GROWTH AND THE INFORMAL ECONOMY

A study on the effect of growth on the relative size of the informal economy in the developing world

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Abstract

Throughout the developing world the informal ("black") economy is a current issue. It constitutes a source of vulnerability to the people affiliated to it, and further hampers the nation´s economic performance. In addition it is at large unresponsive to policy change, and is further on difficult to monitor by government officials. The informal economy is a global problem. Previous studies on the informal economy suggest, in agreement with the classical theory, that the informal economy will wither away with growth. However, this study, using proxy-data from 102 developing countries suggests that the decreasing effect of growth on the informal economy cannot be taken for granted. This paper argues that, to ensure that the size of the informal economy is decreasing with growth, policy makers need to take steps to increase the cost associated with informal employment arrangements. An altering of the institutional settings regarding employment arrangements is crucial to ensure that the informal economy is indeed decreasing with growth.

Keywords: Informal Economy, Informal Sector, Growth, Development, Proxy

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Acronyms

GDP – Gross Domestic Product

IILS – International Institute for Labour Studies

ILO – International Labour Organization

OLS – Ordinary Least Squares

LAC – Latin American and Caribbean (countries)

MNC – Multinational Corporation

OAU – Organization of African Unity

WIEGO – Women in Informal Employment: Globalizing and Organizing

1. Introduction

Throughout the developing world, the informal economy is a current issue (ILO, 2014). It ranges from the slum areas of the vibrant megacities, via the tea venders in the business areas, over the workers of multinational corporations, through the servant quarters of the wealthy families in the suburbs, and finally to the self-sustaining farmer in the countryside (UN-HABITAT, 2007; Vanek *et al*, 2014). It consists of people employed informally, who lack sufficient legal and social protection (ILO, 2013).

The informal economy is a global problem in the developing world. First, it hampers economic performance at national level as well as at the firm-level (Chen, 2006). Second, it constitutes a major source of vulnerability for employees as well as employers (ILO, 2004), as it provides a great number of unsecure jobs, and typically unsatisfying and uncertain levels of income (Günther & Launov, 2012). Third, it is finally at large unresponsive to policy change (Guha-Khasnobis *et al*, 2006), and its evasive nature makes it difficult to monitor by government officials (Chen, 2006).

Traditionally, the presence of an informal economy has not troubled local policy makers much (Loayza *et al*, 2006), At most, a policy of penalization towards the people engaged in economic informality has been adopted (Kinyanjui, 2014). Among the reasons for this lack of interest is the conviction among government policy makers that the informal economy will wither away with growth (Loayza *et al*, 2006). However, the informal economy continues to be a present issue throughout the developing world (Chen, 2012).

Hence, it is crucial for policy makers to alter their approach and adopt a sound and reasonable approach towards the informal economy. In order to determine what such an approach would imply, a wider understanding of the dynamics of the informal economy must be sought and, eventually, reached (Baccheta *et al*, 2009).

In this essay, I aim to contribute to a wider understanding of the dynamics of the informal economy by outlining the effect of growth on the relative size of the informal economy. However, the evasive nature of the informal economy makes this difficult (Schneider & Buehn, 2016). Using the words of economist Friedrich Schneider, researching the informal economy "can be described as a scientific passion of knowing the unknown" (Schneider, 2006, pp. 3). Thus I construct proxies aiming to capture the size of the informal economy.

This is common procedure when examining the size of the informal economy (see, for instance, Heintz & Pollin 2003, Galli & Kucera 2003, Loayza & Rigolini, 2006). Previous research tends to emphasize that the relative size of the informal economy is indeed decreasing with growth (Chen, 2012). However, the generated results depend on methodology, notably which proxy is used to capture the informal economy. Commonly used proxies are: national estimates (Heintz & Pollin, 2003), the residual method (Charmes, 2000), and proportion of self-employed in the economy (Loayza & Rigolini, 2006). In contrast to most previous research on the relationship between growth and the relative size of the informal economy, I partly use different proxies. Those are *Working Poor* and *Vulnerable Employment* (ILO, 2011). I use proportion of Self-Employed as an additional proxy for the relative size of the informal economy. Each one of these proxies displays characteristics that make them good estimates for the relative size of the informal economy. In using these three different proxies, my results account for the heterogeneity of the informal economy to a greater extent than the previous studies on the relation between growth and the size of the informal economy.

In this essay I run an OLS regression test to determine what effect an increase in per capita GDP has on the relative size of the informal economy in 102 developing countries from 2002 to 2015. In doing so, I will be able to answer the following question:

- What effect does growth have on the relative size of the informal economy?

The key question I aim to answer is whether growth has a formal employment generating function. I run a regression for all countries in the sample, as well as separate regressions for regions and based on level of development.

The results I am presenting in this essay indicate that the formal employment generating function of growth cannot be taken for granted by government policy makers. Accordingly, there is a need for an altering of the institutional settings regarding employment arrangements in the developing world. The cost of an informally employing formal firm should be elevated to ensure the formal employment generating function of growth. This can be accomplished by

- *Establishing proper legislation*
- *Imposing penalties on employers choosing informal employment arrangements*
- *Increasing official monitoring and surveillance*
- *Raising awareness among consumers*

These policy suggestions may be crucial in order to increase the costs of informal employment arrangements. This is fundamental in ensuring the formal employment generating function of growth, and thus enabling the relative size of the informal economy to decrease with growth.

This essay is structured as follows. Section 2 presents a background to what the informal economy is. In this section, I elaborate on the distinctive characteristics of the informal economy, and how these further imply economic issues that need to be dealt with. Section 3 offers a review of two opposing theoretical views of what the informal economy is, and whether the relative size of it is decreasing with growth. Proceeding, in section 4 I explain how I have constructed measures to capture the size of the informal economy. In this section, I further account to how my measures are good estimates for the size of the informal economy. Then follows section 5, where I present my results having tested whether growth has a decreasing effect on the relative size of the informal economy in 102 developing countries from 2002 to 2015. Moving on, in section 6 I analyse my results and offer policy suggestions that aim to ensure the formal employment generating function of growth. In this section, I also identify potential obstacles for these policies to be implemented. Section 7 concludes the essay. In this section I present concluding remarks, where I stress the need for more exhaustive research on the dynamics of the informal economy. But let us begin from the start, with the key characteristics of the informal economy.

2. Background

When the first summit of the Organisation of African Unity (OAU) was to be held in Nairobi in 1981, the city officials made efforts to clean the streets of informal kiosks and shanties, concluding that such were “an eyesore and a symptom of the lack of modernization” (Kinyanjui, 2014). This anecdote is typical for the way government officials have dealt with the informal economy in the developing world. Among policy makers all over the developing world, an agreement has been prevailing that the presence of economic informal activity were a result from unsatisfying levels of growth (Loayza *et al*, 2006). The mere existence of an informal economy was seen as an indicator of the city´s, county’s, and/or country´s inability to bring about said levels of economic success (Loayza *et al*, 2006). But due to a certainty that growth and modernization would eventually take place, policy makers generally felt no need to deal directly with the causes of informality, as the informal economy would vanish when economic growth prevailed (Chen, 2006; 2012). The informal economy was, in most developing countries, shoved under the rug, where it was to eventually disappear.

Yet, three and a half decades later, the informal economy continues to be a highly present issue in many developing countries. Whether the resilience of the informal economy is due to unsatisfying levels of growth or whether it is best explained by other factors remains debated among economists and policy makers. Some policy makers and researchers have felt the urge to re-examine the notion of informality to develop, and sometimes contradict, the approach of the earlier generation (see, for instance, Maloney 2004, Fields 2004, Chen 2006). However, the general idea that informality poses a historical anomaly, in the sense that it will vanish as the wheels of growth and modernization rolls off into the future, consequently prevails among policy makers at large (Chen, 2006).

What are the distinctive characteristics of the informal economy? This is the theme for the next section.

