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Adams, Abass and Cantah, William Godfred and Wiafe,
Emmanuel Agyapong

University Cape Coast, University of Cape Coast, University of
Cape Coast/West End University College, Kasoa, Ghans

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Income Insecurity, Job Insecurity and the Drift towards Self-employment in SSA

Abass Adams¹

William Godfred Cantah²

Emmanuel Agyapong Wiafe³

Department of Economics

University of Cape Coast, Cape Coast, Ghana

Abstract

This study contributes to the explanation to growing informality by proposing and testing a simple framework that link income insecurity to the proliferation of informal enterprise through job insecurity in selected SSA countries. The study adopted a quantitative approach and used ANOVA analysis to analyze a uniform firm level data on informal enterprises in Ghana, Kenya and the DRC. The analyses suggested that income insecurity exist in the form of significant seasonal variations in sales returns. Enterprises that employ more than one worker, on the average, cut employment significantly during the slowest months as compared to employment in the busiest months. Thus a link is established between income insecurity and job insecurity which deters the informal enterprises from increasing permanent employment and hence remains small overtime. Instead firms resort to casual workers and unpaid workers to facilitate production. The insecurity in the informal sector paid employment drive paid employees into self-employment after learning the employer's trade and hence multiply the number of enterprises in a locality which in turn keep returns fairly normal in the sector. The major recommendation of that study is that owners of informal enterprises must be regulated in their current jobs and assisted to build capacity to deal with sales variations and other employment uncertainty after which the demand for formality and growth in decent employment shall be a natural course of action to the firms.

Keywords: informality, Insecurity, Enterprises, income, job, employment, Self-employment.

JEL Classification: J29, J47, J62, J64

¹ Graduate, Department of Economics, University of Cape Coast, Cape Coast. Email: ceasermariner@yahoo.ca

²Research Assistant, Department of Economics, University of Cape Coast. Email: wgcantah@gmail.com

³**Correspondence:** Researcher, Ferd consult/Part-Time Lecturer, West-End University College, Kasoa, Ghana: Email: emmacademics@gmail.com, Tel: +233 543940062

Introduction

The concept of informality was coined in an International Labor Office (ILO) study of urban labor markets in Ghana (Hart, 1973) and subsequently employed in the ILO reports of labor market conditions in other African cities like Kenya and by the World Bank in a number of studies of urbanization and poverty throughout the developing countries (Sethuraman, 1981). It should not be surprising that the concept trace its root to a Sub-Saharan African (SSA) country because SSA has one of the highest prevalence rate of informal economic activity in the world (ILO, 2002). The ILO (2002) have estimated that in sub-Saharan Africa, 70% of informal workers are self-employed 62% in North Africa, 60% in Latin America and 59% in Asia. The concept of informality in its entirety is not new as it is dated earlier than its categorization as informal in 1973 by Hart. According to Portes and Sassen-Koob (1987) the constituents of informal economy forms part of what Marxist termed “reserve army”. Before Marx, however, Lewis (1954) treated the small-scale, traditional sector as a reservoir of surplus labour without growth potential. With these views of the informal economy, capitalist where of the view that informal activity shall decline rapidly with industrialization and eventually vanish. But empirical evidence depart from this expectation to the extent that informality still persist in most emerging economies and still very visible in most advanced countries (Portes & Sassen-Koob, 1987; Rolfe, Woodward, Ligthelm, & Guimarães, 2010,).

The obvious fact now is that informality is persisting and it's on the increase in most emerging economies mainly in the Latin America and Sub-Saharan African countries. To most researcher and policy makers, growing informality is detrimental to the growth of developing countries and must therefore be removed or reduced through a formalization programs (Taymaz, 2009). Taymaz (2009) called for the formalization of the large informal economy in developing countries to boost productivity and growth because the informal firms are less productive, employ unskilled labor, and pay lower wages. Taymaz was quick to add that the formalization process must be done carefully since the sector have substantial employment potentials. Aryeetey (nd) added that the quest to formalization of enterprises needs to be addressed from various different angles; by reducing entry and operating formal costs, increasing the incentives for Medium Scale Enterprises (MSEs) to operate formally, reducing obstacles to their growth, and searching for inexpensive approaches through which to enforce compliance with government regulations. To other researchers' informal enterprises is growth oriented and complementary rather than alternative to the formal sector (Kanbur, 2009).

Whether to formalize the informal sector or to organize and regulate the existing informal activities and employment remains a theoretical issue but what empirical research can attempt to do is to validate or question the basis of the theoretical view of the informal sector or economy. If we view the informal economy as legal economic activity organized beyond the reach of the law (), then we can see formalization as a way forward in ensuring economic development. The strong assumption implied in this view is that such enterprises have the means to demand formality but chose to remain informal due to their private gains. In such situation, formalization shall make such firms pay for the true social cost of their production which may results in economic growth and check overproduction of certain undesirable products. On the other hand we can consider the informal enterprise as constrained firms that survive mainly by cutting cost and the easiest cost they can avoid is the cost of formalization. In such case, we may consider organizing the sector first to understand their problem while gradually moving them to the formal sector.

Thus the solution to growing informality lies deep in the effective understanding of its causes. Earlier studies have offered a number of factors as being among the major causes of

informality. Most researchers have suggested that the most important factors that enable the existence of informal economy are large startup costs, rigid labor registration, inefficient tax system, corruption and high registration fees (De Soto, 1989; Johnson et.al., 1998). Others argue that entrepreneurs have less of an incentive to formalize their businesses if they are not constrained in the informal economy from the public goods and services available to the formal sectors (Johnson et.al., 1998). The later blame informality on the ineffectiveness of the state regulatory mechanism. Recently, a number of studies have also attributed the cause of informality to dynamics of the owners and employees such as low level of education and low capital accumulation (GSS, 2008). In Kenya, Bigsten et al. (2000) discovered that ethnicity is important in explaining choice of formality status, while the network implications of ethnicity account for the differences in firm productivity, investment and growth prospects.

