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REGULATION, ENFORCEMENT AND INFORMALITY: AN ANALYSIS BASED ON SELECTED COUNTRIES

1. Introduction

The informal economy has been occupying a key position in the development-discourse ever since it was ‘discovered’ in the Ghana in the second half of the 20th century. A good deal of literature has grown up in the past forty years with efforts to ‘formalize’ the concept of informality and to integrate it with mainstream development economic theory. Unfortunately however, informal economy has not yet received the kind of treatment that it was entitled to (Marjit and Kar, 2011) given the fact that the informal economy forms a cushion to the otherwise unemployed workforce (more precisely those who do not manage to secure formal employment) and allows for a much needed breathing space for the majority of the workers in developing economies; in the past decade almost 60 percent of workers of the developing world found income opportunities in the informal economy (ILO-WTO 2009). Traditionally, persistent informality can be found in developing countries ranging between 25 percent to more than 90 percent. ILO figures indicate that in recent years informal employment was around 90 percent in India and around 96 percent in Mali. However, assuming all jobs in developed economies to be formal would be fallacious. Even in developed nations informal employment accounts for roughly 10 percent of the total employment.

While it is evident that the informal economy employs almost three-fourths of the labor population in the developing world, it must also be pointed out that the informal economy, by and large, comprises of economic units and workers that remain outside the world of regulated activities and protected employment relationships (Chen, 2007). According to Hart (2006), the label ‘informal’ may be popular because it is both positive and negative. To act informally is to be free and flexible; but the term also says what people are not doing—not wearing conventional dress, and not being regulated by the state. According to Ray (1998), informal firms and businesses may not be illegal in the strict sense, but there is a shadowy penumbra within which they live. It is difficult to implement the rule that a peanut vendor pay his taxes, in part because it is impossible to ascertain how much he earns. Loyaza (1994) claims that the informal sector, however,

face the disadvantages of working outside the legal system. Maiti and Sen (2010) label this aspect of the informal economy as ‘means of exploitation’—a site unfettered by the regulations and social norms of fairness governing pay and work conditions that are more at play in the formal sector. According to such a view, the inherently exploitative nature of the informal sector stems directly out of the flexibility associated with the notion of informality. The unregulated informal economy thus manifests itself in underpayment of workers, violation of minimum wage laws, abysmal working conditions and lack of mechanism of workers voicing their concerns to their employers. Marjit and Kar (2011) claim that such violation of labor laws causes ‘informal’ production to be labeled ‘illegal’.

This dual nature of the informal economy (on one hand it serves as a buffer to the workers who do not get absorbed in the formal economy and on the other hand it is a site unfettered by law where injustice is rampant) is in fact the root of all controversies and debate relating to the aspect of governance. What should be the appropriate policy response to informality? Should it be left on its own or should the state intervene in the functioning of the informal sector? If the state needs to regulate the informal sector, what instruments of regulation can it possibly put to use? One view assumes informal economy to be a ‘little people’s alternative’: in developing countries, it is opinionated that, in absence of social welfare system and given the high incidence of poverty, a democratic state may use the informal sector as a buffer for the poor people by channelizing informal jobs as an effective redistributive mechanism which is often referred to as ‘development through the backdoor’ (Marjit and Kar, 2011). An alternative theory, however, highlights the unregulated aspect of the informal sector which point out the miserable plight of the agents who operate in the ambit of informality and demand the government’s role to be something more than a passive player. Given the fact that the informal economy is here to stay (Chen 2007), what is needed is an appropriate policy response in form of intervention of the government to a certain degree. Guha-Khasnobis et al. (2006) however cautions against the over-reaction of the state. Since there exists a strong association of irregularity with unstructured, the state often has a strong impetus for interventions that often have adverse results. While ‘legalizing’ the ‘extra-legal’ (De Soto, 2000) may be a perfectly desirable proposition, the reach of official governance and

the degree of structuring must be specified and made précis since it is often observed that regulations tend to impose rigidity and distort the incentives for factor reallocation, capital accumulation, competition, and innovation (Loyaza et al., 2005).

Given that regulation aimed to check the levels of informality almost every time end up yielding the adverse results (regulation often seems to boost informal employment), it is often claimed that improving the quality of regulations and introducing more flexibility in the system would help policy makers realize their goal. However, whether the introducing flexibility in the regulation system by itself will act as an incentive to formalize or whether its impact on informal employment is contingent upon some other factors are open questions in the literature of informal economy; the exact dynamics between governance, regulation, enforcement and informal economy yet remain unexplored to a great extent.

Recent literature on informal labour market has focused on the impact of regulation on informality. Kanbur (2009), Loyaza et al. (2006), Chen (2005), Schneider (2001) etc. have discussed on this aspect from various angles and have concluded that the impact of regulation is largely contingent upon institutional capacities and the desire and the capability to enforce the same. This paper draws on these observations and provides a formal econometric model of regulation and enforcement. Based on empirical data, the paper tries to capture the dynamics between the level of governance and informal employment

The purpose of the present study is to show that that regulation by itself has no role in reducing or aggravating the level of informality in an economy. Regulation will only affect levels of informality when it is enforced. Thus, a country might have flexible labour, business and credit market regulations with the aim of arresting the size of the informal sector (assuming the rigidity in regulation serves as a disincentive to formalize) but may totally fail to do so if the enforcement authority is incapable in enforcing the laws. For instance, regulations aimed at abandoning the licensing system (in which corruption is inherent) will provide incentive to entrepreneurs to start business in the ambit of the formal sector only when they are assured that licensing system does not get

replaced by corruption and bribery owing to biased legal system and judiciary. In other words, we argue that regulations aimed at adding flexibility into the system (and thereby containing informality) will only be meaningful if enforced properly. In addition, we also claim that all types of regulation (when enforced) may not affect informal employment in the same way. In fact some types of regulation may even turn out to be insignificant to reduce informality, thus, revealing the policy instruments that the government can enforce to tackle the problems of informality.

In this study, our objective is to explore the inter-relationship among regulation, enforcement and the level of informal employment for different countries across the world. Using secondary data collected for 46 countries from different sub-continent over the period between 1980 and 2008 the dissertation establishes that regulations by themselves have no significant impact on informal employment. However, in the presence of interaction between enforcement and regulation, the same regulatory variables which earlier were found to be insignificant turns out to be significant along with the interaction variables. In addition, it is observed that while regulation itself may be related to informal employment in a certain way, enforcement of the same regulation alters the relationship.

The dissertation has been organized as follows: based on the existing literature, the second section provides the theoretical foundations of the concept of informality. The third section entails the research objective. This is followed by the theories on regulation and enforcement and their relation to informal employment. The fifth section provides a brief idea regarding data and research methodology. This is followed by two sections based on empirical findings: summary statistics and regression analysis. Finally, the study is concluded giving some policy implications.

2. Literature Review

The exact nature of the informal sector is not well documented. Different opinions on informality and its relation with the formal counterpart further aggravates the problem of

conceptualizing the informal sector. A plethora of definitions used by academicians and international agencies to characterize the informal economy has made the distinction between the formal and informal economy rather hazy. This section presents a glimpse of the existing literature that has grown up in the last fifty years, the concepts of formality and informality as well as a brief documentation of the recent attempts made by international agencies to formally define the concept of informality. In addition to reviewing conceptual issues related to informality, this section also attempts to review the literature that highlights the linkages between the informal economy and regulation with special emphasis on the enforcement aspect.

2.1 Theoretical Foundations

The classical theory of development asserted that with the process of capitalist development, economic agents operating in the backward sector of the two sector economy would eventually get absorbed in the modern sector and hence over time the traditional sector would disappear. The theory relied heavily on the twin assumptions of the traditional sector holding a vast pool of surplus labour and that the modern sector was capable of expanding relentlessly thereby absorbing the entire pool of this surplus labour (Lewis, 1954). That this view was extremely over-optimistic was proved in the mid-1960s, when it was evident that in many developing countries, planned economic development did not create enough modern jobs to reduce unemployment or erode the traditional sector. Optimisms about development facilitating a situation of full employment gave way to concerns about persistent unemployment in developing nations. This issue was brought into the framework of equilibrium economics more explicitly by Harris and Todaro (1970). They recognized that the dynamics of rural-urban migration would manifest itself in the form of a pool of unemployed workers but failed to recognize that whether open unemployment for the poor was not at all a sustainable proposition—a rickshaw puller or a porter cannot afford to remain unemployed for long (Marjit and Kar, 2011). A more realistic modeling of the economic dualism that Lewis (1954) and Harris and Todaro (1970) would perhaps then demand the inclusion of a third sector in form of *urban informal sector* (Fields, 1975; Ray, 1998).

The fact that the losers from the process of capitalistic development could not remain unemployed for long and had do ‘something’ which would fetch them livelihood was given formal recognition for the first time in development studies by Hart (1973) and International Labour Office (ILO) Mission to Kenya (ILO, 1972) with the introduction of the concept of *informality*. It was explicitly recognized that an economy—a rather informal one—had been functioning beyond the ambit of the formal economy, almost functioning as a survival mechanism for the poor having no formal jobs. Hart (2006) in a recent view mentions that economic conditions that prevailed in the Third World cities (very widespread formal unemployment was rampant) in 1970s were much different from that perceived. ‘Their streets were teeming with life, a constantly shifting crowd of hawkers, porters, taxi-drivers, beggars, pimps, pickpockets, hustlers—all of them getting by without the benefit of a real job’ (Hart, 2006). On recounting his experience in Ghana in 1971, Hart (2006) claims:

“The main message of the paper (Hart, 1973) was that the Accra’s poor were not ‘unemployed’. They worked, often casually, for erratic and generally low returns; but were definitely working...Following Weber (1981)¹ I argued that the ability to stabilize economic activity within a bureaucratic form made returns more calculable and regular for the workers as well as their bosses. That stability was in turn guaranteed by the state’s laws, which only extended so far into the depths of Ghana’s economy. ‘Formal’ incomes came from regulated economic activities and ‘informal’ incomes, both legal and illegal, lay beyond the scope of regulation”.

Reflecting this concern, the International Labour Organization (ILO) mounted a series of large multi-disciplinary “employment missions” to various countries. The first comprehensive ILO employment Mission to Africa was to Kenya in 1972 (ILO 1972)². Through its field work, and in its Official report, the Kenya mission recognized that the

¹ Weber, M. (1981), *General Economic History*, New Brunswick, NJ: Transaction Books.

² It must be noted that the term ‘informal sector’ did not originate with the foreign experts in the ILO Mission although they helped popularize it. The term was coined in 1971 by Keith Hart in his study of informal income opportunities in urban Ghana (Hart, 1973).

traditional sector, what it called the informal sector, had not just persisted but expanded; that the informal sector was not confined to marginally productive activities but included profitable and efficient enterprises; and that informal sector activities were largely ignored, rarely supported, often regulated, and sometimes actively discouraged by policy makers and governments.

Kanbur (2009) notes that in the decades that followed, Hart's term was taken up rapidly by development studies and by international agencies, which began to codify the definition of informality. Subsequent efforts aimed at formalizing the very concept of informality led to a plethora of competing (and even conflicting in some cases) definitions of the informal sector. That there is no clear definition of the concept of informality that could be consistently applied across the whole range of theoretical, empirical and policy analyses has ultimately added to the informal economy made the concept of informality a fuzzy one (Blunch et al., 2001). Instead 'the formal and informal are better thought of as metaphors that conjure up a mental picture of whatever the user has in mind at that particular time' (Guha-Khasnobis et al., 2006, p. 3). Sindzingre (2006) show that a wide range of terms including non-observed, irregular, unofficial, second, hidden, shadow, parallel, subterranean, informal, cash economy, black market, unmeasured, unrecorded, untaxed, non-structured, petty production and unorganized have been used to describe the concept of informality. Mogensen et al. (1995, p. 5) posit that a precise definition seems quite difficult, if not impossible, as "the informal economy develops all the time according to the 'principle of running water': it adjusts to changes in taxes, to sanctions from the tax authorities and to general moral attitudes".