2.2. Features of the Informal Economy

The informal economy is prevalent throughout the developing world. It goes by many names, such as the subterranean, hidden, underground, shadow, secondary, black, invisible, unofficial, parallel, unobserved economy, or simply the economy of the poor (see Hope 2001, Guha-Khasnobis *et al* 2006, Günther & Launov 2012). Regardless of designation, scholars more or less refer to the same phenomena. That is: economic activity that is not or not sufficiently registered with, and regulated by, government officials. In this essay, I refer to this type of economic activity as "informal". The range and expression of informal activity differ from country to country, from city to city. There are, however, some similar characteristics of the informal economy that distinguish it from the formal (conventional) economy, whether the place of investigation is Kolkata, Caracas or Kigali (Guha-Khasnobis *et al*, 2006).

Guha-Khasnobis, Kanbur and Ostrom (2006) outlines three of these features, together composing the distinct characteristics of the informal economy in the developing world. First, the informal economy strongly tends to be far more labour intensive than the formal economy. Production and distribution of goods and services in the informal economy relies heavily of the contribution of labour, be it by own-account workers or workers employed by firms. Access to capital is limited in the informal economy. Second, the informal economy is to a larger extent devoted to small scale production. Third, the informal economy is largely unregulated. The economic activities occurring in the informal sector are not or not sufficiently formally registered with, or regulated by, government officials. The firms in the informal economy are to a great scope unincorporated and in some meaning unorganized in comparison to their formal counterparts. (Guha-Khasnobis *et al*, 2006)

There are beyond a doubt some positive elements associated with the informal economy. For example, the informal economy is highly labour intensive. Hence it offers a great number of employment opportunities for skilled and, mainly, unskilled workers (ILO, 2013). Moreover, the informal economy is unregulated, why some researchers emphasize the innovative and entrepreneurial features of informality, and argue that the informal economy should be seen as a haven where micro entrepreneurs are not limited by fees of entry and cumbersome legislation (see, for instance, De Soto 1989, Kinjanyui 2014).

However, the informal economy also displays non-desirable key characteristics. These can be categorized as issues of *economic performance*, *exposure to vulnerability*, and *responsiveness to policy and monitoring.* In the following sections, I elaborate on each one of these issues.

2.2.1 Economic Performance

The productivity in informal economy is lower than the productivity in the formal economy, which further puts constraints on the nation's economic performance (Vanek *et al*, 2014). This is due to the following reasons. First, employers in the informal economy face a large labour supply, implying the wage in the informal economy is lower than the wage in the formal economy, which has been shown by a number of studies (see, for instance, Maloney 2004, Chen 2006, Vanek *et al* 2014). Since labour costs are held at a minimum in the informal economy, informal employers partly lack the incentive to invest in innovative technology. This keeps productivity in the informal economy low (Galli & Kucera, 2003).

Second, the small-scale nature of the informal economy poses limits to economic performance, as firms and corporations remain sub-optimally small, either as attempt to work under the government radar to avoid reprisals, or due to lack of access to capital (Loayza *et al*, 2009). The small-scale labour intensive production that is occurring in the informal economy further implicates that returns to investment in human capital is considerably low in the informal economy (Galli & Kucera, 2003). This decreases the incentives for an individual affiliated to the informal economy to invest in an education, which likely hampers the macroeconomic performance (Jones & Vollrath, 2013).

Third, the unregulated nature of the informal economy creates a vacuum of power, leaving room for local authorities exercising illegitimate power. Parts of the earnings received by employers and employees in the informal economy serve as economic contributions to various local official or unofficial authorities, or in other words: as bribes (ILO, 2014). This limits the economic performance of the informal economy as well as the nation as a whole (De Rosa *et al*, 2010). In addition, since informal economic activity is not registered, the informal economy does not generate any direct tax revenue (Chen, 2006). The informal economy is thus withholding funds for government investments in, for instance, infrastructure. Moreover, the conditions under which informal actors operate differ significantly from the conditions of a well-functioning market. Informal firms strongly tend to lack access to appropriate finance and market information, as well as access to public infrastructure (Chen, 2012). Rules regarding default and bankruptcy are unclear at the best, and property rights are often insufficiently defined (Chen, 2012). These conditions represent ill-functioning institutions, and further constitute a hindrance to macroeconomic performance. In putting constraints on business expansion, the informal economy has a preventing effect on the country´s ability to fully develop a domestic industry and thus, benefit from access to the world economy (Bacchetta *et al*, 2009).

2.2.2 Exposure to Vulnerability

One key contribution of Nobel laureate Amartyia Sen is the suggestion that policy-makers should consider development economics as a matter of vulnerability and capabilities (Sen, 1999). According to Sen, every human has a certain combination of capabilities, and it is the degree to which she is exposed to vulnerability that determines whether she has the ability to fulfil these capabilities (Sen, 1999). A person who is exposed to a large degree of vulnerability will not have the same opportunity to fulfil her capabilities, compared to a person who is exposed to a low degree of vulnerability. Therefore, in promoting development and unlocking human potential, it is crucial to identify and counteract the sources of vulnerability.

People engaged in the informal economy are subjects to informal employment arrangements, and are thus in general exposed to vulnerability. The unregulated nature of the informal economy implies that the workers employed informally are exposed to higher levels of risk of losing their jobs, more seldom enjoy economic opportunities and rights, lack legal protection and are less able to exercise collective action by, for example, unionizing (ILO, 2014). The small-scale nature of the informal economy further implies that the average wage received in informal employment arrangements is substantially lower than the average wage received in formal employment arrangements (see, for instance, Maloney 2004, Chen 2006, Vanek *et al* 2014). This constitutes a source of vulnerability. The relatively low informal wages further puts a downwards pressure on the formal wages (Heintz & Pollin, 2003). The informal economy thus constitutes a potential source of vulnerability for formally employed workers as well. Income generated by informal economic activity is also more volatile than income generated by formal economic activity (Günther & Launov, 2012). In addition, informal employers consequently face the risk of government reprimands, which is yet another feature of vulnerability (Chen, 2012).

2.2.3 Responsiveness to Policy, and Monitoring

The informal economy is, at least to some extent, beyond the reach of the mechanisms of official governance (Guha-Khasnobis *et al*, 2006). Regulations regarding for instance minimum wage, workplace safety and congestion do not necessarily make their way into the informal economy (Guha-Khasnobis *et al*, 2006). Hence, legislation proposed by national officials as well as international policy makers, how well intended they ever may be in promoting development, might wind up resulting in status quo in the informal economy, failing to affect the lives of the vast masses engaged in informality.

Furthermore, the unregulated nature of the informal economy makes it cumbersome and difficult to monitor it. Evidence suggests that the prevalence of production of illegal commodities is far more widespread in the informal economy than in the formal economy (Chen, 2006). Where government surveillance is scarcer, illegal actors are more likely to be able to avoid reprimands, and presence of child labour and distribution of narcotics are frequently reported (Chen, 2006). The evasiveness of the informal economy makes discovering and counteracting these activities cumbersome.

2.3. The Informal Economy – a Problem

There are undoubtedly positive features and functions of the informal economy. But the negative features of the informal economy and the economic challenges they generate far surpasses the potentially positive externalities (Loayza *et al*, 2006). Accordingly, the presence of an informal economy is rightly considered an issue by researchers and policy makers.

However, the dynamics of the informal economy is still largely unknown. What are the causes of the informal economy, and what can policy makers do to make sure that more people make their way into formal employment arrangements? The literature offers two different views to these questions. In the next section, I elaborate on these opposing theoretical stances more profoundly.

3. The Future of the Informal Economy

As shown in the previous section, the informal economy should be considered an issue, as it

- Constitutes an expression of vulnerability
- Poses limits to economic performance
- Lack responsiveness to policy action

However, it is important to distinguish between two opposing views of the informal economy. In the following section, I elaborate on the predictions regarding the informal economy and growth championed by each one of these two opposing views. I start with the classical theory of informality, where the informal economy is predicted to wither away with growth. Then I discuss the New View of informality, where the informal economy is thought of as far too heterogeneous to be affected by the growth rate. I start from the beginning.

