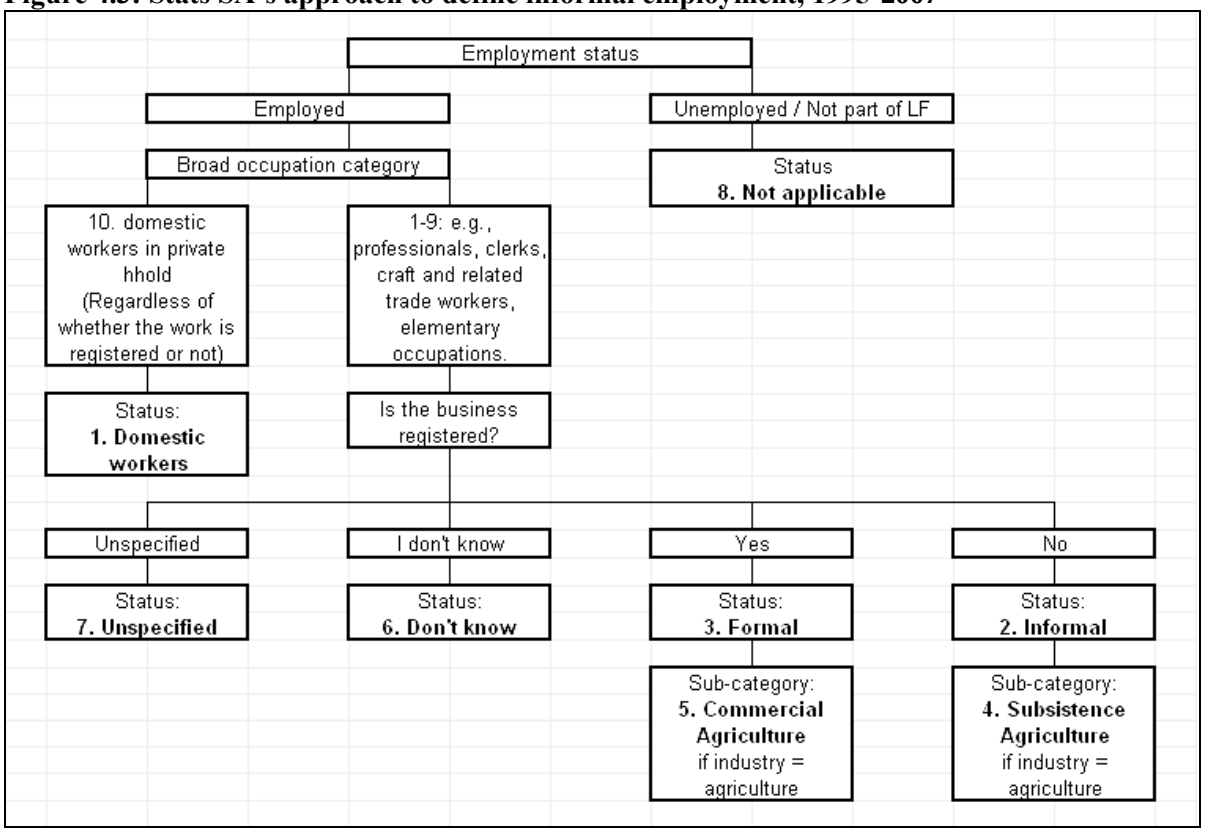
In 1993, Stats SA introduced the October House Survey (OHS) which was used on an annual basis until 1999. A key objective of the OHS was to collect data which would assist in estimating the size of the South African informal economy (Muller & Posel, 2004:2). The OHS was replaced by the bi-annual Labour Force Survey (LFS) in February 2000. The stated objectives were to improve the measurement of employment and unemployment, including informal sector work and small-scale agricultural production in particular (Statistics South Africa, 2001). In 2008 the bi-annual LFS was replaced by the Quarterly Labour Force Survey (QFS) (Essop & Yu, 2008).

4.3.1 STATS SA: 1995-2007 - Method

Figure 4.3 depicts how employment in the informal economy is defined. The enterprise characteristic approach was adopted. The first objective is to determine the employment status of the respondents. Secondly, if the respondent is employed as domestic worker in a private household, he or she is grouped under the category 'domestic workers'. This is regarded as an independent category which does not fall within the formal or informal economy.

21 The results of studies that estimated the size of informal economy in South Africa as proportion of GDP as well as informal employment are discussed in Section 4.4.
22 Discussed in Section 3.3.1.

Figure 4.3: Stats SA's approach to define informal employment, 1995-2007



Source: Essop & Yu, 2008a:7.

Occupations other than domestic workers (i.e. clerks, artisans, etc.) are grouped in the category of 'other employed'. These occupations will be classified as either formal or informal. The manner of classification depends on the response to the question concerning the registration of the business. If the respondent does not answer the question, he/she is shifted to the category 'Unspecified'. However, if the respondent's answer is 'I don't know', the respondent will fall under the category 'Don't know' (Yu, 2008a: 5). If the industry category of the formal sector worker is agriculture, the respondent will be classified as a commercial agricultural worker, but if the industry category of the informal sector worker is agriculture, the respondent would be categorised as a subsistence agricultural worker. The sub-categories 4 and 5 distinguish between formal and informal employees in the agricultural sector.

There are numerous criticisms on this approach (Muller, 2003: 6-9; Devey *et al*, 2006a: 314-316). First, the surveys fail to capture information on the respondents' secondary employment. It is possible that someone whose main job is a formal sector work, may be involved in informal sector work on a part-time basis. Moreover, it is assumed that the respondents (who worked as employees for the firms) clearly know the firm's registration status, but actually the employers have a better idea of the registration status of the enterprise. Furthermore, the questionnaire did not clearly instruct the interviewers to read the footnote

explanation on the questionnaire on the difference between formal and informal enterprises. Hence, it is possible that the respondents would give inaccurate answers on whether they work in a formal or informal business.

4.3.2 STATS SA: 2008- Current Method

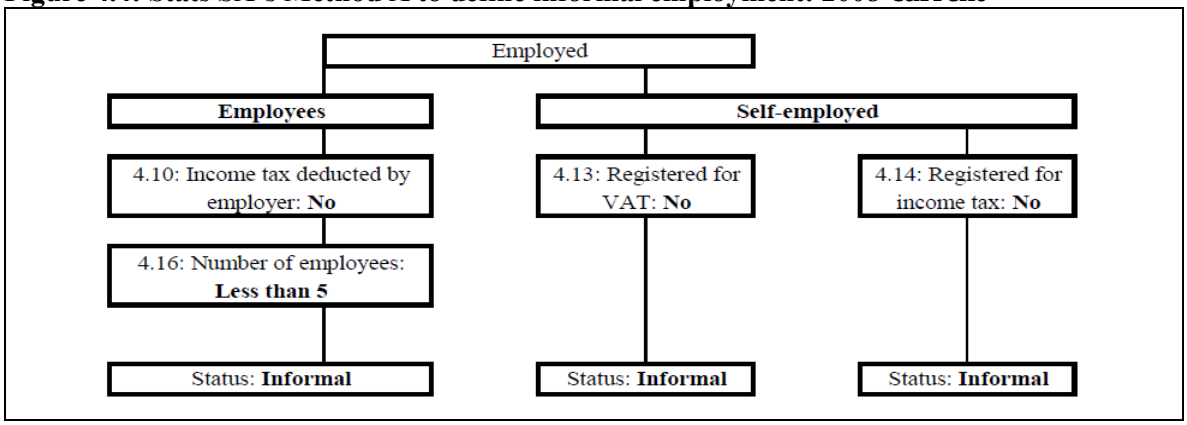
Due to the above-mentioned problems Stats SA adopted a new method in 2008 as well as alternative definitions of informal employment as suggested by other economists such as Devey, Skinner & Valodia (2006); Heintz & Posel (2008) and Essop & Yu (2008b)[23].