One commonly used working definition of the informal sector is: all currently unregistered economic activities which contribute to the officially calculated (or observed) Gross National Product (Schneider, 2001; Benjamin and MBAYE, 2010). Loayza (1994) states that while the formal sector comprises of economic units that comply with regulations and taxes, the informal sector, by and large, evades onerous regulations but faces the disadvantage of working outside the legal system. Sindzingre (2006) extends the working definition of informal sector to include 'unregulated labour intensive activities, self-employed entrepreneurs, micro and small enterprises, activities

that take place outside the state regulations.’ Following this populist classification, Ray (1998) describes urban informal sector in the following lines:

“The urban *informal sector* is a loose amalgam of (usually small-scale) organizations that escape the cover of many of these regulations and do not receive access to privileged facilities. The informal sector usually does not adhere to norms of minimum wages, retirement plans, or unemployment compensation. They do not pay taxes and receive little government support. These firms or businesses are not illegal in the strict sense, but there is a shadowy penumbra within which they live, and it is often convenient for the government to look the other way. It is difficult to implement the rule that a peanut vendor pay his taxes, in part because it is impossible to ascertain how much he earns...Setup costs are relatively low: the business or trade is usually small scale, and license fees and advance tax payments are unnecessary (although the occasional bribe may be needed).”

2.2 Defining Informality

As pointed out by Sindzingre, the fuzziness of the concept of informality was already highlighted in the 1970s. Overtime, the vagueness of the formal-informal economy has increased which has led Guha-Khasnobis et al. (2006) to refer to the concept as ‘increasingly heterogeneous phenomenon’. There is, thus, no single dichotomy between the formal and informal economy. However attempts have been made time and again to classify the competing ideas into broad groups. Following Chen (2005), Maiti and Sen (2010), the different views on informality can be classified into the following categories.

2.2.1 DUALISTIC APPROACH

The dualist school of thought is primarily based on the work of Lewis (1954) and Harris and Todaro (1970). The dualists view the informal sector as an inferior segment of the labour market with no direct links with its formal counterpart. According to this approach, the informal sector is primarily a residual sector—this sector existed because the modern sector had been growing at a slow rate thus being unable to generate

sufficient jobs to a portion of labour force (Maiti and Sen, 2010). With economic growth the informal sector is ultimately expected to be absorbed by the formal sector.

2.2.2 STRUCTURALIST APPROACH

The structuralist school of thought emphasizes the connections between the formal and informal sector. According to Moser (1978) and Portes et al. (1989) the informal sector comprises of micro firms and unregistered workers subordinated to large formal firms. This approach stresses on the fact that the large capitalistic firms get cheap labour and inputs from the informal sector which in turn increases the competitiveness of the large firms. In contrast to the dualistic view, the structuralist view posits growth will not serve to eliminate informal production relationships, which are intrinsically associated with capitalist development. In this view modern enterprises react to globalization by introducing more flexible productive systems and by outsourcing which allows them to cut their costs.

2.2.3 LEGALISTIC APPROACH

The legalist or orthodox school of thought stresses on evasion of regulations as one of the primary motives of operating informally. Epitomized by De Soto (1989), this approach claims that in deciding whether to operate formally or informally, micro-entrepreneurs will always perform a cost benefit analysis of the formalization. As long as costs of registration and other government procedures exceed the benefits of operating formally, these entrepreneurs will choose to operate informally. As such, informality could only be arrested if regulatory reforms and reductions in tax burden could be introduced. This approach thus highlights that growth will not necessarily eliminate the informal sector. The size of informality rather critically depends on the conditions of regulation and enforcement.

Empirical research on informal economy over the last forty years has confirmed the fact that although the approaches cited above can explain the observed issues relating informality partially but fails to uncover fully the true dynamics underlying the working of the informal economy (ILO-WTO 2009). Thus, from the view point of successful

policy implementation what is thus need is a unifying approach that could integrate the competing views of informality.

2.2.4 THE MULTI-SEGMENTED LABOUR MARKET APPROACH: VIEWING INFORMALITY AS A CONTINUUM

Way back Bromley (1978) and Lipton (1984) had highlighted the fact that it would be clearly oversimplification to assume the two sectors—formal and informal—to be distinct, each placed in a watertight compartment rather ‘there is a continuum’. In line with such arguments, an integrated approach is currently arising based on the idea of multi-segmented labour markets (Chen, 2005; Fields 2005). This school of thought combines the most appropriate elements of the dualist, legalist and structuralist approaches to explain different segments of the informal labour market. According to this theory the informal economy is segmented into three broad categories: a lower-tier segment dominated by households engaged in ‘survival activities’ with few links to the formal economy as suggested by the dualists; an upper-tier segment dominated by small entrepreneurs who operate in the informal sector to avoid regulations and evade taxes as the legalists suggests; and an intermediate segment with small firms workers subordinated to larger firms, as suggested by the structuralists. The relative importance of each sector may, however, vary depending on the countries, make a particular view more relevant in explain the observed informality of that country.

That informality is best described as a continuum by a combination of various criteria is also explicitly shown by Benjamin and MBAYE (2010). The criteria that they use to define informality are, namely, the size of activity criterion (whether firms employ more than five people or have sales of over 50 million CFA francs), the registration criterion (whether firms are registered with at least one administration), the existence of honest financial statements criterion (whether they are taxed through regular business income tax), the mobility of workplace criterion (whether they have a fixed domicile) and the

access to bank credit criterion(whether they had access to bank credit within the past five months)³. On the basis of these they distinguish between several levels of informality:

- Level 0 of informality includes those firms that are completely informal. These firms are completely unknown to fiscal authorities. ‘They are small, do not have access to bank credit, are not subject to the regular business income tax, and are itinerant’.
- Level 1 of informality includes those who are satisfied at least one of the five criteria defining formality. This level includes mainly those who are registered with an administration dealing with enterprises; who have more than 5 employees or who have gained access to bank credit within the previous 5 years.
- Level 2 includes those economic entities that fulfill at least two of the five criteria defining formality.
- Level 3 includes formal firms who fulfill all the five criteria of formality.

These alternative representations of the informal economy improves upon the earlier and more crude dual sector depictions by allowing intermediate categories and movements along the overall continuum.

2.2.5 FORMAL DEFINITIONS OF INFORMALITY: MAKING THEORETICAL CONCEPTS OPERATIONAL

The diversity of views on the informal economy gets reflected in the variety of competing (and even conflicting in some cases) definitions that are put forward to explore its true dynamics. Based on the different views, international organizations have time and again tried to put forward a somewhat unified definition of the informal economy so as to render the concept operational. This section presents a selection of such conceptualizations that have been used by international bodies and traces the evolution of the operational definitions over time.

In order to be consistent with the framework of the System of National Accounts and provide for a separate accounting of Gross Domestic Production (GDP) in the informal economy, in 1993, the 15th International Conference of Labour Statisticians (ICLS)

³ For a more detailed discussion on the various criteria defining formality see Benjamin and MBAYE (2010).

adopted a statistical definition of the informal sector in terms of economic/ production units. According to ICLS definition, informal enterprises are:

“units engaged in the production of goods and services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at low level organization, with little or no division of labour and capital as factors of production and on small scale. Labour relations—where they exist—are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees”.⁴

Flodman Becker (2004) claims that unfortunately the 1993 ICLS definition of informality fails to capture all dimensions of informality. Under this ICLS definition, individual countries can decide what size of unregistered units should be included in the informal sector and whether the agriculture sector and domestic workers should be included. However the definition does not specify the threshold size below which an enterprise is classified as informal and it leaves to each country’s discretion whether or not to include the agricultural sector and domestic workers.

To fulfill the goal the ICLS had sought to, the International Expert Group on Informal Sector Statistics (Delhi Group) introduced a more precise definition of the informal sector in 1997 according to which the informal sector includes:

“private unincorporated enterprises (quasi unincorporated), which produce at least some of their goods and services for sale or barter, have less than 5 paid employees, are not registered, and are engaged in non-agricultural activities”.⁵

The above definition implies that informality can be defined at worker level based on employment relations. Informal Employment can include various categories of workers:

⁴ International Labor Office and World Trade Organization (2009), *Globalization and Informal Jobs in Developing Countries*, Geneva: International Institute of Labor Studies and Washington: Economic Research and Statistics Division

⁵ International Labour Office, 2002

(a) the self employed, i.e., own accounts workers, heads of family businesses and unpaid family workers, (b) wage workers, i.e, employees of informal enterprises, casual workers without a fixed employer, home workers, paid domestic workers, temporary and part time workers and unregistered workers and (c) employers, i.e. owners of informal enterprises.

In recent years, a group of informed activists and researchers, including members of the global research policy network Women in Informal Employment: Globalizing and Organizing (WIEGO), in conjunction with the International Labour Organization (ILO) have come up with a broader definition of the informal sector. They extend the focus to include not only enterprises that are not legally regulated but also employment relationships that are not legally regulated or protected. In brief, the new definition of the informal economy focuses on the nature of employment in addition to the characteristics of employment. It also includes informal employment both within and outside agriculture. According to this new definition, the informal sector—now called the informal economy—is composed of:

- Informal employment in informal enterprises (small unregistered or unincorporated) including employers, employees, own account operators and unpaid family workers;
- Informal employment outside informal enterprises, i.e. in formal enterprises, for households or with no fixed employer; this type of employment includes domestic workers, casual or day labourers, temporary or part time workers, industrial outworkers (including home workers) and unregistered or undeclared workers.⁶

Thus, according to this definition, informal employment includes all remunerative work—both self employment and wage employment—that is not recognized, regulated or protected by existing legal or regulatory frameworks and non-remunerative work undertaken in an income-producing enterprise.⁷ The next two sections relate informality with regulation as well as enforcement as it has been found in literature.

⁶ International Labour Office, 2002

⁷ In 2003, this definition was adopted by the International Conference of Labour Statisticians (ICLS) during its 17th Conference.

2.3. Regulation and Informality

2.3.1 INFORMAL ECONOMY: WHY GOVERNMENTS SHOULD INTERVENE?

The exact dichotomy between the formal regulatory environment and the informal economy is not clear even after forty years after the concept of informal economy gained prominence in the development discourse. The question of government intervention to regulate the ‘unregulated’ however demand serious attention when considered in conjunction to the massive illegalities carried out in the ambit of informal sector. Chen et al. (2001) summarizes three different schools of thought each explaining the reasons for government intervention from different points of view. Based on *equity principle* it is argued that the poor who are concentrated in the informal sector face uneven market power and discrimination; have insufficient market information or skills; and have inadequate insurance against risk (unemployment, illness, disability, old age). They argue that current process of informalization threatens to do away with years of social progress. They stress on strengthening the linkages between the various actors—state, business and organized labour.

A somewhat different argument is advanced in favour of state intervention on the basis of *efficiency principles*. In illustrating this view Chen et al. (2001) cite Weeks (1975)⁸ argument: the informal sector contributes to GDP; produces a large share of consumer goods; represents a potential source of capital goods and provides a training ground for entrepreneurs. It is also observed that informal sector employs more labour intensive modes of production and hence it is more labour absorbing than the formal economy. Hence it is logical for the government to intervene and promote productivity growth in the informal economy minimizing the ills associated with the informal sector.

The last set of opinion in favour of government regulating the informal sector is based on *political economy principles*. According to this idea, governments do intervene in markets and in ways that are often biased towards the big players. It is asked, why should

⁸ Weeks, John. 1975. ‘Policies for Expanding Employment in the Urban Sector of Developing Economies’, *International Labour Review*. 111/1:1–13.

policies directed towards smaller businesses be singled out as distortionary? It is also argued that most policies whether or not targeted, affect the informal sector.