3.1. The Classical Theory

The "discovery" of the informal economy, though most likely older than the formal economy, is commonly designated to economist Keith Harts through his studies of urban employment in Ghana in the early 70´s (Hart, 1973). Hart´s presentation of an *informal sector* existing alongside the conventional economy was then rapidly adopted by the ILO (Chen, 2006). Theoretically, the notion of informality was put into the dual two-sector labour market model of Arthur Lewis, dividing the economy into one *formal sector* and one *informal sector* where firms and workers operating in both sectors are profit-maximizing and income-maximizing, respectively (Guha-Khasnobis *et al*, 2006). Central to this perception is the wage differences between the formal and the informal sector, and the approach concludes that the general relation between the wages earned in the two sectors is

$$w_{inf} < w_f$$

, where w_{inf} is the wage earned by any individual worker in the informal sector, and w_f is the equivalent in the formal sector (Lewis, 1972). Modelling the intersectoral relationship according to Lewis´s theory of the dual labour market, one important insight is that employers in the formal sector meet an "unlimited" supply of labour due to the wage differential. This implies that the formal wage remains unchanged, simply because employers do not need to raise it. The competition among workers keeps the formal wage from increasing. Furthermore, economic growth is, according to Lewis, solely occurring in the formal sector (Fields: 2004). Growth is also assumed to be generating formal employment (Fields: 2004). According to the classical theory, the future of the informal economy is dependent of growth. This is due to two core assumptions, which constitute the main underlying assumption upon which the prediction of the classical theory is built.

- Workers prefer formal employment arrangements over informal employment arrangements.
- Growth generates an increase in available formal jobs.

From this model, Lewis (1972) makes two predictions regarding the implications of economic growth:

1. As long as the surplus of labour in the formal sector is withstanding, economic growth implies intersectoral shifts of employment, from the informal to the formal. But the rise in real wages in the formal sector will be small or even non-existing.
2. However, the labour supply to the formal sector is not purely unlimited. Once it is exhausted a turning point is reached, and further economic growth will generate rising real wages throughout the economy.

The Lewis model is the first theoretical framework which manages the presence of an informal economy (sector). Since presented, a number of elaborations have been brought forward, most notably by John Harris and Michael Todaro (Fields, 2004). A keyword to these classical theories is *dichotomy*. The formal and the informal sector are seen as two separate units in the economy, either a person is part of it, or she is not. There is no room for nuances.

In the classical theory the informal sector is believed to mainly consist of small scale entrepreneurs engaging in survivalist activities (Chen, 2006). They may prefer formal jobs, but the lack of such, perhaps combined with the burden of taxes and heavy regulation makes people engage in informality (Harris & Todaro, 1970). Moreover, further applying the theorems of Lewis, the informal sector is thought of as (part of) the traditional sector, and hence constitutes a remnant which will wither away as industrial modernization and, particularly, growth, will make way for new, formal ways of economic activity (Chen, 2006).

3.2. The New View of Informality

Today, the dichotomist approach to the informal economy will soon be half a decade old. And as the informal economy consequently constitutes a prevalent feature around the globe, it is instead the dichotomist approach that, perhaps not withers away, but becomes contested. New ways of looking at the informal economy are emerging and informality is ascribed additional attributes, in a debate partly lead by the ILO. These New View (of informality) theorists conclude that neither one of the sectors can be seen as existing independently. They are more likely intertwined, as the informal sector produces goods that are purchased by formal employees, and the formal sector partly relies on the services of the informal sector (Todaro & Smith, 2009). The New View argues that the sectorial interdependence makes setting up a theoretical framework consisting of separate units unnecessary simplifying. Rather than labelling the formal and the informal spheres as *sectors* in a dichotomist relationship, New View economists suggest that it is more appropriate to reason in terms of *economies*, interdependently coexisting but at the same time displaying distinctively different conditions, notably in terms of employment arrangements (Heintz & Pollin, 2003). The notion of a clear dichotomy between the formal and the informal sector is abandoned by the New View. Thus, viewing economic activities associated with informality as forming a distinct *sector* becomes problematic (Sindzingre, 2006). The informal economy spans over all conventional sector of the formal economy (Heintz & Pollin, 2003).

Regarding the effect of growth on the relative size of the informal economy, the New View takes quite a different stance on the core assumptions of the classical theory outlined in the previous section. Starting with the first assumption, that workers prefer formal employment arrangements over informal employment arrangements, the New View offers certain reservations. Maloney (2004), among others, suggests that there is presence of voluntarism in the informal economy, implying that some workers prefer informal employment arrangements over formal employment arrangements. This may be due to the possibility that some workers enjoy a comparative advantage in the informal economy (Günther & Launov, 2012). Their specific set of abilities generates a higher income in the informal economy than in the formal economy. Heintz and Pollin (2003) has presented evidence of the presence of voluntarism from the Dominican Republic, where informal fruit venders would not leave their informal jobs for an entry level formal job, simply because they earned more conducting their informal business. However, it is important to emphasize that just because there is some evidence of voluntarism in the informal economy, this does not mean that everybody affiliated with the informal economy is there voluntarily. Fields (2004) suggests that there is a duality within the informal economy, consisting of (1) *the upper tier* – where presence is voluntary to a higher extent - and (2) *the lower tier* – where entry barriers are few or non-existing and the economic activity display more survivalist tendencies. In most developing countries, the overwhelming majority of workers employed informally are affiliated with the lower tier, where the informal wage is substantially lower than the formal wage, making the issue of voluntarism a peripheral phenomenon (Fields, 2004). So even if the New View poses some reservations to the first core assumption of the classical theory, it agrees with the classical theory that workers, in general, prefer formal employment arrangements over informal employment arrangements.

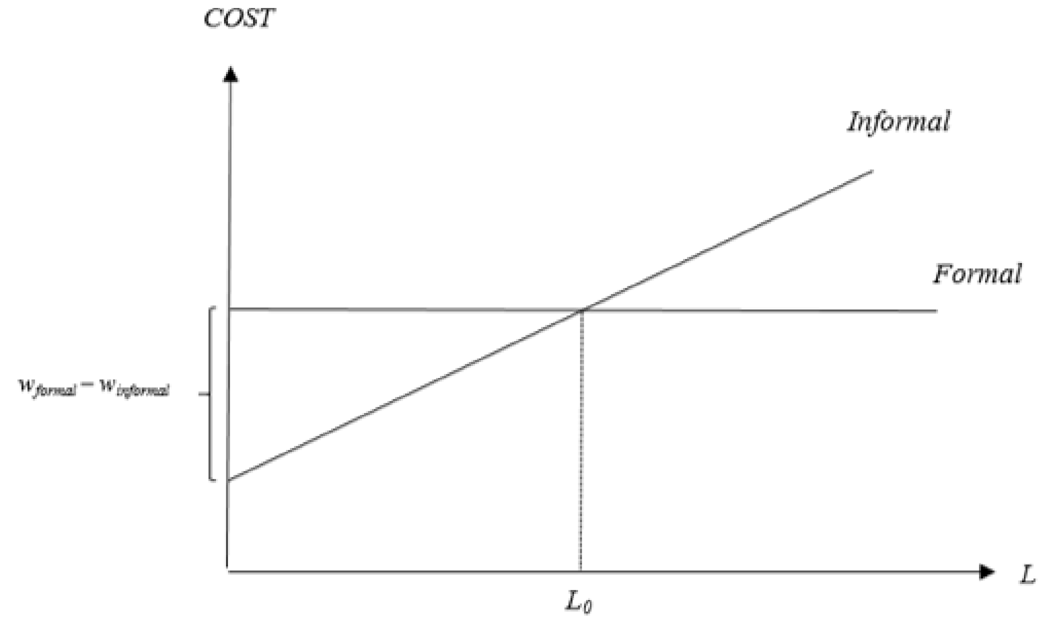
Moving on to the second condition, the formal employment generating function of growth, the New View is harsher in its reservations. In this essay, I assume that growth is generating employment, even though this is debated (see, for instance, Mukherjee 2014). The question of interest is rather whether the employment generated by growth is formal or informal employment. Where the classical theory assumes that formal employment will by created as growth prevails, the New View elaborates the matter to reasoning about institutions. Assuming that the wage payed in informal employment arrangements is substantially lower than the wage payed in formal employment arrangements, profit-maximizing employers, whether formal or informal, face an incentive choosing informal employment arrangements over formal employment arrangements. To ensure that employers choose formal employment arrangements over informal employment arrangements, an institutional setting that imposes costs to informal employment arrangements is required. The institutional setting might consists of

- Legislation regarding employment arrangements.
- Punitive measures towards employers who rely on informal employment arrangements.
- The probability an informally employing firm faces getting caught.
- Potential decrease in demand for the product supplied by an informally employing firm.
- Additional factors imposing costs on firms which choose informal employment arrangements.