With the inception of the QLFS in 2008, Stats SA decided to make several changes to the questionnaire (Yu, 2008:8). The enterprise characteristic approach was once again adapted, but the indicators used in the method are now different from those in the 1995-2007 method. Two methods are being used since 2008, and they will be referred to as method A and method B respectively for the remainder of the study.

4.3.2.1 Stats SA: Method A

Figure 4.4 illustrates method A. Any individual who is self-employed will be classified as an informal sector worker if the individual/business is not registered for either income tax or VAT. Furthermore, the employee will be regarded as an informal sector worker if they work in a business which employs less than five workers and income tax is not deducted from his/her salary (Yu, 2010:9). Method A still employs the enterprise characteristics approach, but it uses completely different questions / indicators, as compared to the 1995-2007 method.

Figure 4.4: Stats SA's Method A to define informal employment: 2008-current



Source: Essop & Yu 2008a:8

[23] These will be discussed in further detail in Section 4.4.1.

4.3.2.2 Stats SA: Method B

In contrast, method B adopted both the criteria of the 15th and 17th ICLS as explained in Section 2.2. Thus, informal employment includes those working in the informal economy as well as those displaying informal characteristics but who are working in the formal economy. Informal workers as defined according to method A are still distinguished as informal workers in terms of this method. Furthermore, employees classified as formal in method A are re-coded as informal if they are not entitled to a pension fund or medical aid, or do not have a written contract with the employer (Yu, 2010:10). It is argued that this approach is too lenient and results in high estimates of the informal economy[24].

4.3.3 Challenges associated with the Survey Approach

It is widely accepted that the OHS and the LFS datasets cannot be easily compared (Burger & Yu, 2006: 3). This is one of the shortcomings of the survey approach discussed in Section 3.3.1. There have been changes in the sampling frame, the design of the questionnaire, the method to derive the labour market status, the method to distinguish formal workers from informal workers, and also the fact that it is possible to distinguish the formal/informal sector status of self-employed only in OHS 1995-1996 (Essop & Yu, 2009). These changes could affect the estimation of informal employment. For instance, it was argued that informal sector employment was over-captured during the changeover between OHS 1999 and LFS 2000 due to significant changes in the structure of the questionnaire to capture informal activities (Essop & Yu, 2009).

4.4 EVIDENCE OF THE SIZE AND GROWTH OF THE SOUTH AFRICAN INFORMAL SECTOR

The size of the informal economy in South Africa is unique due to the political, economic and regulatory environment which suggests that it may not conform to estimates of other developing countries (Saunders, 2005:119). Even recent studies like Kingdon & Knight (2000) mentioned that the South African informal economy is relatively small as a percentage of GDP compared to other countries. However, the size may be underestimated (Barker, 2007: 49).

[24]The result of this method is not published by Stats SA. However, a study was conducted by Yu to estimate the size of the South African informal employment using this method. These results will be discussed in Section 4.4.1.

Various studies, using some of the approaches as discussed in Sections 3.2 and 3.3, were conducted to estimate the size of informal economic activity in South Africa and these results are discussed in further detail in this section.

4.4.1 Survey Approach (Official method)

Table 4.1 illustrates the size and growth of the informal economy of South Africa in terms of employment in both the formal and informal sectors. In addition, it also shows informal employment as percentage of total employment as well as the percentage change in informal employment.

Table 4.1: Formal vs. Informal employment in South Africa, 1995-2011

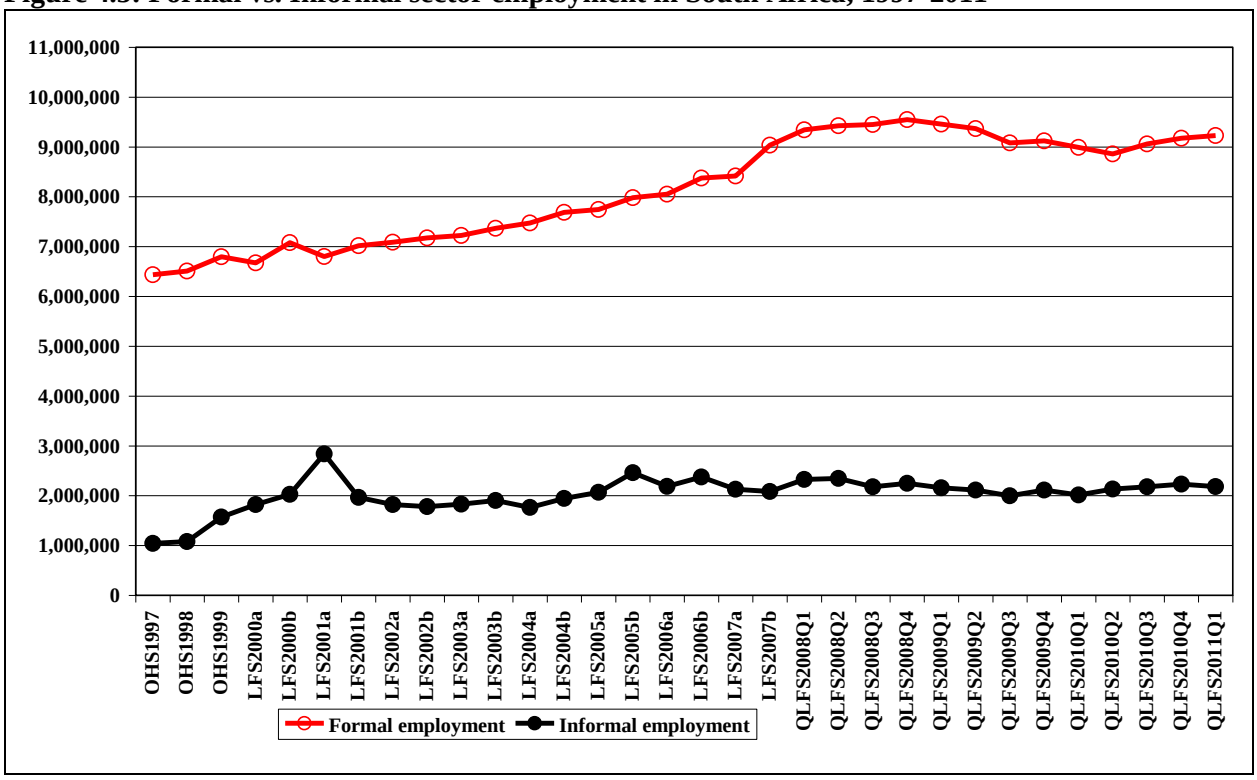
Survey	Sector		Total employment	Informal employment as % of total employment	% change in informal employment
	Formal	Informal			
OHS1995	219,213	521,668	740,881	70.41%	
OHS1996	304,260	330,100	634,360	52.04%	-36.72%
OHS1997	6,436,017	1,043,347	7,479,364	13.95%	216.07%
OHS1998	6,508,097	1,077,141	7,585,238	14.20%	3.24%
OHS1999	6,796,008	1,571,646	8,367,654	18.78%	45.91%
LFS2000a	6,672,951	1,819,556	8,492,507	21.43%	15.77%
LFS2000b	7,077,307	2,026,065	9,103,372	22.26%	11.35%
LFS2001a	6,798,257	2,836,182	9,634,439	29.44%	39.98%
LFS2001b	7,019,158	1,964,763	8,983,921	21.87%	-30.73%
LFS2002a	7,089,163	1,821,426	8,910,589	20.44%	-7.30%
LFS2002b	7,173,080	1,778,542	8,951,622	19.87%	-2.35%
LFS2003a	7,223,138	1,827,711	9,050,849	20.19%	2.76%
LFS2003b	7,364,616	1,901,131	9,265,747	20.52%	4.02%
LFS2004a	7,473,638	1,764,630	9,238,268	19.10%	-7.18%
LFS2004b	7,684,843	1,944,236	9,629,079	20.19%	10.18%
LFS2005a	7,741,991	2,068,479	9,810,470	21.08%	6.39%
LFS2005b	7,979,587	2,459,690	10,439,277	23.56%	18.91%
LFS2006a	8,051,532	2,187,940	10,239,472	21.37%	-11.05%
LFS2006b	8,376,441	2,376,338	10,752,779	22.10%	8.61%
LFS2007a	8,414,719	2,129,164	10,543,883	20.19%	-10.40%
LFS2007b	9,034,135	2,083,855	11,117,990	18.74%	-2.13%
QLFS2008Q1	9,343,508	2,324,768	11,668,276	19.92%	11.56%
QLFS2008Q2	9,423,952	2,347,559	11,771,511	19.94%	0.98%
QLFS2008Q3	9,448,588	2,178,806	11,627,394	18.74%	-7.19%
QLFS2008Q4	9,549,910	2,249,608	11,799,518	19.07%	3.25%
QLFS2009Q1	9,456,691	2,157,422	11,614,113	18.58%	-4.10%
QLFS2009Q2	9,368,240	2,113,654	11,481,894	18.41%	-2.03%
QLFS2009Q3	9,080,680	1,995,863	11,076,543	18.02%	-5.57%
QLFS2009Q4	9,123,016	2,110,204	11,233,220	18.79%	5.73%
QLFS2010Q1	8,990,311	2,014,083	11,004,394	18.30%	-4.56%
QLFS2010Q2	8,859,292	2,132,921	10,992,213	19.40%	5.90%
QLFS2010Q3	9,060,669	2,177,395	11,238,064	19.38%	2.09%
QLFS2010Q4	9,174,091	2,230,378	11,404,469	19.56%	2.43%
QLFS2011Q1	9,227,516	2,183,814	11,411,330	19.14%	-2.09%