2.3.2 EVADING REGULATIONS: RULE OF THE GAME?

Although there may be fairly a good number of reasons that require the informal economy to be regulated and monitored, unfortunately however, informal economy by and large goes unregulated and is observed to comprise of unregistered and unregulated activities. Labour relations are based mostly on casual employment, kinship or personal relations rather than contractual arrangements with formal guarantees. Marjit and Kar (2011) summarize the recent ILO view on informality as follows:

“...different groups have been termed ‘informal’ because they share one important characteristic: they are not recognized or protected under legal and regulatory frameworks. This is not, however, the only defining feature of informality. Informal workers and entrepreneurs are characterized by a high degree of vulnerability. They are not recognized under the law and therefore, receive little or no legal or social protection and are unable to enforce contracts or have security of property rights (ILO 2002: 2).”

The pertinent question that arises in this context is that *what accounts for this lack of regulation?* According to Chen (2005) it was previously held that it was simply the owner operators desire to evade taxes that led them to operate in the informal sector. While this may partially be true, ‘this is far from being the whole story’. She claims that in deciding whether to operate formally or informally, what becomes most important is the cost-benefit analysis of working in the regulated sector. She points out that, often, economic agents operate informally not to evade taxes but may be because ‘the regulatory environment is too punitive, too cumbersome or simply non-existent’ and also that agents ‘would be willing to pay registration fees and taxes if they were to receive the benefits of formality’. De Soto (1989), in fact, argues that the whether to be formal or informal can be presented as a rational decision—economic units weigh the costs and benefits that formalization entails and consider their institutional and resource constraints.

That the nature of regulation itself leads to its evasion is also documented by Schneider (2001): ‘The increase of the intensity of regulations is another important factor which reduces the freedom for individuals engaged in the official economy....Regulations lead to substantial increase in labour cost [and] these costs provide another incentive to work in the informal economy’. Summarizing Johnson, Kaufman and Sheifer (1997), Schneider argues that countries with burdensome regulation tend to have a higher share of the unofficial economy in total GDP. It is empirically found that a one-point increase of regulation index, *ceteris paribus*, is associated with 8.1 percentage point increase in share of informal economy. Loyaza (1996) finds evidence that regulations entail a substantial compliance costs in Latin America as well as Asia. That burdensome regulation may perpetuate informality is also claimed by Marjit and Kar (2011). They argue that it is possible that imposition of high tax burden may create more informality in the system. They also point out ironically efforts to formalize the informal sector through formal regulations often lead to ‘closure of many units, retrenchment of workers, loss of entrepreneurship accentuating the number of the poor and son on’. That association of the informal with unstructured has been a powerful impetus for government intervention leading to major policy failures is well documented by Guha-Khasnobis et al. (2006). They present an important case study of Nepal where government’s effort to nationalize forests led to greater deforestation since the government regulatory body could not realize that increasing power of small local communities that were already present and had better structures to deal with the deforestation would have been a better measure of tackling deforestation rather than replacing them by formal state structures. Chen (2005) thus correctly summarize: ‘excessive regulation not only hurts one’s attempt to formalize but also his/her effort to earn a livelihood in the informal economy’.

2.3.3 PROBLEMS WITH REGULATION: WAY OUT?

Given the fact the regulation often aggravates problems associated with informality rather than mitigating them, two important suggestions are made:

- ***De-regulation:*** Based on the classical principle that free markets maximize market efficiency it is often argued that complete deregulation is rather a better alternative than inefficient regulation, thereby reducing the role of the government to merely a

passive player in the formal-informal economy discourse. However, the concept of totally removing the presence of government from a particular sector and letting it operate totally on its own seems to be utopian. Chen (2005) argues against that de-regulation of labour markets is in fact associated with the rise of informalization. It is claimed “workers are caught between two contradictory trends: *rapid flexibilization* of the employment relationship (making it easy for employers to contract and expand their workforce as needed) and *slow liberalization* of labour mobility.” Thus to protect informal workers from the ‘economic risks’ and ‘uncertainty associated with flexibility and informalization’ the policy of de-regulation seems to be inappropriate and self-destructive.

- **Re-regulation:** In order to mitigate the ills associated with regulation one school of thought suggests that it is the task of the government to ensure that policies directed to reduce informality will on one hand reduce the cost and on the other hand increase the benefits of formalization. However, as existing literature points out, regulation targeted to benefit the actors of the informal sector will only be able to serve the purpose if properly enforced. Thus, what in fact turns out to be crucial in the context of improvement of regulation quality, is not regulation itself but the aspect of enforcement of regulation, governance and the institutional set-up in which enforcement of regulation is to be carried out which according to Kanbur (2009) is a neglected topic in the conceptualisation of informality.

2.4 Enforcement and Informality

According to Kanbur (2009) the central determining factor behind the impact of regulation on economic activity is the nature and the intensity of enforcement of regulation. Marjit and Kar (2011) argue that contrary to general wisdom the informal sector is not similar to an entity that necessarily stagnate in low level equilibrium trap—“it is however contingent...on institutional capabilities to reformulate existing regulation”. Thus the success or failure of formalization measures depends on the measures themselves as much as on the specific political, economic, social or cultural circumstances of their implementation. Schneider (2001) argues that a deterioration in the quality of public goods (such as the public infrastructure) and of the administration is

often coupled with the consequence of even stronger incentives to participate in the informal economy. He summarizes the results that Johnson et al. (1998)⁹ derives from a simple model as follows:

“wealthier countries...find themselves in the ‘good equilibrium’ of relatively low tax and regulatory burden,..., good rule of law and corruption control, and [relatively] small unofficial economy. By contrast, a number of countries in Latin America and the Former Soviet Union exhibit characteristics consistent with ‘bad equilibrium’: tax and regulatory discretion and burden on the firm is high, the rule of law is weak,..., and a relatively high share of activities in the unofficial economy”.

These findings demonstrate that lack of proper enforcement reinforces informality (Dreher and Schneider, 2010) and thus government should put more emphasis on improving enforcement of laws and regulation, rather than increasing their numbers (Schneider, 2001). Kanbur (2009) argues that the government may formulate regulations so as to regulate the informal economy which it wants to enforce and may even have sufficient inspectors to enforce but if the inspectors “turn a blind eye” and are known to turn a blind eye, the government’s effort to formalize the informal sector will be meaningless. We, however, claim that whether an official will really “turn a blind eye” will in fact be contingent upon the state of law and the degree of unbiasedness with which the judicial system operates. If the rule of law is strict enough, the officials turning a blind eye may be easily apprehended which in turn reduces the incentive of the corrupt officials to engage in mal-practices. Assuming that most of the poor operate outside the formal sector, Marjit and Kar (2011) find “income level of a typical poor is positively affected by weak governance” suggesting, again, that weak governance¹⁰ (and weak enforcement) perpetuates the level of informality. Similar conclusions are reached by

⁹ Johnson S., D. Kaufman and P. Zoido-Lobaton (1998), *Corruption, Public Finances and the unofficial economy*, Washington D. C.: The World Bank, discussion paper.

¹⁰ Marjit and Kar (2011) claim that the quality of governance is likely to be is often determined by electoral motives. They argue that if the government is forced to lower tax rate (owing to strict enforcement), it is left with lower tax revenue for re-distribution, which in turn hurts it’s chance of winning the election. Therefore it lowers the governance level which indirectly favours redistribution towards poor (by encouraging informality).

Loayza et al. (2006). They develop a regression model which clearly points out that “high levels of regulation are associated with lower growth...However, the quality of regulation—as captured by the overall institutional framework—makes a big difference”. Thus regulation with out enforcement becomes a ‘mockery, if not a self inflicted fraud’ is expressed in the report of the Second National Labour Commission (Government of India, 2002, paragraph 12.250) and is summarized by Basu, Chau and Kanbur (2002): “We, therefore feel that we should legislate only what is capable of being put into practice at the ground level...Any other course will breed disrespect, unconcern and contempt for the law and law enforcing authorities”. Drawing on this enforcement aspect, Kanbur (2009) claims that apart from the state of legal system and judiciary acting as determinants to enforcement to the regulations legislated, the government also must signal the market that it is really serious about enforcement. For instance, by setting a higher minimum wage it can signal credibly its intention to enforce more and that is why ground level legal activists like the Self Employed Women’s Association (SEWA) lobby for higher official wages even in the face of non-enforcement, since, with a bigger gap between official and actual wages, they can lobby for more enforcement effort, with a resulting higher actual wage (Basu, Chau and Kanbur, forthcoming).

The relation between regulation and informal employment is not very clear. Whereas, overall regulation perpetuates informality and hence acts as a disincentive against formalization (Chen, 2005; Loyaza 1996; Guha-Khasnobis et al., 2006) may seem to be an acceptable proposition, the effect of improvement in the quality of regulation (thereby introducing more flexibility in the system) on the level of informal employment, is not well documented in the existing literature. That is, imposing rigidity in regulation may be *bad* alright, but does that in way suggest that introducing flexibility in the system is the sufficient condition to arrest the level of informality? Unfortunately, this issue, although extremely vital from policy point of view, remains largely under-exposed in the literature of informality.

3. Research Objective

In the present study we argue that improving regulation quality with the motive of bringing down the level of informal employment may be a necessary condition (Kanbur,

2009) but is far from being a sufficient one. We claim that the effect of (improved or flexible) regulation is contingent primarily upon the quality of governance and the capability of the institutions to put the (improved or flexible) regulations into effect.

More specifically, we hypothesize that regulation will have no significant effect on informality, and hence fail to serve as an efficient policy instrument, when it goes un-enforced. The desired effect of regulation will only be achieved in an environment of good governance and unbiased legal system. What, thus, becomes important, in the context of curbing informal employment, is not the quality of regulation that theory suggests, but the interaction between regulation and the governance.

In addition, we also seek to explore the exact relationship between informal employment and different forms of regulation—credit market regulation, labour market regulation and business regulation—separately with the dual objective of finding whether every category of regulation affects informality in the same way or not. We are also interested to check which form of regulation, when enforced, has a relatively greater influence on informal employment.

4. Data and Research Methodology

4.1 Data

In the present analysis of the relation among informal employment, regulation and enforcement, the data for 46 countries over the period 1980 to 2008 has been considered. However, since reliable statistics on informal employment and regulation indices are not readily available for all the countries included in our analysis for every year (and this problem becomes more serious for the LDCs), number of observation corresponding to each country seem to differ substantially. The number of observations per country varies between 2 to 13¹¹.

4.1.1 INFORMAL EMPLOYMENT

¹¹ Countries with small number of observations have been used in our analysis for their extreme relevance in the study of informality. For instance, although there are only 2 observations corresponding to Mali, it is retained because informal employment in Mali is more than 95 percent of its total employment!

The study is based on the informal employment data readily available from World Bank (Key Indicators of Labor Market [KILM])¹² and International Institute of Labor Studies (IILS)¹³. However, since deficiency of reliable informal employment statistics is pronounced for a large number of countries and for large time periods, for incorporating those countries in the analysis, proximate informality figures have been used. For instances, for some countries Informal Employment (as a percentage of total employment) is taken as the difference between total Employment (in percentage) and total wage Employment (in percentage), to arrive at a proximate figure where total Employment figures obtained from ILO and wage employment figures obtained from KILM. And in other cases the vulnerable employment (as a percentage of total employment) figures available from World Bank Data Bank have been used as proximate estimates of informality.

4.1.2 REGULATION

Data on regulation has been primarily drawn from Economic Freedom of the World Database (The Fraser Institute). In this study, scores have been assigned to 141 countries over the period 1970-2008 based on the quality and extent of regulation. The overall regulation is broken down into three categories, namely, credit market regulation, labour market regulation and business regulation. Each category comprises of further sub-components capturing different aspects of the credit market, labour market and business operations. Scoring has been done using the following methodology. First, the various sub-components under the three broad categories have been ranked separately. Second, the average of these ranks or scores is computed for each of the three categories for each country over time and these form the categorical-scores. And lastly, overall regulation score is computed as the simple average of the scores of these three broad categories. For

¹² The KILM indicator is a measure of employment in the informal sector as a percentage of total employment, i.e. the ratio between the number of persons in informal sector employment and the total number of employed persons. There are wide variations in definitions and methodology of data collection related to the informal sector and there are as many as five series of employment in the informal sector data based on five different definitions. While one country might have had available information on informal sector employment according to multiple series, only one series is shown in the KILM database; this is the series deemed to be best in terms of definition applied, geographic coverage and/or length of the time series.