To deal with this theoretically, I construct a composite measure of all the factors above and call it *L*, a factor determining the choice of type of employment arrangements. I present this in Graph 1.

Graph 1

The institutional setting and employer's choice of employment arrangements



Note*: Graph 1 is showing the employer´s choice of type of employment arrangements as a function L (institutional setting). For any level of L lower than L_0, the cost of informal employment arrangements facing the employer is lower than the cost of formal employment arrangements. The employer will choose informal employment arrangements over formal employment arrangements. For any level of L higher than L_0 the cost of informal employment arrangements facing the employer is higher than the cost of formal employment arrangements. The employer will choose formal employment arrangements.*

Where the classical theory takes a level of *L* higher than or equal to L_0 as given *a priori*, the New View argues that the institutional setting present priors informal employment creation over formal employment creation. The flexibilization of employment arrangements constitutes a major factor keeping the relative size of the informal economy from decreasing with growth (Chen, 2006). The New View stresses that, in contrast to the classical theory, that the informal economy is a feature of contemporary growth, and should be approached accordingly (Chen, 2012).

3.3. Opposing Predictions

The theoretical framework described in the previous sections offers two opposing predictions of the effect growth will have on the relative size of the informal economy. The classical theory proclaims that as growth prevails, new formal jobs will be generated. The people affiliated with the informal economy will then make their way into formality in search for these jobs. In this process, the informal economy (sector) will decrease in size until it constitutes a negligible issue. Moreover, the degree of vulnerability in the informal sector will also decrease, as incomes in the informal economy rises with growth.

In contrast to the classical theory, the New View anticipates no effect of growth on the relative size of the informal economy. The very heterogeneity of the informal economy makes it a sturdy phenomenon. It takes on new guises and merges into new shapes, and dynamics of casualization and informalization of employment relations makes the informal economy a resilient feature of modernization and contemporary economic growth. Since the institutional setting required to ensure the formal employment generating function of growth likely is inadequate in most developing countries, the relative size of the informal economy is independent of growth rate.

In the following sections, I show that the informal economy is indeed displaying the resilience designated to it by the New View. The institutional setting required to ensure the formal employment generating function of growth is likely not present at large in the developing world. To do this, I require data on the informal economy. But how does one measure such an evasive phenomena as the informal economy? This is the theme for Section 4.

4. Methodology

In this section I present on how to define and measure the relative size of the informal economy, and how to interpret the variables obtained. I use three different proxies as my dependent variables, each capturing different aspects of informality. Next follows a description on how I construct the independent variables. Then I formalize my estimation strategy, and elaborate on how I take precautions to ensure that the estimation is efficient and discuss the potential endogeneity. But let us begin with the issues of definition.

4.1. The Data

As specified in section 2, I define "informal" as any economic activity not, or not sufficiently, registered with, and regulated by, government officials. Informal employment arrangement is thus defined as employment arrangements that are not properly registered with the official branches of government. Any worker employed informally is hence part of the informal economy (ILO, 2011). The variable of interest in the following sections is the relative size of the informal economy, which should be interpreted as the share of employed persons employed informally. This includes workers at formal firms whose employment arrangements are informal.

However, informality is a heterogeneous phenomenon in the developing world. Thus, there are likely degrees of informality. Employees could be engaged in informal economic activity to various degrees. For instance, a person holding an additional part-time informal job alongside a full-time formal job is not engaged in informality to the same degree as a person whose only source of income stems from informal economic activity. However, there is no commonly used method to fully capture the heterogeneity of the informal economy, even if efforts to establish one have been made (see Maloney, 2004; Nguimkeu, 2014). In this essay, I do not attempt to discriminate between types of informal employment. Hence I am using a binary approach in the empirical investigation where an employee is either a subject to informal employment arrangements and thus affiliated with the informal economy, or not a subject to informal employment arrangements and thus affiliated with the formal economy.

It is not without reason that the informal economy is sometimes referred to as "the *unobserved* economy" (Schneider & Williams, 2013). As noted previously, the evasive nature of the informal economy makes it cumbersome to construct a measure that properly displays the size of it. But to determine the effect of growth on the informal economy, data on informal employment is required. For most developing countries, data on informal employment remains non-existing, unavailable and/or of insufficient nature. Thus, consistent with existing literature, I use proxy measures. There has been some debate whether using proxies is a proper way to examine the size of the informal economy (see, for instance, Dixon 1999). But since no other data is available to a satisfying extent, I, like previous studies (Heintz & Pollin, 2003; Galli & Kucera 2003; Loayza & Rigolini 2006), use proxies. For the analysis in the following sections, I employ three different measures as proxies[1] for the relative size of the informal economy. These are:

- *Working Poor* – This proxy is recommended by the ILO (2011). It contains all workers who live under the nationally defined poverty line. This proxy corresponds to compound evidence that the wage received in the informal economy is substantially lower than the wage received in the formal economy (see, for instance, Maloney 2004, Chen 2006, Vanek *et al* 2014).
- *Vulnerable Employment* – This proxy is also recommended by the ILO (2011). It is based on International Classification of Status in Employment, and contains all workers classified as own-account workers or contributing family workers. Together they compose the proxy. The vulnerably employed strongly tend to lack the social and legal protection associated with formal employment arrangements.
- *Self-employment* – This proxy is commonly used as a proxy for the informal economy (see, for instance, Loayza & Rigolini 2006). It contains all workers who are self-employed. Like the vulnerably employed, the self-employed strongly tend to lack the social and legal protection associated with formal employment arrangements.

Using three different proxies of the informal economy enables a better estimation of the effects of growth on relative size of the informal economy in the following section. However all three proxies are likely to underestimate the relative size of the informal economy. For instance, the UN, the ILO, WIEGO, and others propose that the share of the people employed informally in Sub-Saharan Africa amounts to between 60% and 80%, thus surpassing the observed value of either one of the proxies (see, for instance, Chen 2006, Nguimkeu 2014, Heintz & Pollin 2003, UN-Habitat 2007, Vanek *et al* 2014). Any proxy intended to capture

[1] For a more elaborate description on how I construct the proxies, see the Appendix.

the relative size of the informal economy is likely underestimating the size of it[2]. Nonetheless, I use proxies, as doing so constitute the "least-worst" option in measuring the size of the informal economy.

When examining the informal economy in the developing world, data at a sub-national level is largely unobtainable. Hence, I use data at the national level. I rely on the UN:s classification of developing countries, which leaves me with 107 developing countries in Africa, Asia, Latin America and the Caribbean (UN, 2012). To make my study up-to-date, I use the latest data available. To compare effects over time I use observations from each year dating back to 2002.

In accordance with Loayza, Maria, and Servén (2006), I use the natural logarithm of per capita GDP in as my output variable. The GDP is in 2010 US dollars. Moreover, industrial modernization has a decreasing effect on the relative size on the informal economy according to the classical theory. I thus add a variable for modernization, when available. For this I use the share of employed person employed in the industrial sector, which may be used as an indicator for the level of modernization (Stockener & Sundström: 2016).

Moving on, I add control variables to my test to get a more thorough indicator of the level of development in the country of interest. I use data for internet users per 100 inhabitants which is an indicator of the level of development in a specific country. I also use data for life expectancy in years at birth, which is a non-monetary indicator for the level of development in the country. Last, I use the rate of population growth as a control variable, as it constitutes a factor indicating the level of development in the country. I use these control variables as an attempt to isolate the effect of growth on the relative size of the informal economy.

All observations are listed by country and year. Due to lack of data, four countries (Djibouti, Taiwan, Somalia and the Arab Republic of Syria) are omitted from the dataset, leaving 102 developing countries. 30 of them are Asian, 24 are LAC, and 43 are Sub-Saharan. Five are North African countries. 36 of the countries are classified as LDC:s[3] (UN, 2016). Since the data set contains observations over time and individual countries, it is to be defined as a longitudinal dataset, or: a panel. Next, it is time to put my data to work.