Whichever way we look at it, the cause of informality has always been attributed to external source for which there may be enough reason to believe so but what is hard to accept is the fact that the cause of the expansion in the sector also lays outside it. Tracing every cause of growing informality to factors outside the informal sector suggest that we must as well look for solution outside the sector which has been the bane of policy makers to date. We set out in this study to identify possible internal dynamics of the informal sector that could explain its proliferation in emerging countries using three Sub-Saharan African countries as start. Specifically we seek to find empirical evidence to support income insecurity and its possible effects on job security of the informal paid employee. It is common to associate informality with casual employment but not much empirical work has been done to ascertain the assertion and to make a case for the source of this practice. With a relatively uniform data set on the informal sector of Ghana, Kenya and Democratic Republic of Congo (DRC) we intend to find empirical internal source for the expansion of informal economy and the multiplication of self-employed individuals in the informal sector of most developing countries.

The rest of the paper is organized as followed: we review the definition of informality, definition and measurement of informal employment, income insecurity and job insecurity. The current view of informal self-employment is review as a lead to the development of the theoretical framework followed by source of data, methods of estimations and analysis and presentations and discussion of results. That later part presents the conclusions, recommendation, limitation and direction for future studies.

Definition of informal Sector

The definition adopted for informality depends on the angle from which one looks at the concept. The dualists view the informal sector as the inferior segment of a dual labour market, with no direct link to the formal economy, while structuralists see it as comprising small firms and unregistered workers, subordinated to large capitalist firms but the legalists consider it as comprising micro-entrepreneurs who prefer to operate informally to avoid the costs associated with registration (Bacchetta et al., 2009). For more on the definition and concept of informality see Blunch et al. (2001) and Kanbur (2009).

The survey data adopted for this study used the legal definition to sample enterprises that have no formal registration with the Registrar General's Department of the respective countries. The author is in tune with the adoption of this definition because it stands out as the major definition that partition firms into formal and informal firms. Most of the other definitions are

deficient at putting formal and informal firms into mutually exclusive groups. For example, some formal firms are small while some informal firms are large making categorisation by size deficient.

Informal Employment

Informal employment is a broader concept that includes employment of an informal nature in formal enterprises, as well as wage and self-employment in informal enterprises and households (Husmanns, 2004). In the population of informal firms, as in this study, informal employment shall be limited to the section of informal employees who are employed in the informal sector. This is because the informal employer may be actively involved in some kind of formal employment elsewhere. According to Field (2014), labor market includes wage employment, where employees sell labor services to an employer, as well as self-employment, where workers sell labor services to themselves. In the pure economic sense, any profit higher than what the individual could earn as an employee makes self-employment an optimal decision. Hence the focus of this study is the informal employee whose faith depends on both market outcome and the employers profit maximization decisions.

Income Insecurity

Income security, “consists of an adequate level of income, a reasonable assurance that such an income will continue, a sense that the income is fair, relative to actual and perceived needs and relative to the income of others, and the assurance of compensation or support in the eventuality of a shock or crisis affecting income” (ILO, 2004). According to Osei-Boateng and Ampratwum (2011), incomes in the informal sector are irregular and can be subjected to environmental (weather) and market factors (demand and supply). Income insecurity in this study is proxy by the percentage significant fall in sales between the busiest and slowest months in the year. Income or sales returns shall be considered stable if no significant difference is observed between the mean sales returns of the busiest and slowest months. Otherwise, income flow is regarded as insecure. The proxy captures the shock component of the ILO definition (ILO, 2004) and some combination of weather and market factors of Osei-Boateng and Ampratwum (2011) observations.

Job Security

Job security is measured as the extents to which labour can hold on to the current employment for which his/her services are needed. Examining job tenure is one method of trying to empirically capture the extent of job security (ILO, 2004). However, this method of measurement is fraught with problems. For example, ageing and employment growth affect average tenure as does the proportion of youth in the labour force since youth tend to have very short employment tenure; this can pull down the average tenure and vice versa (ILO, 2004). Also, the use of average tenure may provide no information about section of the enterprise that suffers regular layoff and recruitments. In the case where the tenure is taken in years, it may not be possible to capture seasonal variations. Hence this study adopted the variation in employment between defined seasons within the year as a measure of as a measure of seasonal job insecurity. Informal job shall be considered security at least in the short run if seasonality as measured by sales returns does not reduce the average employment of informal enterprises significantly and insecure otherwise.

Self-employment

As mentioned earlier, the self-employment can be used in to describe individuals who sell their labour effect to themselves or their own enterprise. Self-employment process may be formal or informal depending on the definition one adopt for formality and how the self-employment process is generated (Field, 2014). For more on self-employment refer to Field (2014) wrote extensively on self-employment. Like many other studies (Osei-Boateng and Ampratwum, 2011; Field, 2014). Field (2014) agreed to the high prevalence of self-employment in the informal of developing countries especially in the SSA countries but failed to accept the informal self-employed individual as an ‘entrepreneur’. Specifically, Field (2014) wrote that:

Workers (mostly young men) engaged in such survival self-employment can hardly be called “entrepreneurs” in the everyday sense of the term. They (Self-employed) engage in such activities reluctantly and only until they can find something better. The majority of self-employment enterprises lack the potential to grow, as studies in Sri Lanka and West Africa demonstrate. In this sense, they are self-employed because they have no choice. They are too poor to remain unemployed and earn nothing. A much smaller group of people are self-employed because they were previously wage employees and could have continued in wage employment but left their jobs willingly to create their own enterprises

Here Field join the old queue of blaming informality on the inability of the formal sector to absorb the excess labour or offer a better option to the unemployed (Moore and Mueller, 2002).