¹³ IILS gives four different measures of informal employment. We have used the series which is based on national definition of informal employment.

our analysis, we have not considered the sub-component scores explicitly. Rather we have considered overall regulation scores and scores of the three broad categories of regulation.

(A) Credit Market Regulation

This category reflects the domestic credit market conditions. Scoring takes into account the extent to which the banking industry is dominated by private firms, whether foreign banks are permitted to compete in the market, the extent to which credit is supplied to the private sector and whether controls on interest rates interfere with the market in credit. Countries that use a private banking system to allocate credit to private parties and refrain from controlling interest rates receive higher ratings for this regulatory component. Following are the sub-components used to construct this index:

- Ownership of Banks: Data on the percentage of bank deposits held in privately owned banks were used to construct rating intervals. Countries with larger shares of privately held deposits received higher ratings. When privately held deposits totaled between 95% and 100%, countries were given a rating of 10. A zero rating was assigned when private deposits were 10% or less of the total.
- Foreign Bank Competition: If a country approved all or most foreign bank applications and if foreign banks had a large share of the banking sector assets, then the country received a higher rating
- Private Sector Credit: This sub-component measures the extent to which government borrowing crowds out private borrowing. When data are available, this sub-component is calculated as the government fiscal deficit as a share of gross savings. Since the deficit is expressed as a negative value, higher numerical values result in higher ratings. The formula used to derive the country ratings for this sub-component was $(-V_{max} - V_i) / (V_{max} + V_{min})$ multiplied by 10. V_i is the deficit to gross investment ratio, and the values for V_{max} and V_{min} are set at 0 and -100% , respectively. The formula allocates higher ratings as the deficit gets smaller (i.e., closer to zero) relative to gross saving. If the deficit data are not available, the

component is instead based on the share of private credit to total credit extended in the banking sector. Higher values are indicative of greater economic freedom.

- Interest rate controls/ negative real interest rates: Data on credit-market controls and regulations were used to construct rating intervals. Countries with interest rates determined by the market, stable monetary policy, and positive real deposit and lending rates received higher ratings. When interest rates were determined primarily by market forces and the real rates were positive, countries were given a rating of 10. A zero rating was assigned when the deposit and lending rates were fixed by the government and real rates were persistently negative by double-digit amounts or hyperinflation had virtually eliminated the credit market.

(B) Labour Market Regulation

Many types of labor-market regulations infringe on the economic freedom of employees and employers. Among the more prominent are minimum wages, dismissal regulations, centralized wage setting, extension of union contracts to nonparticipating parties, and conscription. The labor-market regulation category is designed to measure the extent to which these restraints are operative. A country which allows market forces to determine wages and establish the conditions of hiring and firing, and refrain from the use of conscription have been given higher scores. The components upon which this category is based are as follows:

- Hiring Regulation and Minimum Wage: Zero-to-one score assigned based on difficulty of hiring. Countries with hiring difficulties are given lower ratings
- Hiring and Firing Regulations: 1-to-7 score is assigned for this subsection; score of 1 is assigned if hiring and firing of workers is impeded by regulation and score of 7 is assigned if there is flexibility in hiring and firing.
- Centralized Collective Bargaining: 1-to-7 score is assigned based on the question: “Wages in your country are set by centralized bargaining process (=1) or up to each individual company (=7).”
- Hours Regulation: This sub-component is based on the World Bank’s *Doing Business*, Rigidity of Hours Index. The rigidity of hours index has 5 components: (i)

whether there are restrictions on night work; (ii) whether there are restrictions on weekly holiday work; (iii) whether the work-week can consist of 5.5 days; (iv) whether the work-week can extend to 50 hours or more (including overtime) for 2 months a year to respond to a seasonal increase in production; and (v) whether paid annual vacation is 21 working days or fewer. For questions (i) and (ii), when restrictions other than premiums apply, a score of 1 is given. If the only restriction is a premium for night work and weekly holiday work, a score of 0, 0.33, 0.66, or 1 is given according to the quartile in which the economy's premium falls. If there are no restrictions, the economy receives a score of zero. For questions (iii), (iv) and (v), when the answer is no, a score of 1 is assigned; otherwise a score of 0 is assigned.”

- Mandated Cost of Worker Dismissal: Rating of zero given if dismissal cost (cost of the requirements for advance notice, severance payments, and penalties when dismissing a redundant worker) is high in a country. Formula used to calculate zero-to-10 rating is as follows: $(V_{max}-V_i)/(V_{max}-V_{min})$ where V_{max} and V_{min} were set at 108 weeks and zero weeks respectively.
- Conscription: Data on the use and duration of military conscription were used to construct rating intervals. Countries with longer conscription period received lower ratings.

(C) Business Regulation

This regulation-category is made up of components designed to identify the extent to which regulations and bureaucratic procedures restrain entry and reduce competition. High scores have been allotted to countries which allow markets to determine prices and refrain from regulatory activities that retard entry into business and increase the cost of producing products. The components of Business Regulation are as follows:

- Price Controls: The more widespread the price controls, the lower the rating. Countries were given a rating of 10 if no price controls were present and a rating of zero when there was widespread use of price controls.

- Administrative Requirements: A score of zero was assigned if administrative requirements (permits, regulation) were burdensome and a score of 7 was assigned if requirements were not burdensome.
- Bureaucracy Costs: Standards on product/service quality, energy and other regulations in the country are given score of 1 if non-existent and a score of 7 if among the world's most stringent.
- Starting a Business: Zero-to-10 ratings were given; countries where it takes longer or is more costly to start a business are given lower ratings.
- Extra payments / Bribes: This sub-component is based on the question: "In your industry, how commonly would you estimate the firms make undocumented payments or bribes connected with: Import and export permits, public utilities, getting favourable judicial decisions. Common (=1) Never Occur (=7)."
- Licensing Restrictions: Zero-to-10 ratings were constructed for (1) the time cost and (2) the monetary cost of obtaining the license. Lesser the restrictions, higher the scores.
- Cost of Tax Compliance: Zero-to-10 ratings were assigned based on time required per year for a business to prepare file, and pay taxes on corporate income. Lesser the time required higher the ranking.

(D) Overall Regulation

Scores on overall regulation is the simple average of credit market regulation, labour market regulation and business regulation. Zero-to-10 rating scale; higher ratings indicative of greater flexibility in the system or greater economic freedom, lower ratings imply presence of rigidity in the system.

4.1.3 ENFORCEMENT OF REGULATIONS

Governance's ability to enforce regulations is captured in our analysis as an interaction between the quality of legal system and the level of regulation. Data on quality of legal system has been derived from the Economic Freedom of the World Database (The Fraser Institute). The data corresponding to the quality of legal system are in form of scoring/ranks: higher scores assigned to countries with independent judiciary, impartial courts,

protected property rights, easy enforceability of contracts etc. Data on legal system for the countries included in our analysis for different years are multiplied by corresponding regulation-indices to arrive at the final value of government's ability to enforce regulations. Naturally, higher values indicate greater ability of government to enforce regulations.

4.2 Research Methodology

The primary motive of this dissertation is to explore the linkages between informality, regulation and enforcement. Hence we concentrate primarily on three variables, namely, informal employment (as a percentage of total employment), regulation (overall as well as sub-categories) and enforcement of regulations (as captured by the interaction between quality of legal system and regulation). We begin our exploration on the basis of descriptive statistics of variables of our interest and checking the relation among them using scatter plots and correlation matrix. Then we move on to the regression section in order to derive concrete and robust results.

5. Summary Statistics

5.1 Informality across the Countries

The importance of the informal economy primarily stems out of the fact that this sector employs more than 60 percent of the labour-force in less developed countries. Not only is informality a reality in the third world nations, it also is the means of livelihood of around 20 to 30 percent of the working population in the developed nations. Our sample reveals a somewhat similar picture. Table 1 shows the informal employment figures for the developed and the less developed countries for the decade of 1990 followed by the decade of 2000. Three observations are worth noting. One, for both the decades informal employment in less developed countries is almost double than that of developed countries, and two, informal employment exhibits a persistent nature, that is, for both—the less developed and the developed—informal employment has remained almost stable over both the decades and lastly, developed countries registers a 3% drop in the level of informal employment.

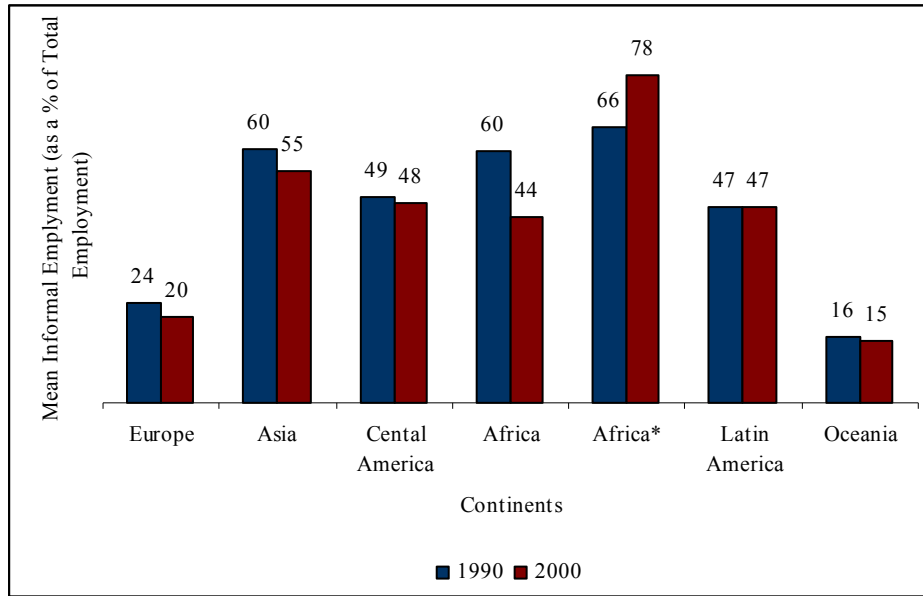
**Table 1: Mean Informal Employment in Developed and Less Developed Countries
(as Percentage of Total Employment)**

Countries	Years	
	1990	2000
Developed	31.80	28.74
Less Developed	62.48	61.13

Source: KILM, ILS and own estimation.

Figure 1 shows informal employment for five regions, namely, Europe, Asia, Central America, Africa, Latin America and Oceania. Further, we categorize Africa into two groups: Africa including South Africa and Africa and excluding South Africa. For both, 1990s and 2000s, Africa (excluding South Africa) exhibits highest average informal employment among all the geographical regions. However, highest variation in informal employment is observed for Asia perhaps due to the fact that the nations from Asia included in our sample come from both the ends of spectrum of informal employment, that is, our sample includes developed Asian countries like Japan (which exhibits low levels of employment in the informal sector) as well as developing Asian countries like India and Bangladesh (having extremely high informal employment). Variation in case of African nations are not however significant since the spread of informal employment is almost same for all the African nations (excluding South Africa). The two Americas (Central and Latin America) exhibit moderate levels of informality coupled with fairly low variation for both the decades. Low mean and variation is persistently displayed by Oceania followed by Europe. It is no surprise however since these regions house most of the developed nations of the world.