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[2] Using Proxies as outcome variables reduces the precision of the OLS estimates, but does not affect their consistency as long as the measurement error is classical (see Bingley & Martinello, forthcoming)
[3] For a full list of the countries examined, see the Appendix

4.2. The Model

I specify the estimation strategy I use to the effect of growth on the relative size of the informal economy. Since I have three proxies for the relative size of the informal economy I run three separate OLS-regressions, where each proxy constitutes the dependent variable. In all regressions the growth rate in per capita GDP for the current year and the growth rate in per capita GDP from the previous year constitute independent variables. Data for employed persons employed in the industrial sector is largely unobtainable for African countries and LDC:s. Thus I only use this variable when running regressions for Asia and LAC separately. For all the regressions, I use the control variables. The OLS-regression model is:

$$WP_{i,j} \textbf{ or } VE_{i,j} \textbf{ or } SE_{i,j} =$$

$$\beta_0 + \beta_1 g_{i,j} + \beta_2 g_{i,j-1} \left(+ \beta_3 IND_{i,j}\right) + \beta_4 \Delta POP_{i,j} + \beta_5 INT_{i,j} + \beta_6 LIFE_{i,j} + \lambda_i + \lambda_j + \varepsilon_{i,j}$$

WP is the *Working Poor*-proxy, *VE* is the *Vulnerable Employment*-proxy, and *SE* is the *Self-Employment*-proxy. $g_{i,j}$ is the natural logarithm of GDP per capita, $g_{i,j-1}$ is the same lagged variable, and *IND* is the share of employed people employed in industry. *ΔPOP* constitute the annual percental growth rate in population, *INT* is the amount of internet users per 100 inhabitants, and *LIFE* is the life expectancy at birth in years. β_1, β_2, and β_3 are the estimated coefficients in the regression, and the main point of interest, since they tell us how the independent variables affect the relative size of the informal economy. β_4, β_5, and β_6 are the estimated coefficients of the control variables, why they are of little interest to the forthcoming analysis. The same goes for β_0, which constitutes an intercept in the regression model. ε is an error term. *i* denotes a specific country, while *j* denotes a certain year. I run separate regressions for each independent variable of interest ($g_{i,j}$,$g_{i,j-1}$, and *IND* (for Asia and LAC)), and one multivariate regression containing all independent variables available.

The data set contains data on 102 developing countries in Africa, Asia, Latin America and the Caribbean, over a period from 2002 to 2015. For some years and countries, the data set contains missing values. Since I am computing a longitudinal data set, I take steps to adjust the OLS to the distinct characteristics of a panel. I allow for heteroscedasticity, by clustering the standard errors by country. Furthermore, I use fixed effects for country as well as for year.

λ_i denotes the fixed effects for a specific country and $\lambda_j$denotes the fixed effects for a specific year.

All investigations of the effects of growth on the relative size of the informal economy face a problem of endogeneity due to simultaneity. Since I am interested in whether the relative size of the informal economy decreases with growth, but also suspect that the relative size of the informal economy hampers growth (Loayza *et al,* 2006), I have to conclude that my model might suffer from endogeneity due to simultaneity (Dougherty, 2011). The issue of endogeneity is eased using a lagged independent variable (Buch *et al*, 2013). In addition, previous studies on the effect of growth on the informal economy has not been able to establish a method to work around the issue of simultaneity (see, for instance, Loayza & Rigolini 2006, Heintz & Pollin: 2003, Galli & Kucera 2003). The fact that I am using fixed effects for country and year further eases the issue of endogeneity.

My model sets out to determine the effects on growth (and modernization) on the relative size of the informal economy. The effects are measured in terms of coefficients. For the relative rate of informality to decrease with growth, provided that the vast majority of workers employed informally prefer formal employment arrangements over informal employment arrangements, the formal employment generating function of growth must be prevalent. The classical theory assume that is. The New View suggests that it most likely is not. In the following section, I present results that provide evidence to the latter.

5. Results

As outlined in previous sections, I am assuming that the majority of informal workers prefer formal employment arrangements over informal employment arrangements. My test is hence determining whether growth generates an increase in available formal jobs. The results are presented in Tables 1 to 4. First I present the results for the sample as a whole, after which I display the results for different subgroups (Sub-Saharan Africa, LDC:s, and Asia)[4].

Table 1: *102 Developing Countries in Africa, Asia, and Latin America and the Caribbean*

	Working Poor			Vulnerable Employment			Self-Employment		
ln (GDP/capita)	-0.4269*** (0.0765)		-0.3959*** (0.0614)	-0.0428 (0.1475)		-0.4259 (0.3091)	-0.1478 (0.1012)		-0.1705 (0.0990)
ln (GDP/capita) Previous year		-0.3781*** (0.0800)	-0.0374 (0.0611)		0.0329 (0.1595)	0.4194 (0.3624)		0.0084 (0.0086)	0.0124 (0.0077)
Number of Observations	1189	1190	1184	437	436	433	528	523	519
R^2 Within	0.5154	0.4843	0.5157	0.0331	0.0333	0.0358	0.1162	0.1176	0.1278
R^2 Between	0.7492	0.7632	0.7507	0.4447	0.2420	0.1223	0.7760	0.1712	0.7764
R^2 Overall	0.7417	0.7547	0.7432	0.3130	0.1566	0.0745	0.6937	0.0816	0.6969
Unconditional Mean	0.3679			0.3227			0.4179		

Note: *Robust standard errors in parenthesis.* $^{***}P < 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$.

The table shows the effect of growth on the relative size of the informal economy for 102 developing countries in Africa, Asia and the Latin America and the Caribbean from 2002 to 2015. The relative size of the informal economy is measured by three different proxies: Working Poor, Vulnerable Employment and Self-Employment. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy when measured by the three different proxies.

The bottom row in Table 1 shows that the mean of the share of employed people who are affiliated with the informal economy, in the countries in the sample, ranges between just below a third to just above 40%, depending on which proxy I use. Then what about the effects of growth on the informal economy? Consider the Working Poor-proxy. For both $g_{i,j}$ and $g_{i,j-1}$ the first two rows in Table 1 show a three-star significance (***) that the coefficients are negative. This results imply that an 1%-increase in this year's ln(GDP/capita) would render a decrease in the relative size of the informal economy of just above 0.4%, *ceteris paribus*. This

[4] For results not presented in section 5, see the Appendix.

further on implies that, holding all else constant, that an annual growth rate in per capita GDP of, say 2%, after ten years would result in a decrease of the relative size of the informal economy by almost 9%. In other words: the informal economy withers away with growth. This result holds regardless whether I run a regression containing just one of the explanatory variables or containing both. If I use the Working Poor-proxy for *all* developing countries in the sample, there is evidence that the prediction of the classical theory is accurate.

But when looking at the Vulnerable Employment-proxy and the Self-Employment-proxy, Table 1 shows no effect of growth on the relative size of the informal economy. For $g_{i,j}$ the coefficient is negative. But for $g_{i,j-1}$ the coefficient is positive, implying that the relative size of the informal economy is actually *increasing* with the growth rate of the previous year. However, since none of the results correspond to a significant P-value, I conclude that growth has no effect on the relative size of the informal economy when using Vulnerable Employment or Self-Employment as proxies for the relative size of the informal economy. It is true, however, that the numbers of observations are substantially lower for Vulnerable Employment and Self-Employment, than for Working Poor. Row three in Table 1 shows the number of observations. However, the number of observations for Vulnerable Employment and Self-Employment is adequate.

Different institutions are operating in different regions. Likely, the effect of growth on the relative size of the informal economy varies across geographic regions. In Table 2 below, only the Sub-Saharan countries in the sample are considered.