Source: Own calculations using OHS/LFS/QLFS data.

Table 4.1 also shows the estimates of employment for the period 1995-2011. The largest increase in the employment in the informal economy occurred in 1997, when informal employment grew by 216.07%. The reason for this change is that, prior to 1997, only the self-employed and employers were asked to answer the question related to their formal/informal status (Yu, 2008). This resulted in the under-estimation of informal employment in the OHS 1995 and OHS 1996. For the period 1997-2011, informal employment accounts for about 22.51% of total employment. Since the QLFS, the percentage of informal employment has fluctuated between 18.02% and 19.94% of total employment.

Figure 4.5 is a graphical representation of employment in the formal and informal economies of South Africa. It is evident that the largest number of individuals formally employed was obtained in quarter 2 of 2008. The largest estimate of individuals employed in the informal economy was obtained by the LFS 2001a. This is because a follow-up survey was conducted where more in-depth questions were asked to the respondents with regards to the employees' formal or informal status. Stats SA have not conducted a follow-up survey since then, and therefore it is argued to be the best estimate with regards to informal employment (Devey et al, 2006b:8).

Figure 4.5: Formal vs. Informal sector employment in South Africa, 1997-2011



Source: Own calculations using OHS/LFS/QLFS data.

As discussed in Section 4.3 the various criticisms relating to both methods followed by Stats SA, initiated research on the use of a number of alternative methods by other researchers.

4.4.2 Discrepancy between official and actual labour force

The following studies use the approach of the discrepancy between the official and actual labour force which is explained in Section 3.3.1. This is the most common approach amongst South African researchers. It uses the information obtained from the survey approach to estimate the number of informal employees. However, each author would apply their own criteria and assumptions to determine the size of the informal economy. Although the survey data is used in all these approaches, the estimates vary according to the methods employed by the different authors.

4.4.2.1 Heintz and Posel

Heintz & Posel (2008:32) argue that enterprises which are registered for VAT or as companies / close corporations should be captured under the formal economy. This should be done irrespective of whether these respondents characterised themselves as being informally employed. Employees will be categorised as formally employed if they have a written contract or if they receive paid leave and make pension contributions. This is irrespective of the type of enterprise. "This method suggests that the enterprise approach should still be applied to distinguish informal self-employed, but that the characteristics of employment relationship with regard to social and legal protection be considered when defining informal employees" (Yu, 2010:5). The researchers revised their method by adopting the Stats SA-2008a method to capture the self-employed of the informal economy. The initial definition is still used to identify informal employment employees in South Africa. However, to be able to apply the Heintz and Posel method to the QLFS[25], it has to be slightly revised.[26]

4.4.2.2 Devey, Skinner and Valodia

The core of the argument by Devey, Skinner and Valodia (2006: 314-321) is that the two sectors of the economy are essentially linked and cannot be viewed independently. The Devey

[25] See Yu (2010), for more information.

26 The reason for the revision of the Heintz and Posel method is that, the question related to the registration of the company / close corporation registration (one of the indicators used in the method) is no longer asked in the QLFSs. Secondly, although the direct, self-identification question is asked in all QLFSs, the results are not included since QLFS 2009Q3 when Stats SA released the data. Hence, Yu (2010) revised the Heintz and Posel approach as follows: Stats SA method A was adopted to capture the self-employed in the informal sector, while the same three indicators used in the original Heintz and Posel method (i.e., written employment contract, entitlement to paid leave, and pension contributions by employers) are still used to distinguish the informal employees.

et al method focuses on both the enterprise, employment and worker characteristics. In addition, the enterprise approach illustrates the differences in characteristics of formal and informal workers. The categories are not mutually exclusive, as workers can display characteristics of both formal and informal workers. There are thirteen indicators[27] used in this approach which is used to derive the formal-informal index. The formal-informal index illustrates whether the individual exhibits formal/informal employment characteristics. These indicators are simply added to derive the Devey, Skinner and Valodia estimate, as the indicators are unweighted, implying that the maximum value attainable by each indicator is 1 and the minimum is 0. The higher an individual's index, the more formal the employee is and vice versa. The main aim of the Devey, Skinner and Valodia method is to determine the proportion of informal sector workers that exhibits characteristics of formal workers.

4.4.2.3 Essop and Yu

The method of Essop & Yu is an adaptation of the Devey, Skinner and Valodia method. The main difference between the two approaches is that the question related to the number of employers was replaced by a question on work hour flexibility (Essop & Yu 2008b: 15-16).

The shortcomings of the Devey, Skinner and Valodia approach are as follows:

- The first issue relates to the comparability of scores as well as the weighting criteria. These are required to calculate the formal–informal index. In addition it fails to provide explanations whether a 0 or 1 should be marked for the questions which the respondents answer as 'I don't know' or 'unspecified'.
- The second issue arises because the method allocates a one for both options, regardless of the number of employers.
- Thirdly, an individual who characterises himself/herself as self-employed is not required to answer the first 7 questions. However, the authors failed to indicate whether the questions for each of the 7 indicators should be marked by a 0 or 1.
- An individual may receive a very low formal-informal index if these indicators were to be marked with a 0. This would subsequently imply that a self-employed individual displays informal economy characteristics. Moreover, two individuals may have chosen varying answers but can still have the same score.

As a result of the problems mentioned above, the Devey, Skinner and Valodia and Essop & Yu approaches can only be applied to employees. This was not the case for a number of self-employed individuals participating in the informal economy, as all 13 questions did not apply

27 The 13 indicators relate to: number of employers, permanence of work, written contract with employer, who pays wage, employer contributes to pension/retirement fund, paid leave, trade union membership, number of regular workers in enterprise, working for a registered company or close corporation, employer makes UIF deductions, employer makes medical aid/health insurance payments, enterprise registered to pay VAT & location of work (Yu, 2010).

to them. This method cannot be successfully applied to self-employed people because all questions are not asked.