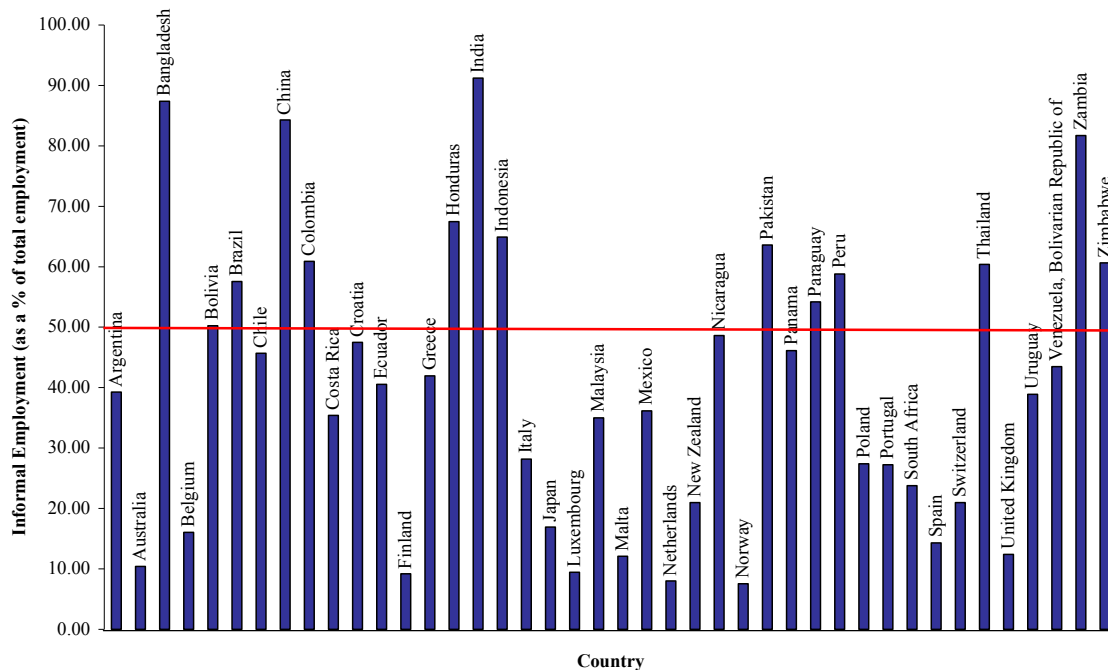
Figure 1: Informal Employment for Six Continents during 1990s and 2000s



Note: (*) indicates that in estimating mean and standard deviation for Africa we have not considered South Africa.

Source: KILM, IILS and own estimation.

Figure 2: Mean Informal Employment for Selected Countries for 2000



5.2 Relating Informality with Regulation and Enforcement

Although there may be a plethora of theories conceptualizing the structure of the informal economy and its possible linkages with the formal economy and formal regulatory

bodies, one aspect that almost all the economists agree to is that regulation more often aggravates the problems of informality than solving it. Thus, it is often prescribed that the correct path of tackling informality is to introduce flexibility in the system and improve the quality of regulation so that it provides every incentive for informal agents to start operating in the ambit of formal economy.

The scatter diagram plotted in Figure 3 examines the relation between overall regulation and informal employment. It is found that there exists a negative relation between the two variables. Since higher ratings for regulations indicates greater flexibility in the system and lower ratings imply presence of rigidity in the system, the inverse relation indicates that the more the flexibility is introduced in the system, lesser will be the volume of informal employment. However, when the same exercise is carried out for the sub-categories of overall regulation, viz., credit market regulation, labour market regulation and business regulation as plotted in Figures 4 it is observed that while stringency in credit market regulation adversely affect informal employment, the relation between labour market and business regulation and informal employment are not very robust.

Figure 3: Relation between Informal Employment and Overall Index of Regulation

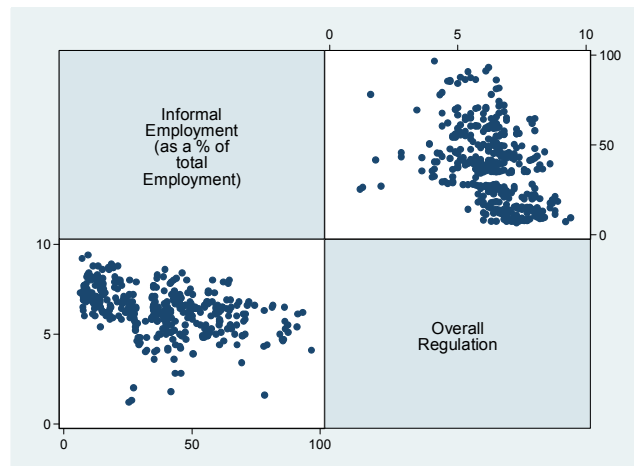
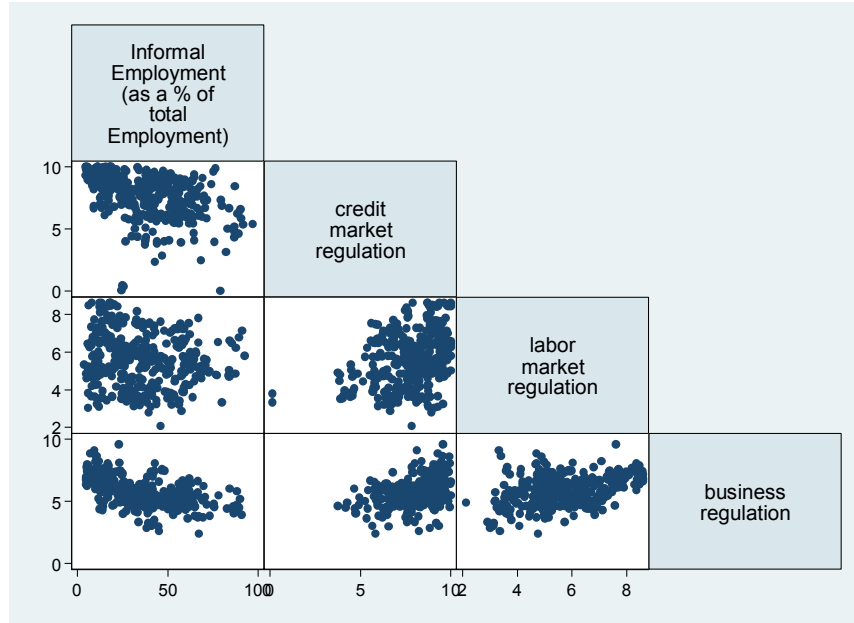


Figure 4: Relation between Informal Employment and Different Indices of Regulation



Sharper positions are obtained using the data for selected countries for the year 2000 as plotted in Figures 5 to 8.