This view, however, is in sharp contrast with earlier studies that view the participant of the informal sectors as doing so voluntarily, not necessary to avoid the costs, time and effort of formal registration (Maloney, 2004). Maloney (2004) cites survey data from Latin America to show that, given the choice, most self-employed workers in the informal sector prefer their current status to wage employment in the formal sector. According to the studies of Williams et al. (2012) on reasons form remaining in informal employment, “60% cited purely voluntary reasons, whilst 17% stated purely involuntary reasons. The remaining 23% reported both pull and push factors, displaying that the reasons for engagement are perhaps more complex than can be captured by dichotomous representations depicting those engaged in informal self-employment as driven by either choice or necessity”. The line of argument clearly points to the fact dichotomous view of the source of growing number of self-employment (one-man-business) may be problematic especially in view of the heterogeneity of the sector/economy.

It is therefore pertinent to delve deep into the content of the pull and push factors into self-employment in the informal sector, especially in developing countries. Field (2014) acknowledged that the dynamics of self-employment are not well researched in the developing countries. The framework below attempted to explain the transition mechanism form erratic demand conditions , inconsistent income sources, insecure jobs to the proliferation of survival self-employed individuals who may not have growth as a major priority.

Theoretical Framework

Beginning from Hart (1973), a number of researchers have attempted to model the informal sector by developing a workable theoretical framework to explain an aspect of the informal economy (De Soto, 1989; Field, 2014). The focus has mostly been on return to informality, the effects of country/area dynamics among other external factors that facilitated informality. Income and job insecurity have always been considered a distinguishing feature between formal and informal enterprises rather than a leading cause of informality.

The focus of this framework is clear and simple. It seeks to theoretically demonstrate and empirically test the assertion that casual employment in the informal sector can be explained by seasonal variations in sales returns (income insecurity). It further suggests that the inherent insecurity in informal job serves as a push factor that pushes the informal employee into self-employment so that such individuals can take control of their own finances as against the uncertainty of working for the informal employer. In the end seasonality in sales returns shall be seen as one of the major underlying factors accounting for the proliferation of informal enterprises in developing countries as well as shed some light on the perceived low productivity associated with the informal sector.

The framework begins by making a number of strong but realistic assumptions on the informal employer. First the informal employer is self-employed or acts at one with the prerogative right to hire and fire at a minimal cost. The recruitment or firing cost is minimal since the informal sector is not regulated and the employment process involves no formal contract that could be breached to warrant the payment of fines or benefits (Osei-Boateng and Ampratwum, 2011; Vikkraman and Baskaran, 2013). Hence the major components of variable cost of production are wages (w), raw materials (m) and utility bills (b). Assuming further that the cost of raw materials and bills are set in the market and hence are given in the cost function, then the major component of the variable cost determined within the firm is the cost of labour or wage. The ability of the informal employer to fix the wage rate can be sanctioned by the fact that the supply of labour in the informal sector is elastic while the demand for labour is not highly competitive in the informal sector. That is, the labour skill requirement is not highly specialized so that any “stranded” active worker is a possible recruit. The variable cost (VC) function can then be specified as below.

$$VC = f(w, m, b, t_v) \dots \dots \dots (1)$$

where t_v is the variable transaction cost of all activity conducted in the market within a specified period.

The fixed cost of transaction shall be estimated as a fixed proportion (α) of the value of fixed assets (αA) and the one-time fixed transaction cost (t_f) of acquire an asset or hiring a labour.

$$FC = f(\alpha A, t_f) \dots \dots \dots (2)$$

Hence the Total cost of a typical informal enterprise shall be specified as:

$$TC = VC + FC = f(w, m, b, t_v, \alpha A, t_f) \dots \dots \dots (3)$$

The revenue function is as well specified with the assumption that the sales of output are the only source of direct income to the informal enterprise. Since entry and exit are not restricted

in the informal sector, price can be assumed to be fixed in the market. That is, the informal sector is near a competitive market structure. Charlot et al. (2011), found the informal sector to be endogenously more competitive than the formal sector.

$$TR = P.Q(L, K) \dots\dots\dots (4)$$

**where L is the units of labour employed
and K is the unit of fixed capital employed.**

Given the cost and revenue functions, we can estimate the profit (π) as below;

$$\Pi = TR - TC = P.Q(L, K) - f(w, m, b, t_v, \alpha A, t_f) \dots\dots\dots (5)$$

$$\Pi = TR - TC = P.Q(L, K) - wL - C_o \dots\dots\dots (6)$$

where C_o refers to all costs other than total wage (wL)

The individual informal enterprise in a competitive market is expected to be a price taker who maximises profit by either maximising revenue or minimises cost. This market condition has a number of implications for the informal employer and informal sector employment in terms of job turnover and security. Without any benefits to be paid and any law to force them to do so, the informal employer has less incentive to fire or keep a productive worker on casual basis except when they constrain to do so. That is, the turnover of informal paid employee does not increase the benefit to be paid, if any, when the worker is fired or retires which make wage the only savings the informal employer makes when a worker is fired. Thus, we expect the informal employer to keep an experienced worker much as there is demand for the product and the price is higher in enough to make the marginal revenue product of labour higher than wage. Hence informal paid employment is likely to be secure if sales remain relatively stable overtime and prices are competitive enough. The major threat to the security of informal paid employment, therefore, is sales volatility. In the typical case of developing countries, sales volatility could be attributed to seasonal variations - something that has been posit theoretically by most researchers but hardly tested empirically.