4.4.2.4 Gasparini and Tornarolli

The worker characteristic approach is another approach used to estimate the levels of informal employment. This approach is most commonly used in Latin America. Gasparini & Tornarolli defines informal employment by utilising two methods. The first is a productive definition and the second is the social protection definition (Yu, 2010; 13). The productive view argues that the individuals who are informally employed are engaged in unskilled occupations characterised by low earnings and low productivity and are often family based activities. This conforms to the features of informal activity as discussed in Section 2.

4.4.2.5 Henley, Arabsheibani and Carneiro

Henley, Arabsheibani & Carneiro (2006:28) introduced another approach by employing three methods to define informal employment in Brazil, namely social security protection, the nature of employment and the characteristics of the employer. This approach corresponds to the 17th ICLS approach of defining informal employment. It focuses on job related characteristics to distinguish between formal and informal employment. Workers are defined as employees as formal workers if they are employed in an establishment of at least five employees, while the self-employed are classified as formal if their occupation are 'creative and technical' or 'administrative' (so as to capture professional activities). The rest are considered as informal workers.

4.4.2.6 The mini Devey et al approach

As mentioned under the Devey *et al* and the Essop & Yu methods, seven questions are asked in the QLFS. The mini Devey *et al* approach asks six of these seven questions. It omits the question on the number of workers to measure the size of informal employment (Yu, 2010:6-7). The six questions are:

- Does the employer contribute to pension/retirement fund?
- Does the employee receive paid leave?
- Does the employer make UIF deductions?
- Does the employee receive medical aid benefits?
- Is there a written contract with the employer?
- Is the work of a permanence nature?

Table 4.2: Indicators used to identify the informal employment in each approach

	Stats SA (1995-2007)	Heintz & Posel	Devey et al	Essop & Yu	Stats SA method A	Stats SA method B	Revised Heintz & Posel	Mini Devey et al	Gasparini & Tornarolli
Employees									
Enterprise registration status question	✓								
Pension Fund		✓	✓	✓		✓	✓	✓	
Paid Leave		✓	✓	✓			✓	✓	
UIF			✓	✓				✓	
Medical Aid			✓	✓		✓		✓	
Income Tax									
Written Contract		✓	✓	✓		✓	✓	✓	
Job Permanence			✓	✓				✓	
Firm Size			✓	✓	✓	✓			✓
Payer Wage			✓	✓					
Trade Countries membership			✓	✓					
Location of work			✓	✓					
Number of employers			✓	✓					
Work Hours Flexibility			✓	✓					
Company/ CC Registration			✓	✓					
VAT registration			✓	✓					
Income Tax registration					✓	✓			
Earnings from the main job									✓
Number of questions used in the definition	**1**	**3**	**13**	**13**	**2**	**5**	**3**	**6**	**2**
Self-Employed									
Enterprise registration status question	✓	✓	Not applicable to self-employed					Not applicable to self-employed	
Company/ CC Registration		✓							
VAT registration		✓			✓	✓	✓		
Income Tax registration					✓	✓	✓		
Education Attainment									✓
Number of questions used in the definition	**1**	**3**			**2**	**2**	**2**		**1**

Source: Yu, 2010:14

Table 4.2 above depicts the questions that are used to determine the informal employment according to each approach. The indicators used, as well as the number of indicators in each method vary greatly.

Table 4.3: Informal employment using various approaches, 2001-2007

	Stats SA	Heintz & Posel	Essop & Yu	Gasparini & Tornarolli	Stats SA	Heintz & Posel	Essop& Yu	Gasparini & Tornarolli
Employees								
	Number of informal employees (1000s)				As % of all employees(1000s)			
2001 Mar	777	1928	N/A	940	10.6%	26.4%	N/A	12.9%
2001 Sep	633	1967	887	928	8.7%	27.0%	12.2%	12.7%
2002 Mar	586	1664	803	976	8.1%	22.9%	11.0%	13.4%
2002 Sep	553	1573	740	860	7.6%	21.6%	10.2%	11.8%
2003 Mar	620	1577	784	899	8.4%	21.3%	10.6%	12.1%
2003 Sep	625	1433	729	911	8.3%	19.1%	9.7%	12.1%
2004 Mar	576	1346	719	837	7.6%	17.9%	9.5%	11.1%
2004 Sep	619	1477	N/A	N/A	7.9%	18.9%	N/A	N/A[28]
2005 Mar	757	1521	844	980	9.5%	19.1%	10.6%	12.3%
2005 Sep	870	1743	1013	1087	10.4%	20.8%	12.1%	13.0%
2006 Mar	712	1610	864	1076	8.6%	19.5%	10.5%	13.0%
2006 Sep	794	1696	959	1045	9.2%	19.6%	11.1%	12.1%
2007 Mar	754	1752	924	1097	8.7%	20.2%	10.7%	12.7%
2007 Sep	668	1609	819	1004	7.3%	17.5%	8.9%	10.9%
Self-employed								
	Number of informal employees (1000s)				As % of all employees(1000s)			
2001 Mar	2059	1970	**N/A**	2381	81.4%	77.9%	**N/A**	94.2%
2001 Sep	1331	1254		1684	73.5%	69.2%		93.0%
2002 Mar	1234	1189		1562	72.5%	69.8%		91.7%
2002 Sep	1225	1176		1575	71.1%	68.2%		91.4%
2003 Mar	1208	1168		1579	70.7%	68.4%		92.5%
2003 Sep	1276	1239		1646	71.1%	69.1%		91.8%
2004 Mar	1188	1159		1582	68.5%	66.8%		91.2%
2004 Sep	1325	1286		1684	71.5%	69.4%		90.9%
2005 Mar	1311	1276		1733	69.5%	67.7%		91.9%
2005 Sep	1590	1551		1984	75.0%	73.1%		93.5%
2006 Mar	1476	1434		1902	73.3%	71.2%		94.5%
2006 Sep	1582	1530		2028	73.4%	71.0%		94.1%
2007 Mar	1376	1334		1836	70.7%	68.6%		94.4%
2007 Sep	1416	1339		1834	71.0%	67.2%		92.0%

Source: Yu, 2010:17

Table 4.3 above gives the informal employment trends between the March 2001 Labour Force Survey (LFS) and the September 2007 LFS. Four methods are employed: Stats SA method;

[28] The N/A in this section refers to the issues encountered to estimate informal employment. These are as follows: categorisation in work locations (LFS 2001 March), coding error in the question related to the number of regular workers (LFS 2001, September) and the fact that the Essop & Yu approach can only define informal employees.

Heintz & Posel; Essop & Yu and the approach of Gasparini & Tornarolli. The Heintz & Posel approach results in the highest estimates of informal employment, accounting for between 17.5% and 27% of overall employment during this period. The Stats SA method yields the lowest estimates of informal employment compared to the other methods. This may mislead researchers and policy makers about the real situation which exists in the South Africa.

Table 4.4 illustrates the estimates of informal employment under the two official Stats SA methods. The highest estimates are derived from the Stats SA method B. It estimates that informal employment constitutes approximately two-thirds of all employees for the period under examination. This method is too lenient an approach to capture informal employment. It should also be noted that in order to use the Heintz & Posel and the Gasparini & Tornarolli methods, they have to be revised, before it can be applied to the QLFS[29]. Furthermore, the reason why the mini Devey *et al* method is unable to estimate the number of self-employed is because it can only be applied to employees.