Figure 5: Informal Employment and Overall Index of Regulation for 2000

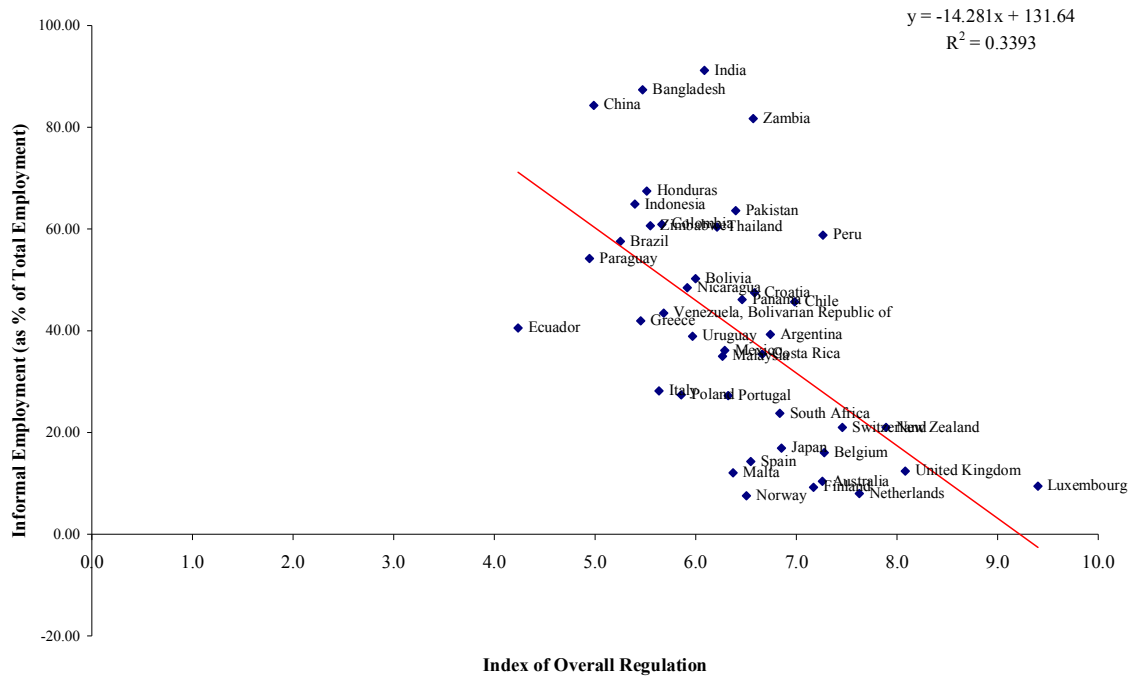


Figure 4: Informal Employment and Index of Credit Market Regulation for 2000

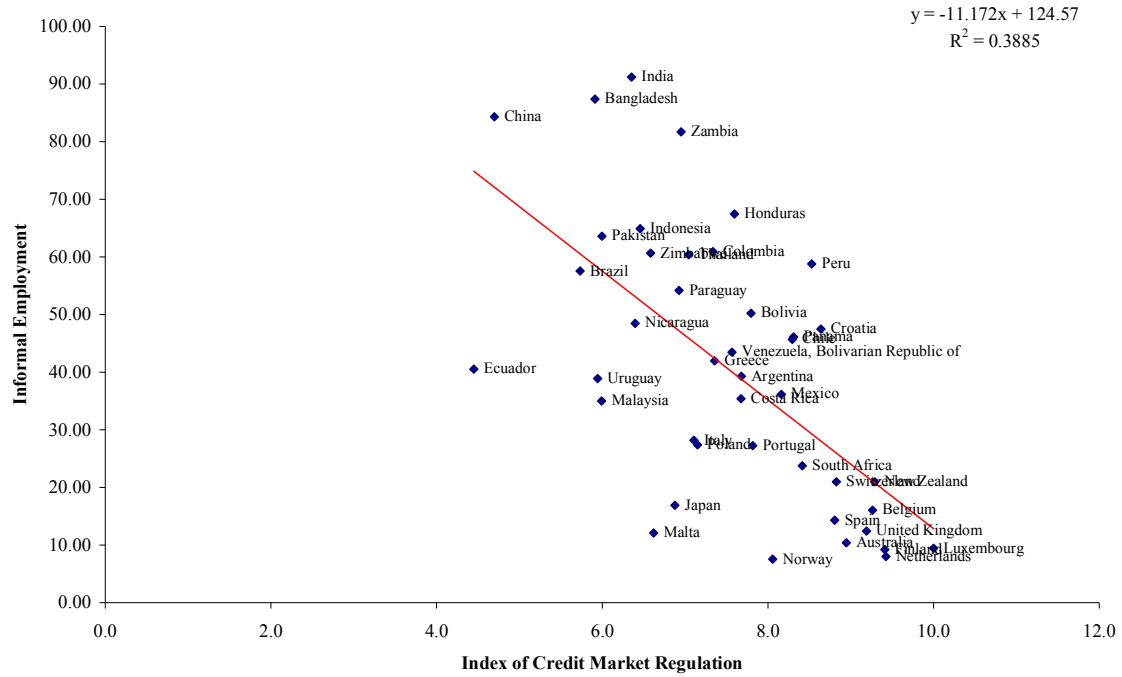


Figure 5: Informal Employment and Index of Labour Market Regulation for 2000

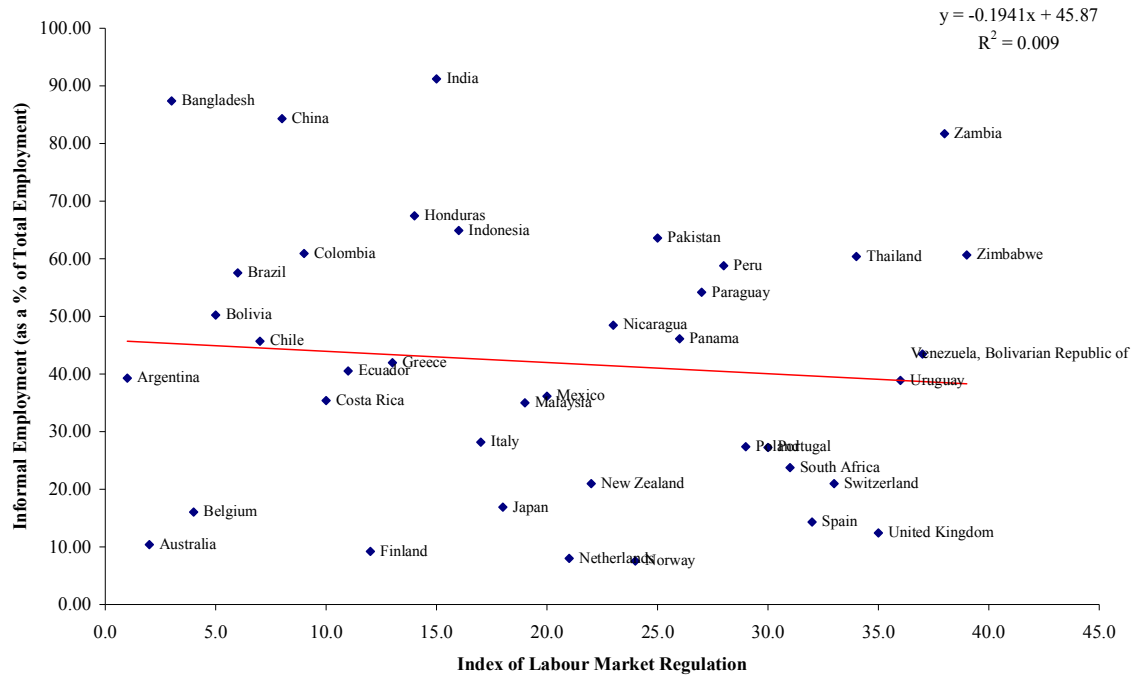
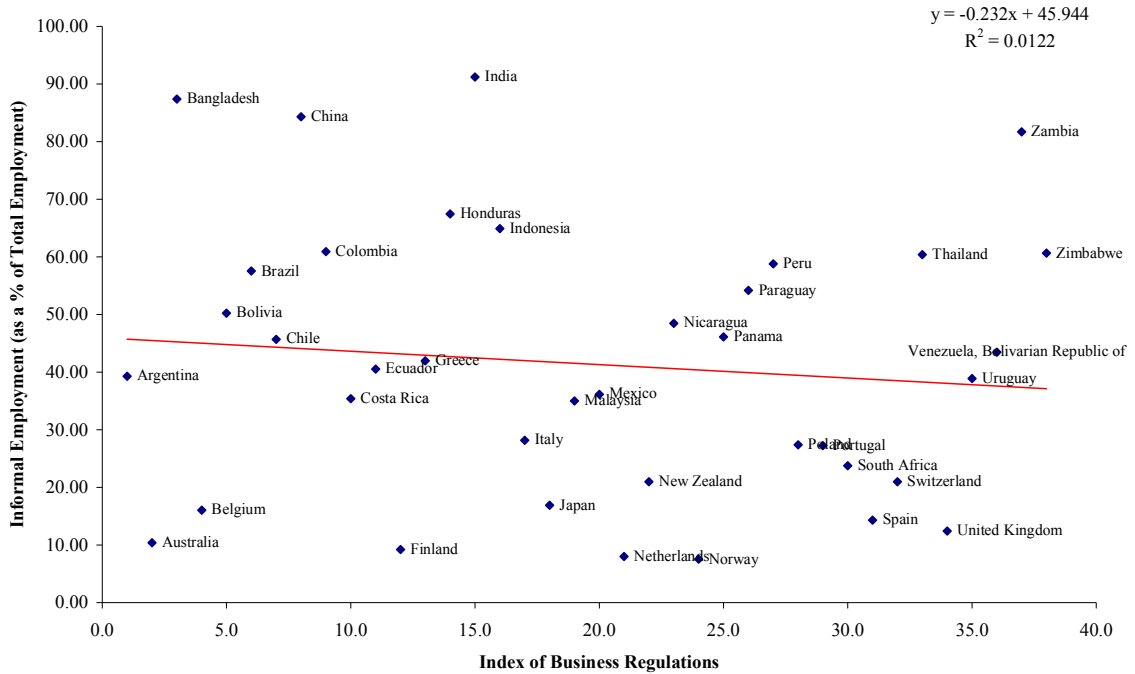


Figure 6: Informal Employment and Index of Business Regulation for 2000



Next, we move to explore the role of enforcement in our analysis. The scatter plots in Figures 7 and 8 reveal that the results are similar to those obtained above. However, the overall fit of the scatter plots for all the cases seem to improve considerably indicating that quality of governance and legal system might have some role in checking informality¹⁴.

Figure 7: Informal Employment and Enforcement of Regulation

¹⁴ The correlation matrix between informal employment and regulation reflect the same picture. While the correlation between overall regulation and informal employment is -0.57, the interaction between overall regulation and legal system yields a higher correlation of -0.76. Similar results hold for the sub-categories (See Table 1 in Appendix).

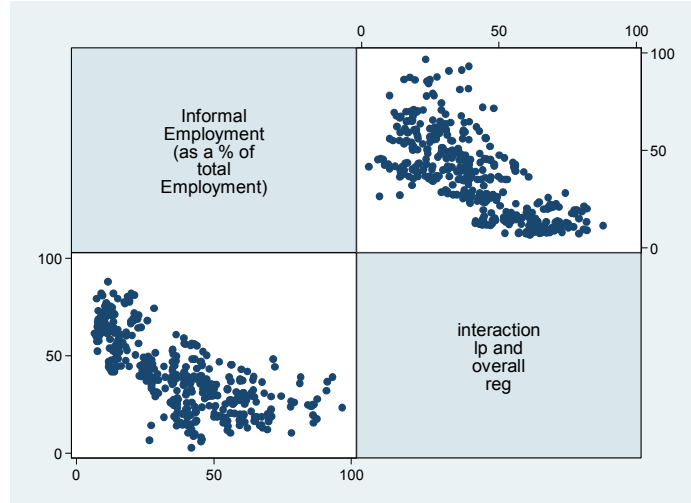
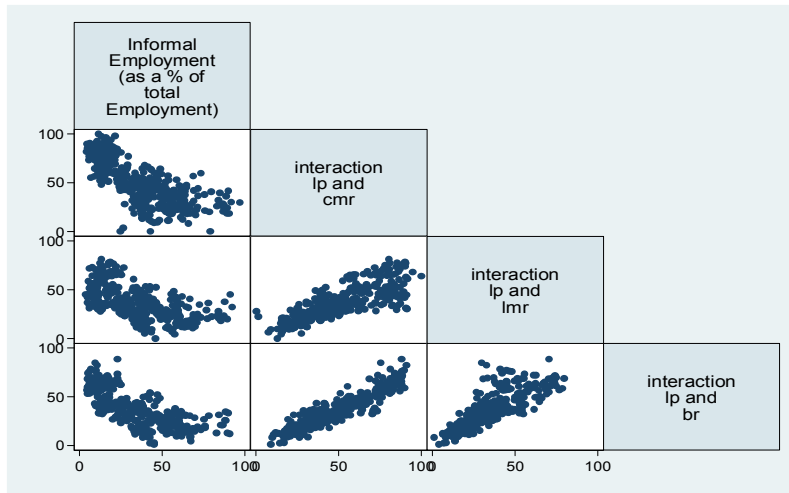


Figure 8: Informal Employment and Enforcement of different categories of Regulation



The above analysis shows that enforcement might have some role to play in the analyses of the impact of regulation on informality. This finding, in fact, gives rise to a host of inter-related questions: What is the degree of importance with which one should treat enforcement with? Is institutional quality, government’s ability to enforce regulation extremely crucial? Is introduction of flexibility into the regulatory system (so as to check informality) contingent upon the quality of governance? To sort out these issues so as to come up with concrete findings, further exploration of the linkages between regulation, enforcement and informal employment is needed.

6. Regression Analysis

The purpose of this paper is primarily to explore the linkages between regulation under two circumstances: without enforcement and with enforcement. Our hypothesis, thus, can be assumed to consist of two related parts: one, regulation without enforcement is useless, and two, effect of regulation is contingent upon the state of governance and legal system. Subsequently, testing our hypothesis, calls for framing two models (the second being a mere extension of the first); the first one excluding the interaction of regulation and governance and the second one, including the same so as to capture the dynamics of interaction ignored by the first.

6.1 Introducing the Control Variables

Our study pre-dominantly explores the relationship among informal employment, regulation and enforcement of regulation. Put differently, we intend to capture the effect of regulation and enforcement of the level of informal employment using a sample of 46 countries for various years in the time period 1980-2008. However, regulation and enforcement are correlated with several other variables which need to be explicitly incorporated in our model as control variables so as to control their effects when estimating the relationship between the independent and dependent variables. In this study, we use three such control variables (two of which are, in fact, composite indices, thus, including the effect of several variables that affect regulation and enforcement), namely, log of GDP per capita (constant 2000 US \$), index of size of government and access to sound money¹⁵. The index of size of government measure the degree to which a country relies on personal choice rather than government budgets and political decision making, that is, it measures the extent to which countries rely on political process to allocate resources and goods and services. Countries with low levels of government spending as a share of the total, a smaller government enterprise sector, and lower marginal tax rates earn the highest ratings in this area. The reason for inclusion of this variable as a control variable is that the presence of government must influence the share

¹⁵ Indices of size of government and access to sound money are composite indices. Index of size of government is represents four aspects of governance, namely, government consumption spending as a percentage of total consumption, transfers and subsidies as a percentage of GDP, government enterprises and investment and top marginal tax rate. Index of access to sound money, again, comprise of four sub-categories, namely, money growth, standard deviation of inflation, inflation in most recent year and freedom to own foreign currency bank accounts. Both these indices have been derived from Economic Freedom of the World Database (The Fraser Institute).

of formal employment – by either providing direct employment opportunities to the workers or creating an environment to the formal transaction. The index of access to sound money incorporates two issues: one, the consistency of monetary policy (or institutions) with long term price stability and two, the ease with which other currencies can be used via domestic and foreign bank accounts. High rating have been given to those countries which follow policies and adopt institutions that lead to low (and stable) rates of inflation and avoid regulations that limit the ability to use alternative currencies. The index of access to sound money is used in our analysis so as to control. Since informal employment gives much flexibility, the producer would like to prefer those in presence of high volatile financial and unstable money market in order to avoid risk. In order words, unstable money market does not encourage business activities to be thrived and thereby let the workers to find livelihood in the informal sector.

6.2 Framing the Model

We begin by assuming away the role of enforcement in the context of regulation and enforcement. The hypothesized form of the informal employment function therefore takes the following form:

$$INF = \Omega (REG, L_GDPPC1, SOG, SM) \quad [1]$$

where, INF: Informal employment (as a percentage of total employment)

REG: Index of overall regulation

L_GDPPC1: Log of GDP Per Capita (at constant 2000 US \$) in previous period

SOG: Index of size of government

SM: Index of sound money

Next, we try to capture the dynamics of enforcement and regulation by introducing an interaction term—interaction between level of governance and regulation—and see how the working of [1] gets modified and what additional implications (if any) does the interaction have for our study. Therefore the re-formulated informal employment function becomes:

$$INF = \tau (REG, LPREG, L_GDPPC1, SOG, SM) \quad [2]$$

where LPREG: Interaction between Index of Legal System and Index of Regulation.