The informal sector employers can response to seasonal variations in sales by varying cost in the respective period. The easiest cost component that the informal employer can control is wage, either in the form of a wage cut or layoffs, especially since their activities are mainly labour intensive. Two factors facilitate this option. First, a fall in sales revenue is more likely to mean a reduction in output sold rather than a fall in price since price is proven to be sticky downwards, especially for non-agricultural products. Once the informal enterprise is less likely to keep inventory, there are no incentives to keep excess variable cost which include wages during low sales period. Secondly, there are no binding contracts or benefits to be paid for firing a worker with relatively low transaction cost of replacing such labour during boom period. The enterprise is also privy to the fact that a substantial wage cut can lower productivity and induce undesirable attitudes in the employees. Hence the informal employer would prefer to maintain competitive wage above the minimum but keep some workers on casual basis and lay them off at any time they want so as to contain cost (Osei-Boateng, 2010 as cited in Osei-Boateng and Ampratwum, 2011).

The implication of the framework is that significant seasonal variations in sales returns of informal enterprises have different consequences for employers and employees in the informal

sector. The informal sector employer may face income insecurity but can contain it by firing employees to keep cost down so that the enterprise can stay in business as long as the expected profit is positive over the year. Assuming that an enterprise has a probability p of experiencing low profit of π_1 in the slowest month and can experience a stable high profit of π_2 in the peak period, then the expected profit can be given by;

$$E(\pi) = p\pi_1 + (1-p)\pi_2 \dots \dots \dots (7)$$

In an ideal business environment we can expect π_2 to be strictly positive so that even if π_1 becomes negative, the sign of the expected profit shall depend solely on the size of p . Thus once p remain reasonably small, the expected profit shall be positive. This development can results in the proliferation of number of informal enterprise but their sizes shall remain relatively small. Empirical verification of this framework could offer an explanation as to why the informal sector failed to vanish as expected in theory for most developing countries as they continue to develop but also fail to expand into large enterprises (Sandefur, 2006).

As mentioned earlier the framework has different prospect for informal employee. In the face of seasonal variation in sales, wages are more likely to remain relatively low with low expected tuner and insecure job. Thus rather than providing alternative employment to the formal employment, the informal sector shall only be taking labour through series of seasonal unemployment and frustrations with its accompanying health effects (Farrell et al, 2000; Ofori, 2009). Thus the informal employee shall always answer no to being employed even on their way to or from work since they recognize their plight in their current employment. Therefore, the informal employee is always looking forward to a day they will own their own enterprise irrespective of the size of such enterprise.

The argument of quality and sustainability of informal employment began long ago but there has been very little empirical works to link the many theories to reality. The main aim of developing this simple framework is to test the empirical validity of the argument as to whether to formalize or organized the informal sector. And where organization seems to be the only convenient option, which areas requires the most urgent attention and why? Though data limitation impose a lots of challenges to effectively testing the exact content of the framework, we believe our adopted data set provide enough proxy to most of the issues raised and shall produce reliable results that can be replicated elsewhere.

Data Source and Description

The study adopted the 2013 informal sector data set on informal enterprise of Ghana. The World Bank’s Informal Enterprise Surveys (IFS) collected data on non-registered business activities in every region of the world. The IFS are implemented in parallel to the World Bank’s Enterprise Surveys (ES), which interview formal, private, non-agricultural firms in countries around the world (World Bank, 2013a). The survey was done in Ghana from April 1st to May 11th, 2013, in Kenya from April 18th to May 11th, 2013 (World Bank, 2013b) and in DR Congo form 3rd April to 26th April (World Bank, 2013c).

The IFS used a standardized survey instrument designed to assess the business environment for non-registered businesses within a well-defined universe of activities, which was identified using information from previous iterations of the studies. The IFS cover business environment topics including: general business characteristics, infrastructure, crime, sales & supplies, finance, labor,

registration, business environment, and assets. The IFS was conducted using a uniform sampling methodology in order to minimize measurement error and yield data that are comparable across the world's economies (World Bank, 2013a). The survey captures only enterprises in the service and manufacturing sector with the sample designed to have equal proportions of services and manufacturing (50:50) in all the countries (World Bank, 2013a). Thus agricultural and mining sectors were not covered in the study. We do recognize the importance of these sectors in the sampled countries especially with the issue of informal mining in Ghana and DRC (Matthysen & Montejano, 2013)

Though the data set has some limitations such as not being detailed enough on certain issues, it still contains enough fact to test the validity of the proposed framework and established the main object of the study.

Estimation Techniques and Analyses

The study adopted the Analysis of Variance to compare the significance of the difference between the respective factor variables on the continuous dependent variables (Park, 2009). Where the comparison of means can serve the purpose of a study then ANOVA or t-test shall be a preference over regression analysis since no other variable(s) shall be required to solve the issue of model specification. That is, regression analysis requires all the assumption of ANOVA and more which makes ANOVA a more flexible option where applicable.

Analysis of variance (ANOVA) is used to compare the means of more than two populations. It uncovers the main and interaction effects of classifications or independent variables on one or more dependent variables. ANOVA analysis uses the F-statistic, which tests if the means of the groups, formed by one independent variable or a combination of independent variables, are significantly different (Park, 2009). It is based on the comparison of two estimates of variances, one representing the variance within groups, often referred to as error variance and the other representing the variance due to differences in group means. The larger the F-ratio, the greater is the difference between groups as compared to within group differences. An F-ratio equal to or less than 1 indicates that there is no significant difference between the groups and the null hypothesis is correct, and then one can conclude that the independent variables did not have an effect on the dependent variable (Park, 2009). When the numbers of factor variables in the independent variable are two, the analysis of variance gives a result comparative to the independent t-test of equality of the mean.