Table 4.4: Informal employment using various approaches, 2008-2009

	Stats SA method A	Stats SA method B	Revised Heintz & Posel	Mini Devey et al	Revised Gasparini & Tornarolli	Stats SA method A	Stats SA method B	Revised Heintz & Posel	Mini Devey et al	Revised Gasparini & Tornarolli
Employees										
	Number of informal employees (1000s)					As % of all employees (1000s)				
2008 Q1	852	***6633***	1646	2957	1229	8.8%	***68.8%***	17.1%	30.7%	12.8%
2008 Q2	786	***6647***	1581	2955	1167	8.1%	***68.5%***	16.3%	30.5%	12.0%
2008 Q3	707	***6479***	1442	2795	1082	7.4%	***67.5%***	15.0%	29.1%	11.3%
2008 Q4	709	***6454***	1423	2831	1008	7.3%	***66.6%***	14.7%	29.2%	10.4%
2009 Q1	675	***6264***	1286	2670	979	7.1%	***65.7%***	13.5%	28.0%	10.3%
2009 Q2	664	***6218***	1238	2630	975	7.0%	***65.6%***	13.1%	27.7%	10.3%
2009 Q3	680	***6068***	1243	2542	997	7.4%	***65.6%***	13.4%	27.5%	10.8%
2009 Q4	660	***6084***	1250	2634	935	7.1%	***65.4%***	13.4%	28.3%	10.0%
Self-Employed										
	Number of informal employees (1000s)					As % of all employees (1000s)				
2008 Q1	1443	***1479***	1443	N/A	1861	71.2%	***72.9%***	71.2%	N/A	91.8%
2008 Q2	1512	***1547***	1512		1914	72.9%	***74.6%***	72.9%		92.3%
2008 Q3	1406	***1448***	1406		1852	69.1%	***71.2%***	69.1%		91.0%
2008 Q4	1500	***1534***	1500		1921	71.2%	***72.8%***	71.2%		91.1%
2009 Q1	1455	***1497***	1455		1884	70.1%	***72.1%***	70.1%		90.7%
2009 Q2	1441	***1477***	1441		1844	72.1%	***73.9%***	72.1%		92.2%
2009 Q3	1296	***1335***	1296		1666	71.0%	***73.1%***	71.0%		91.3%
2009 Q4	1402	***1434***	1402		1774	72.7%	***74.4%***	72.7%		92.0%

Source: Yu, 2010:21

[29] Refer to Yu (2010) for more information regarding these revisions.

4.4.3 Currency Demand Approach

The following studies used the currency demand approach.

4.4.3.1 Hartzenbergh and Leimann

This approach was first employed by Hartzenbergh and Leimann in 1992 (Schneider, 1999:42). The authors estimated the size of the South African informal economy for the period 1989-1990 and found it to be 9% of GDP. It is clear from Table 4.5 that the informal sector in South Africa seems to be much smaller (a third of that of Botswana) that the sectors in other developing countries in Africa. This is an issue that needs further investigation.

Table 4.5: Size of the informal economy in eight African countries for the period 1989/1990

Developing Countries	Method	Size
Botswana	Physical Input Method	27.0%
Egypt	Physical Input Method	68.0%
Mauritius	Physical Input Method	20.0%
Morocco	Physical Input Method	39.0%
Nigeria	Physical Input Method	76.0%
South Africa	Currency Demand Approach	9.0%
Tanzania	Currency Demand Approach	31.0%
Tunisia	Physical Input Method	45.0%

Source: Schneider, 1999:42

4.4.3.2 Saunders

Saunders (2005) conducted a study to estimate the size of the informal economy of South Africa for the period 1966 – 2002. The assumptions of his model were as follows:

- The informal economy uses currency to conclude their transactions.
- The income velocity is the same as in the formal economy.

Saunders listed an array of reasons to substantiate why the currency demand approach was the most appropriate method to use. The reasons are as follows:

- It uses a simple ordinary least square model which allows a stepwise analysis of the explanatory values.
- Due to a lack of banking institutions in the South African informal economy, it is reasonable to assume that these activities mainly use currency to conclude their transactions.
- This approach is able to produce a time series estimation of the informal economy which, according to Saunders, is essential for testing formal-informal interaction.

Table 4.6 presents estimates of the size of the South African informal economy for the period 1966 – 2006. The column GDPI refers to the gross domestic product of the informal economy. The column GDPI/GDP is the size of the informal economy as a percentage of GDP for the respective year. Saunder's study shows that the largest estimate of the informal economy, 12.5% of GDP, was in 1968. For the year 2002 the estimated size is 7.2%. The average size of the informal sector for the period 1966 – 2002 is 9.5% of GDP.

Table 4.6: The size of the informal economy: 1966-2002; currency demand approach

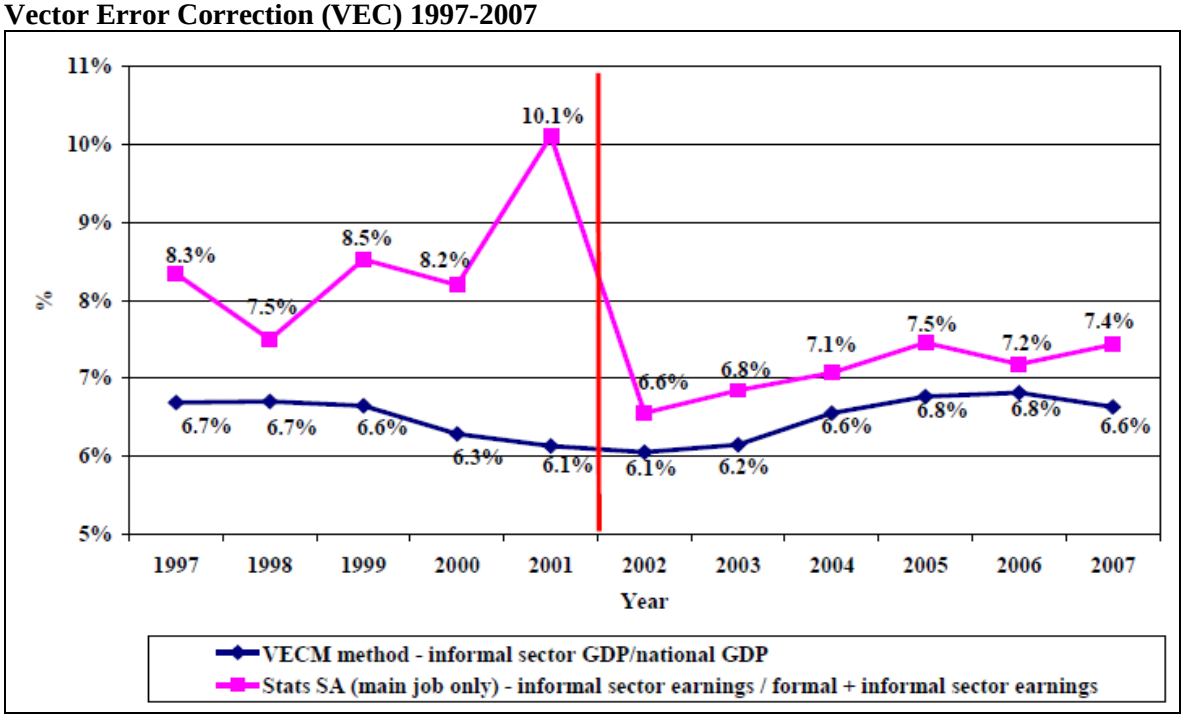
Year	GDPI	GDP	GDPI/GDP	Nominal GDPI growth rate	Nominal GDP growth rate
1966		8,568			
1967	2,330	9,559	12.0%		
1968	2,614	10,340	12.5%	11.5%	7.9%
1969	2,757	11,654	11.8%	5.3%	12.0%
1970	2,985	12,791	11.1%	7.9%	9.3%
1971	3,590	14,136	11.6%	18.5%	10.0%
1972	3,956	15,953	11.5%	9.7%	12.1%
1973	5,446	19,740	12.2%	32.0%	21.3%
1974	6,287	24,277	11.5%	14.4%	20.7%
1975	7,172	27,323	11.0%	13.2%	11.8%
1976	8,051	30,848	10.0%	11.6%	12.1%
1977	9,123	34,261	9.9%	13.5%	10.5%
1978	11,140	39,416	9.9%	19.0%	14.0%
1979	13,212	47,100	10.1%	17.1%	17.8%
1980	17,711	62,730	10.7%	29.3%	28.7%
1981	17,944	72,654	9.9%	1.3%	14.7%
1982	18,828	82,462	9.6%	4.8%	12.7%
1983	19,401	94,350	9.0%	3.0%	13.5%
1984	21,073	110,584	9.4%	8.3%	15.9%
1985	23,040	127,598	8.6%	8.9%	14.3%
1986	31,800	149,395	9.0%	32.2%	15.8%
1987	37,352	174,647	10.1%	16.1%	15.6%
1988	40,756	209,613	9.2%	8.7%	18.2%
1989	52,778	251,676	8.8%	25.8%	18.3%
1990	60,262	289,816	8.2%	13.3%	14.1%
1991	65,727	331,980	7.7%	8.7%	13.6%
1992	70,297	372,225	7.4%	6.7%	11.4%
1993	79,880	426,133	7.7%	12.8%	13.5%
1994	91,155	482,120	8.4%	13.2%	12.3%
1995	104,470	548,100	8.3%	13.6%	12.8%
1996	105,699	617,954	8.1%	1.2%	12.0%
1997	111,535	685,730	8.2%	5.4%	10.4%
1998	101,128	738,926	7.4%	-9.8%	7.5%
1999	114,644	800,696	8.1%	12.5%	8.0%
2000	117,110	888,057	7.7%	2.1%	10.4%
2001	133,975	982,944	7.8%	13.5%	10.2%
2002	133,904	1,098,714	7.2%	-0.1%	11.1%