In the present study we incorporate lagged values of log GDP Per Capita instead of current values. The reason is that the GDP and other variable might explain the informality but they may be correlated. In order to avoid this, we consider lag value of GDP.

This dissertation uses data on 46 countries which has been pooled from various sources. The data relates to the period 1980-2008. Econometric theory suggests that in such cases either of the two forms of regression may be applicable:

(i) *Pooled Cross Section Regression*: An independently pooled cross section assumes that data set has been obtained by sampling randomly from a large population at different points in time. Such models are of the form

$$Y_{it} = \beta X_{it} + \varepsilon_{it} \quad [3]$$

where Y_{it} : value of dependent variable for cross section unit I at time t

$i = 1, 2, \dots, n$ and $t = 1, 2, \dots, T$

X_{it} : value of the explanatory variable for unit i at time t

$\varepsilon_{it} \sim i.i.d. (0, \sigma^2)$

Pooled Cross Section models are, thus, time and space invariant, and in such models individual observations are uncorrelated and errors are homoscedastic across individual units and time. Under such circumstances the ordinary least squares provide consistent and estimator of α and β .

(ii) *Panel Data Regression*: A panel data set, while having both a cross-sectional and a time series dimension, differs in some important respects from an independently pooled cross section. To collect panel data—sometimes called longitudinal data—we follow (or attempt to follow) the *same* individuals, families, firms, cities, states, or whatever, across time. Moreover, in case of panel data models the unobserved effects affecting the dependent variable are assumed to be consisting of two types: those that are constant¹⁶ and those that vary over time. In other words, the error term consists of two distinct parts,

¹⁶ According to Wooldridge(), for the econometric analysis of panel data, we cannot assume that the observations are independently distributed across time. For example, factors (such as ability) that affect someone's wage in 1990 will also affect that person's wage in 1991; unobserved factors that affect a city's crime rate in 1985 will also affect that city's crime rate in 1990.

a time-invariant individual specific effect and an unsystematic (random) part varying across individuals and time. Thus the basic framework of the panel data regression model is of the form

$$Y_{it} = \beta X_{it} + \alpha_i + \eta_{it} \quad [4]$$

where α_i : unobservable individual specific effect

η_{it} : remainder disturbance which varies across time and individual (classical)

According to Greene (2003), the fundamental advantage of a panel data set over a pure cross section or time series is partly because panel data enables researchers to examine issues that could not be studied in either cross-sectional or time-series settings alone¹⁷. Other advantages of panel data are as follows: one, panel data enables controlling for individual heterogeneity, and two, panel data sets are more informative—it exhibits more variability, less collinearity among variables, more degrees of freedom and more efficiency.

In the context of panel data, two models are used most widely for purposes of econometric analysis. These are:

- *Random Effect Model*: In this case the time invariant component of error α_i is assumed to be independent of X_{it} . The variance-covariance matrix in context of random effect model is a non-spherical one. Hence OLS fails and we have to consider the Generalized Least Squares (GLS) method to estimate the unknown parameters of the model.
- *Fixed Effect Model*: In case of fixed effect model, the presumption is that the unobserved time invariant α_i is correlated with X_{it} . A common formulation assumes that differences across units can be captured in the constant term. The FE model can, thus, be represented as

$$Y_{it} = \alpha_i + \beta X_{it} + \eta_{it} \quad [5]$$

where α_i are intercept terms/ unknown parameters that vary across individual units

¹⁷ Greene (2003) summarizes the Ben-Porath (1973) study of labour supply to illustrate the advantages of panel data. In the study, it was observed that at a certain point, in a cohort of women, 50 percent may appear to be working. It is ambiguous whether this finding implies that one-half of the women on average will be working or that same one-half will be working in every period. These have different implications for policy. Cross-sectional data alone will not shed any light on the question. Only panel data can discriminate between the cases described above.

(states or countries), but remain invariant across time. Since the error term, in this case, satisfy classical properties, the OLS method can used to estimate [5].

The standard test to distinguish between a pooled cross-sectional data and a panel data is the Lagrange-Multiplier (LM) Test devised by Breusch and Pagan (1980). If the LM test confirms that the dataset we are using is indeed a panel data, we need to check whether the model to be employed is a Fixed Effect Model (FEM) or Random Effect Model (REM). We use the specification test devised by Hausman (1978) as the model selection test¹⁸.

6.3 Results and Discussion

6.3.1 Basic Model

The result of model [1] is given in Table 2.

Table 2: Unbalanced Panel Regression

Random Effects Model: $v(i, t) = e(i, t) + u(i)$

Methodology: Generalized Least Squares

Breusch and Pagan Lagrange Multiplier Test = 551.17 (1 df, prob. value = 0.00)

(High values of LM favour FEM/ REM over CR model).

Fixed vs. Random Effects (Hausman) = 7.63 (4 df, prob. value = 0.10)

(High [low] values of H favour FEM [REM]).

RE model is inconsistent, which leads us to use a fixed effects model. The results of the FE model are:

Fixed-effects (within) regression

Dependent Variable = INF

Model Size: Obsv. = 254, Parameters = 44, Deg. Fr. = 210

¹⁸ The Hausman (1978) test is based on the idea that under the hypothesis of no correlation, both OLS in the FEM and GLS are consistent, but OLS is inefficient, whereas under the alternative, OLS is consistent and efficient, but GLS is not. Therefore, under the null hypothesis, the two estimates should not differ systematically, and a test can be based on the difference (Greene, 2003).

Fit: R-squared (within) = 0.25, R-squared (between) = 0.81, R-squared (overall) = 0.78

Model test: F [4, 210] = 17.12, Prob. value = 0.00

Results from Panel (Fixed-effects) Regression

Explanatory Variable	Coeff.	Standard Error	t-ratio	P-value
L_GDPPC1	-29.59	3.78	-7.83	0.00
SOG	0.18	0.22	0.81	0.42
SM	0.31	0.23	1.34	0.18
REG	0.11	0.26	0.41	0.68
CONST.	142.90	13.72	10.41	0.00

The panel regression tests for whether the fixed effects (FE) or the random effects (RE) model is consistent with the data, given that FE/RE is the natural choice over the classical regression model suitable for pooled cross section data since the value of Lagrange multiplier is very large and associated p-value is zero. Further between FE and RE the results of the Hausman test clearly suggest that the FE is the appropriate model in our case. Consequently, the fixed effects method (or within transformation) is used for estimating the model. The fixed effects model show a overall significance indicated by zero p value corresponding to the F-statistic for the test of joint significance of all the coefficients. In the estimated model, it can be observed that coefficient of REG is positive but is not statistically significant. The coefficients of control variables SOG and SM also seem to be insignificant. However, coefficient of L_GDPPC1 is statistically significant and negative. Analysis of the correlation matrix for the control variables shows that L_GDPPC1 is highly correlated with SOG and SM. This would imply the presence of multicollinearity and explain the relatively low t-values observed for SOG and SM.

Table 3: Correlation Matrix of Control Variables

	L_GDPPC1	SOG	SM
L_GDPPC1	1.00		
SOG	-0.46	1.00	
SM	0.56	-0.17	1.00

Analysis of the results of model [1] reveals an interesting picture. Economic growth (as captured by an increase in L_GDPPC1) significantly helps curbing informal employment as shown but the negative significant relation between INF and L_GDPPC1. But the instrument of containing informal employment is definitely not regulation. As our results point out, coefficient of regulation is insignificant implying that regulation by itself cannot influence level of informality in an economy. So, the claim that introducing flexibility in the regulation system brings down informality, does not seem to hold.

The result of model [1A] is given in Table 4.

Table 4: Unbalanced Panel Regression

Random Effects Model: $v(i, t) = e(i, t) + u(i)$

Methodology: Generalized Least Squares

Breusch and Pagan Lagrange Multiplier Test = 539.36 (1 df, prob. value = 0.00)

(High values of LM favour FEM/ REM over CR model).

Fixed vs. Random Effects (Hausman) = 23.60 (5 df, prob. value = 0.0003)

(High [low] values of H favour FEM [REM]).

RE model is inconsistent, which leads us to use a fixed effects model. The results of the FE model are:

Fixed-effects (within) regression

Dependent Variable = INF

Model Size: Obsv. = 254, Parameters = 45, Deg. Fr. = 209

Fit: R-squared (within) = 0.26, R-squared (between) = 0.81, R-squared (overall) = 0.79

Model test: F [5, 209] = 15.04, Prob. value = 0.00

Results from Panel (Fixed-effects) Regression

Explanatory Variable	Coeff.	Standard Error	t-ratio	P-value
L_GDPPC1	-27.65	3.83	-7.21	0.00
SOG	0.11	0.22	0.51	0.61
SM	0.29	0.23	1.29	0.20

REG	0.78	0.39	1.98	0.05
LPREG	-0.08	0.04	-2.30	0.02
CONST.	134.96	14.01	9.63	0.00

Table [4] presents the results of the regression when we include the interaction between regulation and quality of legal system (as a proxy to level of governance) as an additional explanatory variable. As before, we use the Hausman test as the model selection criteria and subsequently proceed with the Fixed Effects Model as dictated by the test. We use the Fixed Effects transformation to estimate the model which shows overall significance. The coefficient on overall regulation index now remains positive as before but turns out to be statistically significant. Its corresponding interaction term with legal system/governance carries a statistically significant negative coefficient. This result can be interpreted as follows: For low levels of governance and poor quality of legal system (biased judiciary etc), making overall regulation more flexible leads to an expansion of informal employment. However, as rule of law improves and quality of governance becomes better, introducing greater flexibility in the legal system helps curbing informal employment. Thus, what we might infer is that for low levels of governance and poor enforcement, introducing freedom in the regulatory system will increase informal employment and thus re-regulation, in this case, will create more problem than solve. However, with improvement in enforcement capability of the government, flexibility in regulation will provide with the required incentives to the informal workers to join the formal workforce thereby causing the level of informal employment to diminish.

6.3.2 Extension

The previous section clearly establishes the fact that the effect of regulation ultimately is contingent upon the level of institutional development. However, in this analysis so far we have not used any specific categories of regulation as such. However, when the question of regulatory instruments in hands of the government is considered we need identify what categories of regulation affect informal employment and which direction. This inturn demands analysis of the relation between different categories of regulation and the level of informal employment. We perform the panel data regression for the same dataset controlling for the same variables as before. However, in place of overall

regulation and its interaction with the quality of legal system, we use three categories of regulation and their corresponding interaction terms. The model that we use, thus, is of the following form:

$$INF = \eta (CMR, LMR, BR, LPCMR, LPLMR, LPBR, L_GDPPC1, SOG, SM)$$

where, CMR: Index of Credit Market Regulation

LMR: Index of Labour Market Regulation

BR: Index of Business Regulation

LPCMR: Interaction between Index of Legal System and Index of Credit Market Regulation

LPLMR: Interaction between Index of Legal System and Index of Labour Market Regulation

LPBR: Interaction between Index of Legal System and Index of Business Regulation

All other variables have similar meaning as before.

Having framed the model, we run a Fixed Effects regression whose results are reported in table [5].