Test of Equality of Variance

One of the basic assumptions that must be met for the ANOVA results to be reliable is that the groups have equal variances in terms of the dependent variable (Park, 2009). The Bartlett test is one of such tests available in STATA to test for the equality of the variance. But both the traditional F test for the homogeneity of variances and Bartlett's generalization of this test to K samples are very sensitive to the assumption that the data are drawn from an underlying Gaussian distribution (Markowski and Markowski, 1990). That as a parametric test the ANOVA analysis assumes a relatively normal distribution. Since in reality data sets do not always behave well, Levene (1960) proposed a test statistic for equality of variance that was found to be relatively robust under nonnormality. Subsequently, Brown and Forsythe (1974) proposed alternative formulations of Levene's test statistic that use more robust estimators of central tendency in place of the mean. These reformulations were demonstrated to be more robust than Levene's test when

dealing with skewed populations. Robvar command in STATA reports Levene's robust test statistic (W0) for the equality of variances between the groups and the two statistics proposed by Brown and Forsythe that replace the mean in Levene's formula with alternative location estimators. The first alternative (W50) replaces the mean with the median. The second alternative replaces the mean with the 10% trimmed mean (W10). Brown and Forsythe (1974) use of the median can be sanctioned by the fact that when it comes to skewed data (whether positively or negatively Skewed) the median becomes a better measure of central tendency than the mean. That is the case because the mean is heavily affected by outliers which abound in skew data sets. This study adopted both the Levene's and Bartlett's where appropriate.

Results and Discussion

An independent assessment of income and job security situations in the respective countries shall be presented for each country before a comparative analyses and discussion of the overall outcomes. As mentioned earlier, we measure the severity of income insecurity by the significant variations between the average sales of the busiest months and that of the slowest months. That is, in reality, we expect the average sales of the two seasons to differ but not significantly larger in terms of percentages. The same applies to the number of workers employed between the seasons.

Income Insecurity in Ghana

Table 1: Descriptive Statistics of Sales Returns in Ghana

Season	Mean Sales	St. Deviation	CV(%)	Observations
Busiest Months	847.85	558.14	65.56	489
Slowest Months	556.32	513.04	92.22	522
Main Product	659.67	551.44	83.59	513
Bartlett's test for equal variances:			chi2(2) = 4.1777	Prob>chi2 = 0.124

Source: Authors computations from IFS Dataset on Ghana

Table 1 presents the results on the descriptive statistics and the homogeneity of variance between the sales returns of the two seasons. The results indicate that the mean monthly sales of the selected informal enterprises during the months with the lowest sales are about GHS 556.32 and that of the busiest month is about GHS 847.85. By comparison, the lowest average sale is about 66 percent of the average sales of the busiest months. This is the least deviation that can be expected since the analysis excludes the first and last deciles due to established skewness which affected the homogeneity of the variance. The average sale of the main product of enterprises is greater than the slowest month's average sales but falls below that of the busiest months at GHS 659.67. The deviation between the sales of the main product in a regular month and that of the slowest month points to the critical state of the informal enterprises during the slowest months.

The results further suggest that the busiest months' sales are the most stable followed by that of the main product and then the slowest months' sales. That is, the coefficient of variation (CV) suggests that there are about 66 percent variations in the sales of the busiest months and about 83 percent variations in the sales returns of main product while there are about 93 percent

variations in the slowest months' sales returns. Together sales returns are highly unstable and this can be expected of profit if the informal enterprises are assumed to be cost minimisers.

The Bartlett's test for the equality of variance fails to reject equality of variance for the groups at the five percent level of significance ($P > 0.05$). This indicates that the results of ANOVA analysis can be used to formally test the significance of the differences between the mean sales of the factor groups.

One-way Analysis of Variance and Post Hoc Analyses (Bonferroni)

The test of the equality of the mean sales returns among the three factors indicates that there is a statistically significant difference between the average sales in some of the groups at the five percent significant level ($F=37.51$, $df=1523$, $Prob. < 0.05$). The ANOVA result however does not indicate the source of the differences in the distributions. The post-hoc analysis presented below follows the Bonferroni pairwise comparisons test and is intended to detect the source of the differences.

Table 3: Comparison of sales by seasons (Bonferroni)

Row Mean- Col Mean	Busiest Months	Slowest Months
Slowest Months	-291.527 (0.000)	
Main Product	-188.168 (0.000)	103.358 (0.006)

Source: Authors computations from IFS Dataset on Ghana

The results in Table 3 suggests that the difference between the average returns in the slowest and busiest months, slowest and main product and the main product and busiest months observed in the descriptive statistics holds statistically at the five percent significant level. Hence we can conclude that informal firms experience seasonal variations in their sales returns such that the busiest months sales returns is about 36 percent higher than that of the slowest month and 22 percent higher than that of the main product. The sales of main product are in turn greater than the slowest month's sales by over 16 percent. Together the analysis clearly points to the seasonal vulnerability in sales returns of informal firms in Ghana. Income insecurity is established in the form of unstable sales returns and that can be a major setback to the growth of the informal enterprise.