Source: Saunders, 2005

4.4.3.3 Essop and Yu

Essop & Yu (2008b) conducted a study to estimate the size of the informal economy of South Africa using the same approach as Saunders. The results are depicted in Figure 4.6. The largest estimate for the South African informal economy according to their study was 6.8% of GDP for the years 2005 and 2006. The two lines illustrated in Figure 4.6 shows a similar trend for the period 2002 to 2007.

Figure 4.6: Estimating the size of the informal economy of SA: Currency demand approach Vector Error Correction (VEC) 1997-2007



Source: Essop & Yu, 2008b: 26

It is apparent from the results achieved by the three studies that Essop & Yu's estimates are the lowest. An overlapping period (1997-2002) exists between the Saunders study and the Essop & Yu study. For this period these studies have achieved different results. From Essop & Yu's results it is clear that their estimate is the largest for the period 1997-1998, being 6.7% of GDP. The Saunder's study for the 1997 period estimates the size of the informal economy to be 8.2% of GDP. When comparing the results from these studies, it shows that the size of the informal economy is stable between 6.1 and 9.0% of GDP for the period 1966-2007. This contradicts the statement by Barker that the informal economy is growing at a phenomenal rate (Barker, 2007:94).

All of these findings are in contrast to the statement of Schneider & the World Bank. The World Bank estimates that in developing countries the size of the informal economy should be between 35 and 44% of GDP. This implies that there is a difference between the development of the informal sector in developing countries and South Africa in terms of the reasons for and consequences, as well as the relative size and growth (Saunders; 2005).

4.4.4 DYMIMIC model approach

Schneider used the DYMIMIC model approach to estimate the size of the South African informal economy for the years 1999/2000, 2001/2002 & 2002/2003. This model was

discussed in Section 3.6. It employs multiple cause and indicator variables. Table 4.7 gives the cause and indicator variables used by Schneider for developing countries.

Table 4.7: The DYMIMIC model specifications for developing countries[30]

CAUSE VARIABLES	**Estimated Coefficients[31]**
Share of direct taxation (as % of GDP)	ë1=0.16(*) (1.77)
Share of indirect taxation and custom duties (as % of GDP)	ë2=0.246(**) (3.34)
Burden of state regulation (share of public administrative employment)	ë3=0.306(**) (3.01)
Unemployment quota	ë3=0.296(**) (3.96)
GDP Per Capita	ë3=0.151(**) (2.56)
Indicator Variables	**Estimated Coefficients**
Employment quota (in % of population 18 – 64)	ë6=0.651(**) (-3.45) ë7=-1
Annual Rate of GDP (Standardized)	ë8=0.412(**)
Change of currency per capita	(4.99)
Test- Statistics	RMSE =0.0004(*) (p-value=0.952)
	Chi-Square=7.53 (p-value = 0.904)
	TMNCV=0.042
	AGFI=0.774
	N=288
	D.F.=34

Source: Schneider, 2003:11.
Note: t-statistics given in parenthesis (*); *(**) indicating that the t statistics are statistically significant at the 90%, 95% and 99% confidence levels.

For the developing countries Schneider used the following as cause variables:

- share of direct and indirect taxation (as % of GDP) as the two tax burden variables;
- burden of state regulation or state interference (share of public administrative employment as % of total employment);
- unemployment quota and GDP per capita as two cause variables for the status of the formal economy.

As the indicator variables he used:

- employment quota (in % of the population between 18 and 64);
- the growth rate of GDP;
- and the annual change of local currency per capita.

[30]The countries referred to are not specified, but it is the specifications used in the study and South Africa is one of the countries whose results were achieved from this model.

These are depicted in Table 4.7 above.

Schneider (2003) embarked on a study to determine the size of 145 countries using the DYMIMIC model approach. He estimated the size and growth of the informal economies for thirty seven African countries, including South Africa by employing the already available currency demand estimates.

Table 4.8 presents the average sizes of various informal economies as well as the size of the informal economies' labour force as a percentage of the official labour force. This table shows that the average size of the informal economies of 23 African countries is 41% of the official GDP for the period 1999/2000. The estimated size of the informal labour force as determined by the survey and discrepancy method is 48.2%.

Table 4.8: Average size in terms of their geographical location using the DYMIMIC model approach

Countries	Average size of the Informal Economy- Value Added in % of Official GDP 1999/2000	Average size of the Informal Economy- Labour Force in % of Official GDP 1999/2000
	Currency Demand & DYMIMIC method *(Number of countries in brackets)*	Survey & Discrepancy Methods *(Number of countries in brackets)*
Developing Countries		
Africa	41.0% *(23)*	48.2% *(23)*
Central & South America	41.0% *(18)*	45.1% *(18)*
Asia	29.0% *(26)*	33.4% *(26)*
Transition Countries		
Transition Countries	35.0% *(23)*	-
OECD Countries		
Western OECD Countries – Europe	18.0% *(16)*	16.4% *(7)*
North American & Pacific OECD Countries	13.5% *(4)*	-

Source: Schneider & Klinglmair, 2004:29

Table 4.9 gives the estimates of sizes of the informal economies of 37 African nations for the period 1999/2000, 2001/2002 and 2002/2003. For the period 1999 to 2000 the size of the South African informal economy was 28.4% of official GDP. In the period 2001 to 2002 it increased to 29.1% of official GDP, an increase of 0.7 percentage points when compared to the previous period. It grew by 0.4 percentage points in 2002/2003 with the size of the informal economy estimated as 29.5% of GDP..