Table 2: *43 Developing Countries in Sub-Saharan Africa*

	Working Poor			Vulnerable Employment			Self-Employment		
ln (GDP/capita)	-0.3235*** (0.0651)		-0.3141** (0.0998)	0.0201 (1.0298)		-1.3015 (2.5269)	0.0090 (0.2429)		-0.0063 (0.3776)
ln (GDP/capita) Previous Year		-0.2617*** (0.0634)	-0.0104 (0.0896)		0.1610 (1.1529)	1.4372 (2.9197)		0.0116 (0.1418)	0.0154 (0.2180)
Number of Observations	501	501	501	77	77	77	92	92	92
R^2 Within	0.5800	0.5604	0.5800	0.1139	0.1144	0.1182	0.2629	0.2630	0.2630
R^2 Between	0.6760	0.6924	0.6761	0.5012	0.2383	0.2261	0.4667	0.4626	0.4659
R^2 Overall	0.6739	0.6849	0.6741	0.4145	0.1655	0.1763	0.5324	0.5284	0.5318
Unconditional Mean	0.6097			0.4147			0.6245		

Note: *Robust standard errors in parenthesis. ***P < 0.001, ** P < 0.01, * P < 0.05.*

The table shows the effect of growth on the relative size of the informal economy for 43 developing countries in Sub-Saharan Africa from 2002 to 2015. The relative size of the informal economy is measured by three different proxies: Working Poor, Vulnerable Employment and Self-Employment. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy when measured by the three different proxies.

The upper rows in Table 2 show that growth has a significant negative effect on the relative size of the informal economy, when using the Working Poor-proxy. However, the effect is substantially smaller than it was when considering all countries in the sample as Table 1 shows. The bottom row in Table 2 shows that the mean of the relative size of the informal economy is substantially larger for the Sub-Saharan sample than for the complete sample. The informal economy is large in Sub-Saharan Africa.

Furthermore, looking at the Vulnerable Employment-proxy and the Self-Employment-proxy, Table 2 shows no significant negative effect of growth on the relative size of the informal economy. This provides evidence to the idea of a resilient informal economy independent of growth rate.

The relative size of the informal economy is presumably largest in the least developed countries. Table 3 shows the effects of growth on the relative size of the informal countries in the LDC:s in the sample.

Table 3: *36 Developing Countries classified as LDC:s (UN, 2016)*

	Working Poor			Vulnerable Employment			Self-Employment		
ln (GDP/capita)	-0.5376^{***} (0.1188)		-0.4951^{**} (0.1300)	2.3836 (2.7064)		1.5788 (4.4143)	-0.5665 (0.5589)		0.0753 (1.8813)
ln (GDP/capita) Previous Year		-0.4687^{**} (0.1239)	-0.0463 (0.1277)		2.5995 (2.7124)	1.1067 (4.3005)		-0.6753 (0.5183)	-0.7513 (1.8496)
Number of Observations	395	395	395	45	45	45	57	57	57
R^2 Within	0.6181	0.5809	0.6185	0.3059	0.3042	0.3071	0.3945	0.3976	0.3977
R^2 Between	0.4308	0.4394	0.4319	0.0001	0.0016	0.0003	0.3682	0.3185	0.3153
R^2 Overall	0.4366	0.4448	0.4375	0.0333	0.0505	0.0417	0.2763	0.2223	0.2189
Unconditional Mean	0.6854			0.6071			0.7856		

Note: *Robust standard errors in parenthesis.* $^{***}P < 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$.

This table shows the effect of growth on the relative size of the informal economy for 36 developing countries (LDC:s) in Africa, Asia and the Latin America and the Caribbean from 2002 to 2015. The relative size of the informal economy is measured by three different proxies: Working Poor, Vulnerable Employment and Self-Employment. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy when measured by the three different proxies.

The bottom row in Table 3 shows the mean of the relative size of the informal economy in the LDC:s. Not surprisingly, the relative size of the informal economy is substantially large in the LDC:s. Moreover, the upper rows in Table 3 show that the effect of growth on the relative size of the informal economy is larger when only considering the LDC:s in the sample. Using the Working Poor-proxy, an annual growth rate per capita of 1% implies somewhere around a 0.5% decrease of the relative size of the informal economy. But using the Vulnerable Employment-proxy or the Self-Employment-proxy, Table 3 offers no evidence that the relative size of the informal economy decreases with growth.

In fact, there is only one situation when Vulnerable Employment or Self-Employment is significantly decreasing. In Table 4 below, only the Asian countries in the sample are considered.

Table 4: *40 Developing Countries in Asia*

	Vulnerable Employment				Self-Employment			
ln (GDP/capita)	-0.1953 (0.2224)			-0.1894 (0.3346)	-0.2032 (0.1600)			-0.1875 (0.1653)
ln (GDP/capita) Previous Year		-0.1703 (0.2248)		0.2269 (0.3837)		0.0213 (0.0098)		0.0262 (0.0126)
Industrial Employment			-0.0059* (0.0024)	-0.0060* (0.0021)			-0.0032* (0.0015)	-0.0025 (0.0012)
Number of Observations	157	157	136	136	180	179	155	154
R^2 Within	0.2910	0.2882	0.3509	0.3532	0.4333	0.4289	0.4322	0.4672
R^2 Between	0.5066	0.4957	0.4690	0.3990	0.6220	0.3301	0.4645	0.6356
R^2 Overall	0.6662	0.6585	0.6695	0.6140	0.6020	0.4188	0.5455	0.6439
Unconditional Mean	0.3059				0.3455			

Note: *Robust standard errors in parenthesis.* $^{***}P < 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$.

This table shows the effect of growth on the relative size of the informal economy for 30 developing countries in Asia from 2002 to 2015. One additional explanatory variable is added, namely Industrial Employment. The relative size of the informal economy is measured by two different proxies: Vulnerable Employment and Self-Employment. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The third row shows the effect of Industrial Employment on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy when measured by the two different proxies.

Table 4 contains an extra explanatory variable, Industrial Employment, in addition to growth rate and growth rate of previous year. Using the Vulnerable Employment-proxy or the Self-Employment-proxy, Table 4 shows that the relative size of the informal economy is solely significantly decreasing with share of employed person employed in the industrial sector. The effect, is however, quite small, which row three in Table 4 shows. Row one and two in Table 2 further show that growth has no significant effect on the relative size of the informal economy.

5.1 Summary of Results

In summary, growth seems to have a decreasing effect on the relative size of the informal economy. But that only holds using the Working Poor-proxy. Using the Vulnerable Employment-proxy or the Self-Employment-proxy, growth has no significant effect on the relative size of the informal economy. The only situation where the relative size of the informal economy is decreasing, using Vulnerable Employment or Self-Employment, is when Industrial Employment increases, and that is only for the Asian countries in the sample.

It is likely that the Working Poor-Proxy is biased. Growth might elevate the incomes of workers employed informally, and thereby have a decreasing effect on the Working Poor proxy without affecting the actual size of the informal economy, in line with Lewis´s (1972) second assumption (without implying the first assumption). The Working Poor-proxy might hence tell a misleading tale about the effect of growth on the relative size of the informal economy. Growth might have a decreasing effect on certain income related aspects of the vulnerability associated with the informal economy. But the problems of the informal economy regarding economic performance, and responsiveness to policy and monitoring, prevail independent of growth rate.

Relating this to the core assumption of the previous sections, it is clear that policy makers cannot take the formal employment generating function of growth for granted. The relative size of the informal economy does not necessarily decrease with growth. What are the causes of this, and how should policy makers approach this problem? This is the theme for the following section.

6. Analysis and Policy suggestions

As shown in the previous section, growth has a decreasing effect on the relative size of the informal economy only when using the Working Poor as a proxy for the relative size of the informal economy. However, that only holds for certain regions and groups of countries. In addition, the Working Poor-proxy might be biased.

Furthermore, using the Vulnerable Employment-proxy or the Self-Employment-proxy, growth has no significant decreasing effect on the relative size of the informal economy. This implies that the formal employment generating function of growth cannot be taken for granted by policy makers. The theme for the following section is why formal employment is not spurring with growth. Proceeding, I elaborate on what policy makers can do to ensure the formal employment generating function of growth.

6.1. Analysis: Why growth does not necessarily generate an increase in formal jobs

In a situation with unemployment and a large informal economy, workers are desperate to obtain any income-generating contract. Workers prefer formal employment arrangements, but they also prefer any employment arrangements over no employment arrangements. This implies that the employers possess strong influence when deciding on type of employment arrangements.