Income Security in Kenya

Table 3: Descriptive Statistics on Sales Returns of Informal Enterprise in Kenya

Season	Mean Sales	St. Deviation	CV (%)	Observations
Busiest Months	22067.45	14876.80	67.42	407
Slowest Months	14177.26	13009.11	91.76	431
Main Product	16313.77	13616.545	83.46	424
Bartlett's test for equal variances:			$\chi^2(2) = 4.1777$	$Prob > \chi^2 = 0.020$

Source: Authors computations from IFS Dataset on Kenya

The result indicates that the mean monthly sale of the selected informal enterprises during the months with the lowest sales is about KES 14177.26 and that of the busiest month is about KES 22067.45. The average sale of the main product of enterprises is greater than the slowest month's average sales but falls below that of the busiest months at KES 16313.77. The deviation between the sales of the main product in a regular month and that of the slowest month points to the critical state of the informal enterprises during the slowest months.

The results further suggest that the busiest months' sales are the most stable followed by that of the main product and then the slowest months' sales. That is, the coefficient of variation (CV) suggests that there are about 66 percent variations in the sales of the busiest months and about 83 percent variations in the sales returns of main product while there are about 93 percent variations in the slowest months' sales returns. Together sales returns are highly unstable and this can be expected of profit if the informal enterprises are assumed to be cost minimizers. The Bartlett's test for the equality of variance fails to reject equality of variance for the groups at the one percent level of significance ($P > 0.01$).

One-way Analysis of Variance

The test of the equality of the mean sales returns among the three factors indicates that there is a statistically significant difference between the average sales in some of the seasons at the five percent significant level ($F=36.15$, $df=1261$, Prob. < 0.05).

Table 4: Comparison of sales by seasons (Bonferroni)

Row Mean- Col Mean	Busiest Months	Slowest Months
Slowest Months	-7890.18 (0.000)	
Main Product	-15753.67 (0.000)	2136.51 (0.072)

Source: Authors computations from IFS Dataset on Kenya

The results in Table 4 suggests that the difference between the average returns in the slowest and busiest months and the main product and busiest months observed in the descriptive statistics holds statistically at the five percent significant level. Hence we can conclude that informal firms experience seasonal variations in their sales returns such that the busiest months sales returns is about 36 percent higher than that of the slowest month and 26 percent higher than that of the main product. The sales of main product are in turn greater than the slowest month's sales by about 15 percent. The difference between the sales of the main product of enterprises and the slowest month's sales is only marginally significant at the ten percent level of significance. That is at the five percent level of significance, no statistical difference is observed between the sales of the main product and that of the slowest month. The negative consequence of this outcome is not far fetch as it heightens the seasonal vulnerability of informal enterprises in Kenya.

Income Insecurity in DRC

Table 5: Descriptive Statistics on Sales Returns of Informal Enterprise in DRC

Season	Mean Sales	St. Deviation	CV(%)	Observations
Busiest Months	317404.78	191130.50	60.22	293
Slowest Months	205781.40	168303.02	81.79	379
Main Product	264629.89	191159.56	72.24	365
Bartlett's test for equal variances:			chi2(2) = 4.1777	Prob>chi2 = 0.023

Source: Authors computations from IFS Dataset on DRC

The result indicates that the mean monthly sale of the selected informal enterprises during the months with the lowest sales is about CDF 205781.40 and that of the busiest month is about D317404.78. The average sale of the main product of enterprises is greater than the slowest month's average sales but falls below that of the busiest months at CDF 264629.89.

The results further suggest that the busiest months' sales are the most stable followed by that of the main product and then the slowest months' sales. That is, the coefficient of variation (CV) suggests that there are about 60 percent variations in the sales of the busiest months and about 82 percent variations in the sales returns of main product while there are about 72 percent variations in the slowest months' sales returns. Together sales returns are highly unstable and this can be expected of profit if the informal enterprises are assumed to be cost minimizers.

The Bartlett's test for the equality of variance fails to reject equality of variance for the groups at the one percent level of significance ($P > 0.01$). This indicates that the results of ANOVA analysis can be used to formally test the significance of the differences between the mean sales of the seasons.

One way Analyses of Variance

The test of the equality of the mean sales returns among the three factors indicates that there is a statistically significant difference between the average sales in some of the seasons at the five percent significant level ($F=31.06$, $df=1036$, $Prob. < 0.05$). The ANOVA result however does not indicate the source of the differences in the distributions. The post-hoc analysis presented below follows the Bonferroni pairwise comparisons test and is intended to detect the source of the differences.

Table 6: Comparison of sales by seasons (Bonferroni)

Row Mean- Col Mean	Busiest Months	Slowest Months
Slowest Months	-111623 (0.000)	
Main Product	-52774.9 (0.001)	58848.5 (0.000)

Source: Authors computations from IFS Dataset on DRC

The results in Table 3 suggests that the difference between the average returns in the slowest and busiest months, slowest and main product and the main product and busiest months observed in the descriptive statistics holds statistically at the five percent significant level. We can conclude that informal firms experience seasonal variations in their sales returns such that the

busiest months sales returns is about 35 percent higher than that of the slowest month and 16 percent higher than that of the main product. The sales of main product are in turn greater than the slowest month's sales by over 22 percent. Together the analysis points to the presence of seasonal vulnerability in sales returns of informal firms in DRC.

Together the analyses above point to the presence of seasonal variations in sales returns among the informal enterprises in all the three countries making it a common feature in the sub region. This outcome is in support of the few recent studies on the topic such as Amin (2011) on the informal enterprises in Chaco (Germany) and Osei-Boateng and Ampratwum (2011) on the informal sector of Ghana.