Table 4.9: Estimates for 37 African countries using the DYMIMIC approach

Country	Informal economy (in % of GDP) using the DYMIMIC and Currency demand method		
	1999/2000	2001/2002	2002/2003
Algeria	34.1%	35.0%	35.6%
Angola	43.2%	44.1%	45.2%
Benin	47.3%	48.2%	49.1%
Botswana	33.4%	33.9%	34.6%
Burkina Faso	41.4%	42.6%	43.3%
Burundi	36.9%	37.6%	38.7%
Cameroon	32.8%	33.7%	34.9%
Central African Republic	44.3%	45.4%	46.1%
Chad	46.2%	47.1%	48.0%
Congo Dem. Rep	48.8%	48.8%	49.7%
Congo, Rep	48.2%	49.1%	50.1%
Cote d'Ivoire	43.2%	44.3%	45.2%
Egypt, Arab Rep.	35.1%	36.0%	36.9%
Ethiopia	40.3%	41.4%	42.1%
Ghana	41.9%	42.7%	43.6%
Guinea	39.6%	40.8%	41.3%
Kenya	34.3%	35.1%	36.0%
Lesotho	31.3%	32.4%	33.3%
Madagascar	39.6%	40.4%	41.6%
Malawi	40.3%	41.2%	42.1%
Mali	42.3%	43.9%	44.7%
Mauritania	36.1%	37.2%	38.0%
Morocco	36.4%	37.1%	37.9%
Mozambique	40.3%	41.3%	42.4%
Namibia	31.4%	32.6%	33.4%
Niger	41.9%	42.6%	43.8%
Nigeria	57.9%	58.6%	59.4%
Rwanda	40.3%	41.4%	42.2%
Senegal	45.1%	46.8%	47.5%
Sierra Leone	41.7%	42.8%	43.9%
South Africa	28.4%	29.1%	29.5%
Tanzania	58.3%	59.4%	60.2%
Togo	35.1%	39.2%	40.4%
Tunisia	38.4%	39.1%	39.9%
Uganda	43.1%	44.6%	45.4%
Zambia	48.9%	49.7%	50.8%
Zimbabwe	59.4%	61.0%	63.2%
Unweighted Average	***41.3%***	***42.3%***	***43.2%***

Source: Schneider 2004:11

Table 4.10 illustrates the size of informal economic activity for 24 African nations for the period 1999/2000. This shows that the size of the South African informal economy was 28.4% of the official GDP. There were 26,713,000 individuals between the ages of 16 – 65 years participating in the South African labour force. According to the results illustrated above the South African informal economy is the smallest of the 24 African economies.

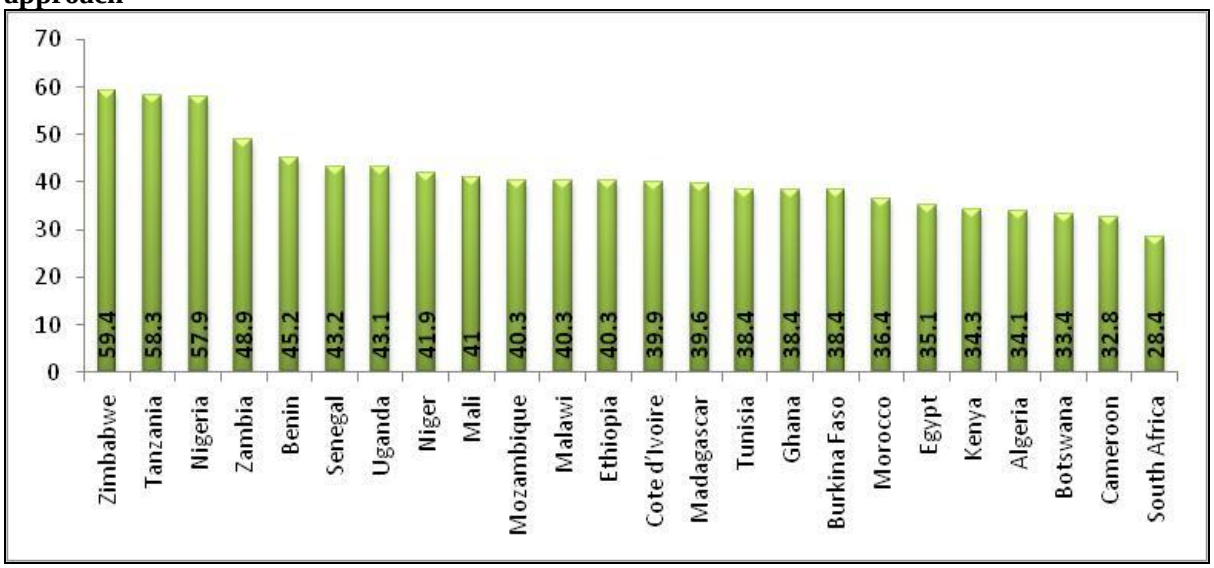
Table 4.10: Estimates for 24 African countries using the DYMIMIC approach

Country	GNP at Market Prices (Current US$, billion) 2000 [A]	Informal economy (Current US$, billion) 2000 [B]	Informal economy as % of GNP 1999/2000 [B] / [A]
Zimbabwe	71.4	42.4	59.4%
Tanzania	89.8	52.4	58.3%
Nigeria	367.3	212.6	57.9%
Zambia	27.9	13.6	48.9%
Benin	21.5	9.7	45.2%
Senegal	42.9	18.5	43.2%
Uganda	61.6	26.5	43.1%
Niger	18.1	7.6	41.9%
Mali	22.6	9.3	41.0%
Ethiopia	63.3	25.5	40.3%
Malawi	16.6	6.7	40.3%
Mozambique	35.8	14.4	40.3%
Cote d'Ivoire	86.1	34.4	39.9%
Madagascar	38.0	15.1	39.6%
Burkina Faso	21.7	8.3	38.4%
Ghana	48.3	18.5	38.4%
Tunisia	185.7	71.3	38.4%
Morocco	324.6	118.1	36.4%
Egypt	996.6	349.8	35.1%
Kenya	102.2	35.1	34.3%
Algeria	5061.0	172.6	34.1%
Botswana	52.8	17.6	33.4%
Cameroon	82.8	27.2	32.8%
South Africa	1226	348.3	28.4%

Source: Schneider, 2002:7

Figure 4.7 illustrates the information in the Table 4.10. The figure shows that the size of the South African informal economy is the smallest in Africa (at 28.4% of GDP for the period 999/2000). Zimbabwe has the largest informal economy in Africa which is estimated at 59.4% of GNP. Considering all African countries the estimate of the South African economy is the only one which is below 30% of GNP. The estimates for the African informal economies are of the largest in the world. This holds true for all African economies except for South Africa. As a result, the South African informal economy is excluded when estimating the average size of the informal economy in Africa.

Figure 4.7: Size of the informal economy for 24 African countries using the DYMIMIC approach



4.4.5 Comparative overview

According to Schneider (2003) and the World Bank, the size of the informal economy should be similar to the following estimates based on country type. This is illustrated in Table 4.11 The estimated size of the South African informal economy should be between 35%-44% of GDP.

Table 4.11: Size of the informal economy estimates based on country type

Country Type	% of GDP
Developing countries	35% - 44%
Transitional Countries	21% -30%
Developed economy	14% -16%

Source: Schneider, 2003

Table A.1 in the Appendix summarises the findings from the various approaches used to measure the size of informal sectors. It provides a brief overview of each approach and the estimates for the South African informal economy where applicable. As illustrated, there are varying and divergent estimates for the size of the informal economy. This is largely due to a lack of consensus of measuring the size of the informal economy and therefore influencing what is to be measured. In addition there are large differences between the official South African estimate which is achieved via the survey approach and the World Bank estimate which uses the DYMIMIC model approach.

With respect to other African nations, the informal economy in South Africa has the smallest size in terms of its contribution to GDP. The informal economies in Africa except for South

Africa have the largest informal economies in the world in terms of its contribution to GDP. In 2003 the following estimates were achieved for African countries; Ghana 43.6% of GDP, Nigeria 59.4% of GDP and Tanzania 60.2%.