There is an obvious benefit for employers in choosing informal employment arrangements. Since the wage in informal employment arrangements is substantially lower than the wage in formal employment arrangements, profit-maximizing employers make a profit-maximizing decision in choosing informal employment arrangements over formal employment arrangements. Any additional demand for labour generated by growth is a matter of choice of employment arrangements by the employer. Assume that the cost of informal employment arrangements is lower than the cost of formal employment arrangements. Further assume that the employer can attract the same type of worker regardless of type of employment arrangements. This situation implies that the employer will accordingly choose informal employment arrangements over formal employment arrangements.

The results I presented in the previous section indicate that growth likely does not generate an increase in available formal jobs. This implies that the cost of choosing informal employment arrangements is lower than the cost of choosing formal employment arrangements, why employers are choosing informal employment arrangements over formal employment arrangements. This keeps the relative size of the informal economy from decreasing with growth. Recalling the Graph 1 presented in section 2, I conclude that, in majority of the countries examined, the level of L is lower than L_0.

The presence of the informal economy is generating negative externalities, matters of, economic performance, vulnerability, and responsiveness to policy and monitoring. It is thus crucial that measures are taken to ensure that growth indeed generates an increase in available formal jobs. But, the informal economy is at large unresponsive to policy change. The next section offers suggestion on how policy makers can act to deal with this.

6.2. Policy Suggestions – How to ensure that growth generates an increase in available formal jobs

To make sure that the relative size of the informal economy is indeed decreasing with growth, policy change is required. However, the evasive nature of the informal economy implies that the effects of policy change do not necessarily make their way in to the informal economy. How should policy makers then go about in reinforcing the formal employment generating function of growth?

An important actor contributing to the size of the informal economy is formal firms choosing informal employment arrangements. These firms are, in contrast to informal firms, formally registered with official branches of government. However, they are at the same time displaying a tendency of informalizing jobs, choosing informal employment arrangements over formal employment arrangements. Nonetheless, since these firms are formally registered, they are subjects to regulation. Thus formal firms employing informally may be affected by a change in policy.

Steps must be taken to

- Prevent employers from infomalizing employment arrangements.
- Encourage employers to formalize employment arrangements.

This is once again a matter of costs of employment arrangements. Returning to the analytic framework I presented in section 2, a convenient way to achieve this is by elevating *L*. This is done by changes in the institutional setting. I present potential ways of achieving this below.

Establish proper legislation. The legislative framework regarding employment arrangements should favour formal employment over informal employment. In many developing countries legislation regarding employment arrangements is dubious and unclear (Loayza *et al*, 2006). Efforts should be made to establish a clear and coherent legal framework for employment arrangements.

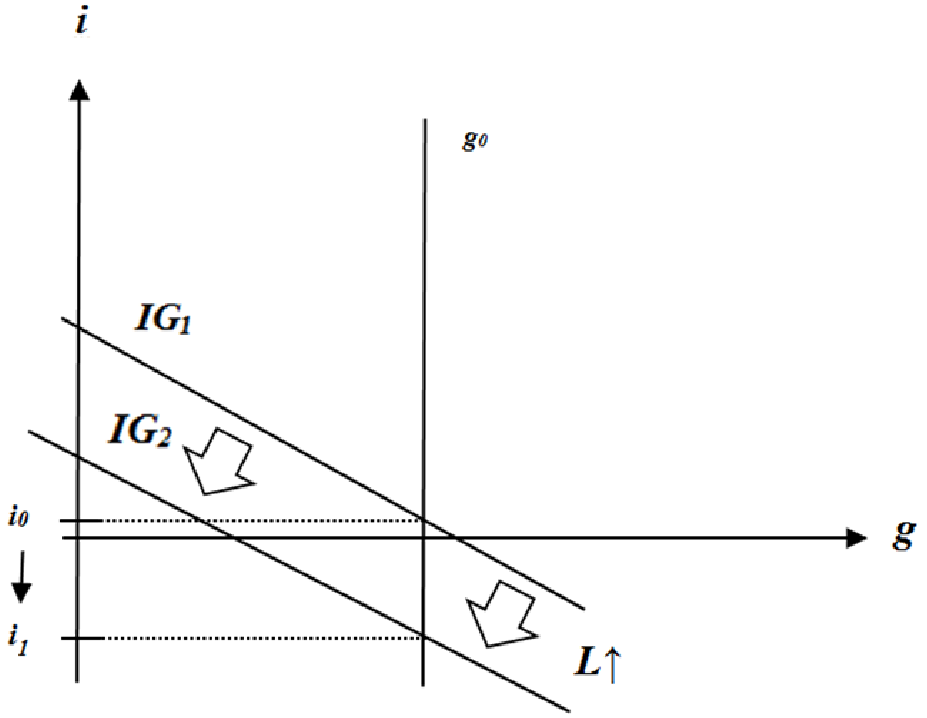
Impose penalties on employers choosing informal employment arrangements. Employers which choose informal employment arrangements over formal arrangements should be subject to punitive measures such as fines or a temporary ban on business activity. This would increase the risk, and thus the cost, of choosing informal employment arrangements.

Increase official monitoring and surveillance. To ensure that the legislation is heed by employers, officials should make efforts to consequently monitor the nature of employment arrangements. This could be done by introducing or increasing random controls by government agencies.

Raise awareness among consumers. Consumers should be aware about the negative externalities associated with informal employment arrangements. Moreover, employers relying on informal employment arrangements should be branded in some kind of way, to raise consumer´s awareness about the nature of employment arrangements for the specific employer. This will potentially result in a decrease in profit for employers relying on informal employment arrangements.

If these policy suggestions are implemented, the cost of using informal employment arrangements is likely to increase. Thus, the formal employment generating function of economic growth will increase, generating a decrease in the relative size of the informal economy. To illustrate this, I turn to the analytic framework presented by Heintz and Pollin (2003).

Graph 2: The effect of policy change on informalization rate



*Note: Graph 2 builds on the work of Heintz and Pollin (2003). The horizontal axis represents the annual growth rate in per capita GDP (**g**). The vertical axis represents the annual growth rate in the relative size of the informal economy (**i**). The vertical line $\mathbf{g_0}$ is a steady level of growth rate. When the growth rate has no effect on the relative size of the informal economy, the Informality-Growth-line (**IG**) intercepts $\mathbf{g_0}$ at a level of **i** close to zero ($\mathbf{i_0}$). With policy change that increases L, the Informality-Growth-line shifts downwards. This makes the growth rate of the relative size of the informal economy negative ($\mathbf{i_1}$), allowing for the relative size of the informal economy to decrease with growth.*

An additional potential policy action that could be implemented in order to ensure the formal employment generating function of growth is to *lower formal wages*. This would decrease the cost of formal employment arrangements, which theoretically would make the profit-maximizing firm keener to hire employees formally. However, lowering the formal wage could increase the rate of voluntarism in the informal economy, posing a counteractive effect. The net effect of lowering formal wages on the relative size of the informal economy is unclear.

6.2.1. Potential Obstacles for Policy Change

Policy makers could ensure the formal employment generating function of growth by implement policy changes that raises the costs of informal employment arrangements for employers. However, the policies I discussed in the previous section might be cumbersome to implement by national governments. Some formal firms hiring informally are multinational corporations (MNC:s). If the cost of informal employment arrangements rises in one country, the multinational corporations might choose to allocate its production to another country. Legislation regarding employment relations, penalties, and monitoring and surveillance might thus be policy actions facing resistance from MNC:s and from interests affiliated with the MNC:s.

There is an obvious need for joint international action when it comes to policy change. If developing countries simultaneously implement the policies suggested, the risk of the MNC:s moving is likely decreasing. Furthermore, many MNC:s market their products in more developed countries. Raising awareness among consumers in these countries regarding the negative externalities of informal employment arrangements could hence be crucial to ensure the formal employment generating function of growth. Global actors like ILO and WIEGO likely have an important role in this.

7. Concluding remarks

The evidence present in this essay suggests that the relative size of the informal economy is not necessarily affected by growth rate. The presence of an informal economy is not a symptom of lack of growth. It is rather a symptom of the inadequacy of institutional settings required to ensure the formal employment generating function of growth. Until adequate institutional settings are functioning throughout the developing world, the informal economy will likely continue to be a present issue, regardless of growth rate.

Growth is, however, likely an important policy tool in decreasing the relative size of the informal economy. But additional steps must be taken to increase the costs of choosing informal employment arrangements. The most policy responsive part of the informal economy is formal firms hiring informally. Accordingly, these are the ones that should be targeted by policy makers at the global and at the national level.