Estimation of Job Insecurity

The effects of income insecurity of informal enterprise on the quality and security of informal employment can be assessed by the pattern of employments between the seasons. As was entailed in the framework if income insecurity of the informal enterprise impact negatively on the job security of the informal employee then, there shall be significant difference between the employment in the slowest and busiest month with higher employment being recorded during the busiest months. Because the objective of this section is to access the difference between the mean employment between the slowest and busiest months, the analyses exclude enterprises that do not employ any worker in the busiest month because such firm also remain single during the slowest month.

Table 7: Number of employees in each season for all the countries

Season	Ghana		Kenya		DRC	
	Paid	Unpaid	Paid	Unpaid	Paid	Unpaid
Slowest Months	1.8196995	0.39732888	1.4233716	0.01915709	2.7431421	0.45137157
Busiest Months	2.066778	0.47078464	1.7662835	0.03065134	3.0972569	0.50374065
observations	599	599	522	522	401	401
ANOVA	F=75.94	P=0.000	F=586.49	P=0.000	F=89.86	P=0.000

Source: Authors computations from IFS Dataset on DRC

The ANOVA results suggest that some statistical significant difference exist between the average employments during the seasons in all the three countries. When the analyses were extended to determine where the differences actually exist, it was discovered that informal enterprises employed more paid workers than unpaid workers in all the countries and for all the seasons. Also, no statistical differences exist is between the average employment of the unpaid workers between the slowest and busiest months for all the countries. In terms of number of paid employee, a statistical significant difference was observed between the number of paid employees between the slowest and busiest sales seasons at the five percent significant level in Kenya. The difference between the numbers of paid employees in the slowest and busiest months was marginally significant at the ten percent significance level in the Ghana. No significant difference was observed in DRC in terms of number of paid employees in the slowest and busiest months. In terms of percentages, enterprises in Ghana cut paid employment on the average by about 12 % and those in Kenya cut paid employment by about 19 % in the slowest months compared to the busiest months. Similarly, unpaid employment reduces by 16%, 37% and 11 % in Ghana, Kenya and DRC

respectively in the slowest months. Cut unpaid workers while maintaining some paid workers could possibly be explain by the differences in the role played by the two groups of employees. That is, the unpaid worker may not be a perfect substitute to the paid workers but rather complementary such that a reduction in the number of paid employees must automatically go with a reduction in the number unpaid employees. It could also be observed that the percentage cut in employment of both paid and unpaid employees is the highest in Kenya where seasonal variation is the most pronounced. The establishment of job insecurity in the form of seasonal fluctuations in employment goes to support the assertion of Namasivayam (2013) in India.

The data sets for all the countries further suggested that enterprises that employee less than three workers do not usually vary employment and rather comparatively keep more unpaid workers. This could imply that such enterprises may have already insulate themselves from seasonal variations by keeping employment down to the number that can be sustained during the slowest and busiest months. It does not follow economic principles to accept that a worker should not be paid simply because there are family ties (for example) and hence we consider the presence of unpaid workers as an adaptation to seasonal variations in sales and for that matter erratic profitability.

To get a better picture of the seasonality in employment, we further limited the analysis to enterprises that employ more than one worker and the results indicated a significant reduction in employment in the slowest month as compared to the busiest months in Ghana. The post hoc analysis, as presented in Table 8, suggested a significant difference between the numbers of paid workers in the slowest months as compared to that of the busiest month at the five percent significance level in the Ghana for enterprises that employ more than one worker. For such enterprises, employment falls by about 17 % in the slowest as compared to the busiest months. No statistical significant difference was again observed in the case of DRC even for enterprises that employ more than one worker though the mean employment increase for both seasons for such enterprises.

Table 8: Average employment for firms that employ more than one worker

Season	Ghana		DRC	
	Paid	Unpaid	Paid	Unpaid
Slowest Months	3.1674009	0.37444934	3.3938356	0.42465753
Busiest Months	3.8105727	0.42731278	3.880137	0.45547945
observations	227	227	292	292
ANOVA	F=130	P=0.000	F=165.44	P=0.000

Source: Computations from IFS data set on Ghana and DRC

In relation to why informal enterprises in DRC maintain relatively stable employment even in the face of season variations in sales, we review a few more variables in the three countries. First we consider the severity of the sales vulnerability in the respective countries.