Consequently, the differences in the methods to measure the size of the informal economy and the various aspects captured provide evidence that one approach is insufficient to estimate the relative size and contribution of the informal economy. Many South African researchers use the labour discrepancy approach which only provides insight in terms of informal employment but fails to capture its contribution to GDP. To gain a more holistic view it is suggested that the indirect and model approaches should also be used in South Africa to determine the size of the informal economy's contribution to GDP and capita per income. Failing to do this will result in the misrepresentation of the country's macroeconomic indicators. Furthermore, this methodological issue will continue to undermine the potential of the informal economy to create employment for the most vulnerable members of the South African labour force.

4.5 CONCLUDING REMARKS

This chapter provided insight into the informal economy of South Africa. It explained the specific features of the South African informal economy, the reasons why people participate in informal economic activity and then discussed important linkages between the formal and informal sectors. It is clear that a major reason why people resort to informal economic activity, relates to the extent of unemployment in the country. The unemployed have no other alternative because of the lack of a comprehensive social security network and participates as employed, self-employed and employers, as well as informal workers in the formal sector of South Africa. However, there are also other factors that push economic activity into the informal sector, such as the regulatory environment. For example, labour regulations push up the indirect cost of labour and may encourage informal, unlicensed or even illegal activity. It is also clear that there are important linkages (via the goods and services market, labour market, money market, etc) between the different sectors that cannot be ignored.

The second part of the chapter discussed the evolution of the official methods (i.e., Sections 4.3.1 and 4.3.2) by Stats SA to determine the size of the informal sector and highlighted specific challenges to the survey approach.

It uses the various methods for estimating the size of the informal economy discussed in chapter 3. South Africa experiences many of the same problems as other countries with regards to the most appropriate method to use to determine the relative contribution of the informal sector in the South African economy. The informal economy of South Africa is substantially smaller than those of other developing countries while the size of the informal economies in Africa is the largest found in the world. The methods to estimate it are also substantially different. If only the official method is used to draw conclusions pertaining to the informal economy, one would see that there was no real growth in terms of its contribution to GDP which is still estimated to be between 5% and 12% of GDP. In addition, informal employment as proportion of non-agricultural employment hovers around 20% in most of the surveys under study.

However, this does not diminish the role that the sector plays as a survivalist strategy to support the poor and unemployed in South Africa.

CHAPTER 5: GENERAL CONCLUSION

This study focused on the informal sector or shadow, hidden, underground or second economy. Economic thinking regarding the nature and role of this sector in relation to the formal economy changed over time. The initial viewpoint that the informal sectors will disappear because of its temporary survivalist nature, was proven to be very wrong. Informal sectors are a permanent feature of modern times, of developed as well as developing economies. However, the nature of informal activity changed over time to include real productive effort for commercial purposes and not only marginal activities, such as subsistence agriculture.

In fact, from the literature it is clear that the informal sectors of developing as well as developed countries are increasing in its relative size. Although the features of informal activity are very similar across countries, the reasons for resorting to informal activity may differ substantially. In developed countries the main reason behind participation in the informal economy may be to avoid and evade taxes and other regulations, whilst in the case of developing countries it may be directly related to high levels of unemployment.

It was also believed that there were no linkages between the formal and informal sectors of an economy. This was also proven wrong, which was clearly illustrated with Schneider's model where he distinguished between the official and the unofficial sectors. The ILO acknowledged this changed thinking by adapting the 'official' definition (i.e., the 17th ICLS approach) to also include informal workers that are employed in formal sectors. The formal and informal sectors interact via the goods and services market, the labour market and the money market. The informal sector pays indirect taxes (VAT and excises) and informal households are major receivers of government grants. The informal sector employs labour and contributes to the national product. It is clear that informal economic activity is complementary to that of the formal economy.

From the study it is also clear that the informal sectors of developing economies are larger and that they have grown faster than those of developed countries. However, the multitude of methods that are used by researchers make it extremely difficult to make meaningful comparisons and to interpret the results. The different direct and indirect methods were discussed in chapter three with reference to the strong and weak points of each. The methods measures different aspects of informal economic activity, for example its contribution to

GDP, or informal employment or electricity consumption. The results from the studies by different researchers on the informal sectors of developed, transitional and developing countries and the wide dispersion of estimates, illustrate the nature and extent of the 'measurement' problem.

The study finally focused on South Africa. It discussed the features of and reasons behind informal economic activity in South Africa. It is clear from the study that the extent of unemployment in the formal sector is a major factor behind increasing informal employment. It may also be that the extent of government regulation may influence informal sector activity. The estimates regarding the relative size of the informal economy of South African varies between various methods, as shown in Section 4.4. This is extreme and calls for further research. Should the size of the informal sector in South Africa be under-estimated according to the official methods, policy makers should seriously consider the application of other methods, in order to get a more holistic picture on the size of the informal economy.

APPENDIX

Table A.1: A summary of the various methods of estimation of the size of South African informal economy

Approach	Overview	Size of the informal economy
Direct approach		
Survey Approach	This method uses a well-designed survey and sample base to quantify the size of the informal employment	2011 quarter 1 estimated that 19.1% of total employment was in employed in the informal economy (QLFS2011Q1)
Tax Auditing Approach	This method aims at assessing the discrepancy between the amount of income declared for tax purposes and those selective checks	Method has not been conducted in SA
Indirect approach		
The discrepancy between national expenditure & income statistics	This method estimates size of the informal economy based on the discrepancy between income and expenditure statistics. The gap between the expenditure method and the income method can be used as an indicator of the scope of the informal economy.	Estimates for the South African economy are not available
The discrepancy between the official & actual labour force	This approach relies on survey data to estimate the size of the economically active labour force in the informal economy.	Most commonly used approach in South Africa i.e. Mini Devey et al (2 634 000, employees, unable to estimate self employed), revised Gasparini & Tornarolli (935 000 employees & 1 774 000 self-employed), Heintz & Posel (1250000 employees and 1402000 self-employed)[32].
The transaction approach	The transaction method for estimating the size of the informal economy by utilising information on the overall volume of transactions in the total economy	Estimates for the South African economy are not available

[32] See Yu (2010) for more information.

Table A.1: Continued

Approach	Overview	Size of the informal economy
Indirect approach		
The currency demand approach	This approach assumes that the informal economy operates on a cash basis as to leave no observable traces for the authorities to track. Thus an increase in the size of the informal economy would therefore be an increase in the demand for currency.	Hartzenburg & Leimann estimated the size of the informal economy to be 9.0% of GDP for the period 1989/90[33]. -Saunders used this approach an achieved an average of 9% of GDP for the period 1966-2002[34]. -Essop & Yu estimated the size of the informal economy for the period 1997-2007, there estimate is 6.6% of GDP in 2007[35]
The physical input method (electricity consumption)	The physical input method assumes that the ratio of electricity use and GDP can be econometrically estimated and that deviation from the expected levels is attributed to the informal economy. There are two methods to this approach; this is as a result of the different assumptions of the approach by Kauffmann- Kaliberda and Lackó**.**	Estimates for the South African economy are not available
Model approach		
MIMIC Model Approach	The model is separated into two parts i.e. the measurement model and the structural model. The measurement model is where the unobserved variables are linked to the observed variables. The structural model specifies the casual relationships between the unobserved variables; in the instance of the informal economy the only unknown variable is the size of the informal economy.	Estimates for the South African economy are not available
DYMIMIC Model Approach	The model approach explicitly considers multiple causes leading to the existence and growth of the informal economy as well as multiple effects of the informal economy over time	SA informal economy is estimated to be 29.5% of GDP for the period 2002/03[36]

[33] Schneider, 1999.
[34] Saunders, 2005.
[35] Essop & Yu, 2008b.
[36] Schneider, 2004

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