However, an altering of the institutional settings regarding employment arrangements is likely not enough in itself to ensure that every part of the informal economy is decreasing with growth. It is important, but needs to be accompanied by additional policy actions stimulating the transition from informal to formal in parts of the informal economy other than informally employing formal firms. To determine what such accompanying policy actions would imply, much more research on the informal economy must be conducted. The economic dynamics of the informal economy differ between countries, cities and blocs. Thus, to achieve formalization of all parts of the informal economy through policy change, more exhaustive research is needed on the specifics of the dynamics of the informal economy at a local and at a global level. This is something that cannot be ignored by policy makers.

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9. Appendix

Proxy-construction

I am using three different proxies in this paper. Here follows a detailed description on how I went about when I constructed the proxies.

- *The Working Poor.* The ILO database ILOSTAT provides statistics over the number of working people who live under the nationally defined poverty line. These statistics are partly based on estimations. The ILO differs between (1) extremely poor, (2) moderately poor, and (3) near poor. In constructing the proxy I am adding (1) and (2), which I then divide by the total number of employed persons, including self-employed persons, for the specific country and year.
- *Vulnerable Employment.* The ILO database ILOSTAT provides statistics over status in employment for some countries and periods in line with the International Classification of Status in Employment, differing between wage- and salary workers, and self-employed. Among the self-employed further differentiate between (1) employers, (2) members of producer's cooperatives, (3) own-account workers, and (4) contributing family workers. The two latter, own-account workers and contributing family workers, together constitute the variable *Vulnerable Employment* when divided by the total number of employed persons (once again containing self-employed), for the specific country and year. The data regarding status in employment is partly based on estimations.
- *Self-Employment*. This proxy is used by Loayza and Rigolini (2006). I obtain data on number of self-employed person from World Development Indicators. I use a different database to avoid *Vulnerable Employment* being a subset of *Self-Employment*. I then divide the number of self-employed persons with the total number of employed persons for the specific country and year. Data on number of persons self-employed is not based on estimations and accordingly generates more missing values.

Additional Results

Table 5: *40 Developing Countries in Asia*

	Working Poor			
ln (GDP/capita)	-0.1874 (0.2224)			0.8115* (0.3310)
ln (GDP/capita) Previous Year		-0.1703 (0.2248)		0.2778 (0.2585)
Industrial Employment			-0.0023 (0.0017)	-0.0027 (0.0019)
Number of Observations	157	157	192	192
R^2 Within	0.2910	0.2882	0.4192	0.5078
R^2 Between	0.5066	0.4957	0.4131	0.6103
R^2 Overall	0.6662	0.6585	0.2373	0.5229
Unconditional Mean	0.2415			

Note: *Robust standard errors in parenthesis.* $^{***}P < 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$.

This table shows the effect of growth on the relative size of the informal economy for 40 developing countries in Asia from 2002 to 2015. One additional explanatory variable is added, namely Industrial Employment. The relative size of the informal economy is measured by the proxy Working Poor. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The third row shows the effect of Industrial Employment on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy.

Table 6: *24 Developing Countries in LAC*

	Vulnerable Employment				**Self-Employment**			
ln (GDP/capita)	-0.1365 (0.1834)			0.1429 (0.3187)	-0.0103 (0.1319)			-0.1004 (0.1143)
ln (GDP/capita) Previous Year		-0.1577 (0.2375)		-0.4063 (0.4001)		0.0033 (0.0115)		0.0007 (0.0110)
Industrial Employment			0.0011 (0.0010)	0.0010 (0.0018)			-0.0002 (0.0006)	-0.0007 (0.0011)
Number of Observations	170	170	162	153	218	216	218	204
R^2 Within	0.0993	0.1248	0.1284	0.1529	0.2017	0.2642	0.2210	0.2929
R^2 Between	0.4579	0.4664	0.2489	0.5931	0.3184	0.3913	0.1367	0.7300
R^2 Overall	0.4404	0.4489	0.3360	0.5484	0.2684	0.3812	0.1093	0.6717
Unconditional Mean	0.3036				0.3892			

Note: *Robust standard errors in parenthesis.* $^{***}P < 0.001$, $^{**}P < 0.01$, $^{*}P < 0.05$.

This table shows the effect of growth on the relative size of the informal economy for 24 developing countries in Latin America and the Caribbean from 2002 to 2015. One additional explanatory variable is added, namely Industrial Employment. The relative size of the informal economy is measured by two proxies, Vulnerable Employment, and Self-Employment. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The third row shows the effect of Industrial Employment on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy, when measured by the two proxies.

Table 7: *24 Developing Countries in LAC*

	Working Poor			
ln (GDP/capita)	-0.2847* (0.1303)			0.2637 (0.1481)
ln (GDP/capita) Previous Year		-0.2464 (0.1372)		0.0605 (0.1482)
Industrial Employment			-0.0031 (0.0016)	-0.0037* (0.0016)
Number of Observations	275	276	224	212
R^2 Within	0.6156	0.5919	0.5682	0.6286
R^2 Between	0.6483	0.6438	0.3646	0.4951
R^2 Overall	0.6523	0.6480	0.3688	0.4492
Unconditional Mean	0.1349			

Note: *Robust standard errors in parenthesis.* ***$P < 0.001$, **$P < 0.01$, *$P < 0.05$.

This table shows the effect of growth on the relative size of the informal economy for 24 developing countries in Latin America and the Caribbean from 2002 to 2015. One additional explanatory variable is added, namely Industrial Employment. The relative size of the informal economy is measured by the proxy Working Poor. The first two rows show the effect of growth rate this year and growth rate previous year on the relative size of the informal economy. The third row shows the effect of Industrial Employment on the relative size of the informal economy. The bottom row shows the unconditional mean of the relative size of the informal economy.

Countries

Table 8: *List of Developing Countries used in the Analysis*

North Africa	Southern Africa	East Asia	South Asia	Caribbean	South America
Algeria	<u>Angola</u>	Brunei Darussalam	<u>Bangladesh</u>	Barbados	Argentina
Egypt	Botswana	China	India	Cuba	Bolivia
Libya	<u>Lesotho</u>	Hong Kong SAR	Iran	Dominican Republic	Brazil
Morocco	<u>Malawi</u>	Indonesia	<u>Nepal</u>	Guyana	Chile
Tunisia	Mauritius	Malaysia	Pakistan	<u>Haiti</u>	Colombia
Central Africa	<u>Mozambique</u>	<u>Myanmar</u>	Sri Lanka	Jamaica	Ecuador
Cameroon	Namibia	Papua New Guinea	**Western Asia**	Trinidad and Tobago	Paraguay
<u>CAR</u>	South Africa	Philippines	Bahrain	**Central America**	Peru
<u>Chad</u>	<u>Zambia</u>	Republic of Korea	Iraq	Costa Rica	Uruguay
Congo	Zimbabwe	Singapore	Israel	El Salvador	Venezuela
<u>Equatorial Guinea</u>	**West Africa**	Thailand	Jordan	Guatemala	
Gabon	<u>Benin</u>	Viet Nam	Kuwait	Honduras	
<u>Sao Tome and Prinicipe</u>	<u>Burkina Faso</u>		Lebanon	Mexico	
East Africa	Cape Verde		Oman	Nicaragua	
<u>Burundi</u>	Côte d'Ivoire		Qatar	Panama	
<u>Comoros</u>	<u>Gambia</u>		Saudi Arabia		
<u>DRC</u>	Ghana		Turkey		
<u>Eritrea</u>	<u>Guinea</u>		United Arab Emirates		
<u>Ethiopia</u>	<u>Guinea-Bissau</u>		<u>Yemen</u>		
Kenya	<u>Liberia</u>				
<u>Madagascar</u>	<u>Mali</u>				
<u>Rwanda</u>	<u>Mauritania</u>				
<u>Sudan</u>	<u>Niger</u>				
<u>Uganda</u>	<u>Nigeria</u>				
<u>Tanzania</u>	<u>Senegal</u>				
	<u>Sierra Leone</u>				
	<u>Togo</u>				

Note: *LDC:s are underlined*