Table 5: Unbalanced Panel Regression

Fixed-effects (within) regression

Dependent Variable = INF

Model Size: Obsv. = 251, Parameters = 49, Deg. Fr. = 202

Fit: R-squared (within) = 0.32, R-squared (between) = 0.81, R-squared (overall) = 0.79

Model test: F [9, 202] = 10.32, Prob. value = 0.00

Results from Panel (Fixed-effects) Regression

Explanatory Variable	Coeff.	Standard Error	t-ratio	P-value
L GDPPC1	-29.61	4.04	-7.33	0.00
SOG	0.16	0.22	0.78	0.44
SM	0.42	0.23	1.81	0.07
CMR	0.69	0.51	1.35	0.18
LMR	-1.43	0.62	-2.31	0.02

BR	1.50	0.56	2.66	0.01
LPCMR	-0.06	0.08	-0.70	0.49
LPLMR	0.16	0.09	1.86	0.07
LPBR	-0.19	0.09	-2.22	0.03
CONST.	140.93	14.70	9.59	0.00

The panel data regression results indicate that while the labour market regulation and credit market regulation and the respective interaction terms significantly affect informal employment, the credit market regulation and its interaction term fails to exhibit any significant relation with informal employment. Thus, from policy point of view, while the former two categories may be thought of as instruments to contain informal employment, the latter exhibits no such role. In addition, the sign of the coefficients of the labour market regulation and business regulation and their respective interaction terms seems to be interesting. The coefficient of labour market regulation is positive while that of its interaction term is negative. This implies that for low levels of enforcement, flexibility in labour regulation will tend to boost the level of informal employment, and as enforcement quality improves, flexible labour regulation might help curbing informal employment. As for business regulation, we observe the opposite scenario. The coefficient of business regulation is negative while its interaction term has a positive coefficient. This essentially means, holding all other variables constant, introducing flexibility in business regulation is expected to arrest the level of informal employment. However, when quality of enforcement improves, flexible business regulation affects informal employment in positive way, that is, with good governance, flexible business regulation attracts more workers in the informal sector.

7. Conclusion

The study shows that regulation by itself has no role in reducing or aggravating the level of informality in an economy. Regulation will only affect levels of informality when it is enforced. Thus a country might have flexible labour, business and credit market regulations with the aim of arresting the size of the informal sector (assuming the rigidity in regulation serves as a disincentive to formalize) but may totally fail to do so if the enforcement authority is incapable in enforcing the laws. For instance, regulations aimed at abandoning the licensing system (in which corruption is inherent) will provide

incentive to entrepreneurs to start business in the ambit of the formal sector only when they are assured that licensing system does not get replaced by corruption and bribery owing to biased legal system and judiciary.

In other words, we argue that regulations aimed at adding flexibility into the system (and thereby containing informality) will only be meaningful if enforced properly. In addition, we also claim that all types of regulation (when enforced) may not affect informal employment in the same way. In fact some types of regulation may even turn out to be insignificant to reduce informality. Thus a deeper analysis of the linkages between alternative regulation mechanisms and informal employment is sought.

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Appendix: Countries included in the analysis

1. Argentina
2. Australia
3. Bangladesh
4. Belgium
5. Bolivia
6. Brazil
7. Chile
8. China
9. Colombia
10. Costa Rica
11. Croatia
12. Ecuador
13. Finland
14. Georgia
15. Greece
16. Honduras
17. India
18. Indonesia
19. Italy
20. Japan
21. Kenya
22. Luxembourg
23. Malaysia
24. Mali
25. Malta
26. Mexico
27. Netherlands
28. New Zealand
29. Nicaragua
30. Norway
31. Pakistan
32. Panama
33. Paraguay
34. Peru
35. Poland
36. Portugal
37. South Africa
38. Spain
39. Switzerland
40. Thailand
41. United Kingdom
42. Uruguay
43. Venezuela, Bolivarian Republic of
44. Vietnam
45. Zambia
46. Zimbabwe

APPENDIX

Table 1A: Correlation Matrix

	INF	REG	CMR	LMR	BR	LPREG	LPCMR	LPLMR	LPBR
INF	1								
REG	-0.57	1							
CMR	-0.56	0.78	1						
LMR	-0.21	0.75	0.33	1					
BR	-0.57	0.78	0.49	0.37	1				
LPREG	-0.76	0.84	0.61	0.53	0.83	1			
LPCMR	-0.80	0.81	0.71	0.42	0.78	0.98	1		
LPLMR	-0.63	0.85	0.49	0.78	0.69	0.92	0.84	1	
LPBR	-0.73	0.76	0.52	0.38	0.91	0.97	0.94	0.82	1

Source: Economic Freedom of the World Report and Author's estimation

Note: Description of Variables: INF = Informal Employment (as a percentage of total employment); REG = Index of Overall Regulation; CMR = Credit Market Regulation; LMR = Labour Market Regulation; BR = Business Regulation; LPREG = Interaction between quality of legal system and overall regulation; LPCMR = Interaction between quality of legal system and Credit Market Regulation; LPLMR = Interaction between quality of legal system and labour market regulation; LPBR = Interaction between quality of legal system and Business Regulation.

Table 2A: Descriptive Statistics for the Variables

Variables	Mean	SD	Skewness	Kurtosis	Minimum	Maximum	Observations
INF	36.34	21.06	0.49	2.51	6.52	96.70	423
CMR	7.80	1.69	-1.45	6.06	0.00	10.00	423
LMR	5.65	1.43	0.11	2.27	2.30	8.60	372
BR	5.82	1.19	0.12	2.96	2.70	9.40	329
REG	6.43	1.25	-0.78	4.69	1.20	9.40	423
LP	6.30	2.10	-0.18	2.10	1.40	10.00	422
LPCMR	50.46	22.58	0.15	2.03	0.00	100.00	422
LPLMR	36.89	17.00	0.45	2.53	3.68	78.2	372
LPBR	37.62	18.49	0.43	2.33	4.62	86.48	329

LPREG	41.90	18.81	0.22	2.12	2.70	88.00	422
SOG	6.06	1.40	-0.25	2.49	2.00	9.30	423
SM	8.01	1.92	-1.62	6.01	0.00	9.80	423
L_GDPPC	3.76	0.58	-0.35	2.19	2.28	4.75	423

Source: KILM, ILSS, Economic Freedom of the World and own calculation.

Note: Description of Variables: INF = Informal Employment (as a percentage of total employment); REG = Index of Overall Regulation; CMR = Credit Market Regulation; LMR = Labour Market Regulation; BR = Business Regulation; LP = Index of Legal System and Property Rights;

References

Basu, A., N. Chau and R. Kanbur (Forthcoming), 'Turning a Blind Eye: Costly Enforcement, Credible Commitment, and Minimum Wage Laws', Forthcoming in *Economic Journal*.

<http://www.arts.cornell.edu/poverty/kanbur/BasuChauKanburTurningABlindEye.pdf>

Benjamin, N. C. and A. A. MBAYE (2010), *'Informality, productivity, and enforcement in West Africa: A firm level analysis'*, International Policy Centre, Gerald R. Ford School of Public Policy, University of Michigan, Working Paper Series Number 100

Blunch, N. H., Sudharshan Canagarajah and Dhushyanth Raju (2001), *'The Informal Sector Revisited: A Synthesis Across Space and Time'*, Social Protection (The World Bank) Discussion Paper No. 0119

Bromley, R. (1978), 'Introduction - The Urban Informal Sector: Why is it worth discussing?', *World Development*, vol. 6, No. 9/10, p. 1033-1039

Chen, M.A. (2005), *Rethinking the Informal Economy: Linkages with the Formal Economy and the Formal Regulatory Environment*, Research Paper 2005/10, Helsinki, United Nations University-World Institute for Development Economic Research (UNU-WIDER)

Chen, M. A., R. Jhabvala and F. Lund (2001), *Supporting Workers in the Informal Economy: A Policy Framework*, Paper prepared for ILO Task Force on the Informal Economy

De Soto, H. (2003), *The Mystery of Capital: Why Capitalism triumphs in the West and fails Everywhere Else*, NY: Basic Books

De Soto, H. (1989), *The Other Path: The Invisible Revolution in the Third World*, NY: Harper & Row

Dreher, A., and F. Schneider (2010), 'Corruption and the shadow economy: an empirical analysis', *Public Choice* 144, pp. 215—238

Fields, G. S. (1975), 'Rural-Urban Migration, Urban Unemployment and Underemployment and Job Search Activity in LDCs', *Journal of Development Economics*, 2 (2), pp. 165-88

Flodman Becker, K. (2004), *The Informal Economy: Fact Finding Study*, Stockholm, Swedish Development Agency (SIDA)

Greene, W.J. (2002), *Econometric Analysis*, New Delhi: Pearson Education Institution

Gwartney, J., J. Hall and R. Lawson (2010), *Economic Freedom of the World: 2010 Annual Report*, Vancouver: The Fraser Institute. Data retrieved from www.freetheworld.com

Harris, J.R., and M.P. Todaro (1970), 'Migration, Unemployment and Development: A Two Sector Analysis', *American Economic Review*, 60(1), pp. 126—142

Hart, K. (2006), 'Bureaucratic Form and the Informal Economy' in B. Guha-Khasnobis *et al.* (eds.), *Linking the Formal and Informal Economy: Concepts and Policies*, NY: Oxford University Press, UNU-WIDER Studies in Development Economics and EGDI pp. 21—35

Hart, K. (1973), 'Informal Income Opportunities and Urban Employment in Ghana', *Journal of modern African Studies*, 11(1), p. 61-89

International Labor Office and World Trade Organization (2009), *Globalization and Informal Jobs in Developing Countries*, Geneva: International Institute of Labor Studies and Washington: Economic Research and Statistics Division (www.ilo.org/public/english/bureau/inst/download/globalinform.pdf)

ILO (1972), *Incomes Employment and Equality in Kenya*, Geneva: ILO

Johnston, J. and J. Dinardo (), *Econometrics Methods*, The McGraw-Hill Companies, Inc

Kanbur, R. (2009), 'Conceptualising Informality: Regulation and Enforcement', Cornell University, Department of Applied Economics and Management, Working Paper 09-11

Lewis, W. A. (1954), 'Economic Development with Unlimited Supplies of Labour' *Manchester School*, 22 (May), 139–91

Lipton, M. (1984), 'Family, Fungibility and Formality: Rural Advantages of Informal Non-Farm Enterprise versus the Urban-Formal State', in S. Amin (ed.), *Human Resources, Employment and Development*, vol. 5: Developing Countries, London: MacMillan, for International Economic Association, p. 189—242

Loayza, N.V. (1994), *Labor Regulations and the Informal Economy*, World Bank Policy Research Working Paper Series 1335

Loayza, N.V., A.M. Oviedo and L. Serven (2005), 'The Impact of Regulation on Growth and Informality: Cross Country Evidence',

Maiti, D., and K. Sen (2010), 'The Informal Sector in India: A Means of Exploitation or Accumulation?', *Journal of South Asian Development*, 5:1, pp. 1—13

Marjit, S. and S. Kar (2011), *The Outsiders: Economic Reform and Informal Labour in a Developing Economy*, New Delhi: Oxford University Press

Mogensen, Gunnar V., Kvist, Hans K., Körmendi, Eszter and Soren Pedersen (1995), *The informal economy in Denmark 1994: Measurement and results*, Study no. 3, Copenhagen: The Rockwool Foundation Research Unit

Moser, C. N. (1978), 'Informal Sector or petty commodity production: dualism or independence in urban development', *World Development*, vol. 6, p. 1041-64

Portes, A., M. Castelles and L. A. Benton (1989), *The informal economy: Studies in advanced and less developed countries*, Baltimore, MD, The John Hopkins University Press

Ray, D. (1998), *Development Economics*, Princeton, NJ: Princeton University Press

Sanyal, K. and R. Bhattacharya (2009), 'Beyond the Factory: Globalisation, Informalisation of Production and the New Locations of Labour', *Economic and Political Weekly*, 30 May, 46(2), pp. 35—39

Schnieder, F. (2002), *Size and Measurement of the Informal Economy in 110 Countries around the World*, Canberra: Australian National University, Australian National Tax Centre.

Schneider, F. and R. Klinglmaier (2004), 'Shadow Economies around the World: What do we Know?', CESIFO Working Paper No. 1167 (Category 1: Public Finance)

Sindzingre, A. (2006), 'The Relevance of the Concepts of Formality and Informality: A Theoretical Appraisal', in B. Guha-Khasnobis *et al.* (eds.), *Linking the Formal and Informal Economy: Concepts and Policies*, NY: Oxford University Press, UNU-WIDER Studies in Development Economics and EGDI

Wooldridge, J. M. (2002), *Introductory Econometrics: A Modern Approach*