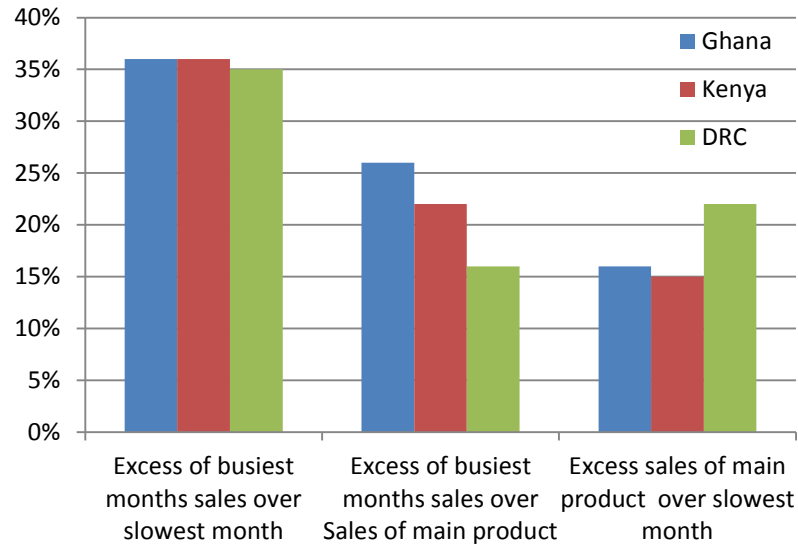


Figure 1: Percentage variations in Sales Returns

Source: Computations from IFS data set on Ghana and DRC

The results, in Figure 1, suggests that in both the Ghanaian and Kenyan data sets, the busiest months sales exceed the sales of the main product significantly making the sales of the main product closer to the sales of the slowest months. That is, though the difference between the busiest and slowest months sales are relatively the same in all the countries, the case of DRC is a little encouraging since sales of the main product is relatively higher than the slowest month's sales (22%) as compared to the that of Ghana (16%) and Kenya (15%). Thus seasonal variations affect enterprises in Ghana and Kenya the most since the length of the busiest period become very critical to the sustainability of the business and the job security of its employees. We noticed that in Kenya where the variation between the busiest and slowest month sales is pronounced and the sales of the main product is the closest to the slowest month sales, a significant difference exist between employment in busiest and slowest months in the entire data set (see Table... in Appendix A). In the case of DRC the variation between the slowest and busiest months is the least while the sales of the main product is the closest to the sales of the busiest month suggesting that survival depends on both the busiest period and the length of the regular months were the sales of the main product can be realized.

Thus, it is acceptable that no statistical difference was observe between employment in slowest and busiest months even when the analysis was limited to enterprises that employ more than one worker.

The next issue is why informal enterprises in DRC were able to deal with seasonality in sales returns as against their counterparts in Ghana and Kenya. Here we access the ability of the firms to diversify by operating in different markets even in the same locality. Figure 2 presents the responses of enterprises in the respective countries to the question of having more than one business activity in their locality.

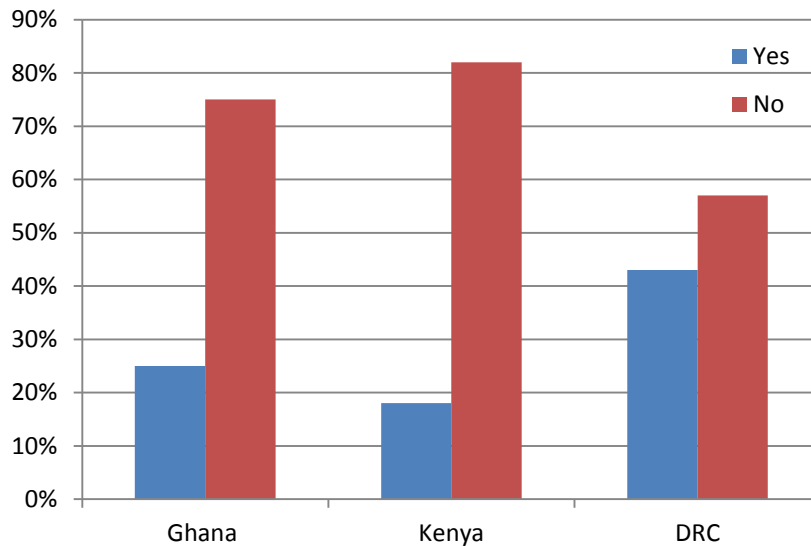


Figure 2: Enterprises have more than one business activity in this locality

Source: Computations from IFS data set on all the three countries

The responses suggest that enterprises in DRC diversify and intensify their presence in their locality (43%) than those in Ghana (25%) and Kenya (18%). Though the presence of other activities in the same locality may not provide enough immunity against seasonal variations, it clearly allows the firms to raise the sales of their main product during both the slowest and busiest month to boost income smoothing. Here also, enterprises in Kenya are still disadvantaged for not diversifying enough (18%) to deal with seasonality in sales as compared to Ghana and DRC. It must also be noted that not all the case of seasonality in sales are the results of natural factors. In the case where seasonality is not natural, it is possible to deal with it by having more than one outlet in different parts of the same locality. Let consider the case of an informal enterprise that own an outlet on a school premises and another in the central business district (CBD) of the same city/town, we can expect the enterprise to survive on the activity in the central business district during the vacation on campus but obviously the employee or some of the employees on the campus outlet may lose their employment or temporally remain unemployed. In the case where there are possibilities of activity switch between the locations, the enterprise may maintain its employment during the peak and off peak periods. This could be the case in DRC as against Ghana and Kenya.

Separations into Smaller or Self-employed Informal Enterprises

Seasonality in sales returns may exist and shall cause insecurity in the informal job but that may not push informal employees into self-employment automatically.

Certain conditions must prevail that make an unsuccessful self-employee better than a successful informal employee. As was entailed in the framework, informal employees shall move into self-employment if the expected sale of the self-employed is enough to cover cost and generate enough expected profit higher than the expected wage of remain as informal paid employee.

Clearly, the informal employee can easily perceive the ease with which they can succeed in self-employment form their experience with their employers where the major headache is growth but not survival. Thus once the activity of informal self-employee promise a better option with little barriers to entry and less start-up cost, the insecure informal employee shall break away

from it employee to start up his or her own business after gathering enough experience on the job. We attempt to establish the condition for the break up by analyzing response of the existing enterprises on two related questions. The first relate to how the largest owner acquired ownership of an enterprise.

Table 9: How did the largest owner acquired ownership of an enterprise.

Response	Ghana	Kenya	DRC
Started the business on his/her own	678 (93%)	499 (94.32%)	437 (91%)
Purchased an existing business	13 (1.78%)	12 (2.27%)	14 (3%)
Join an existing family business	31 (4.25%)	16 (3.03%)	19 (4%)
Join an existing non family member	4 (0.55%)	2 (0.38%)	7 (1.5%)
Others(spontaneous)	2 (0.41%)	-	2 (0.5%)
Total	729 (100%)	529 (100%)	479 (100%)

Source: computations from IFS data set

The content of Table 9 points to the fact that most people prefer to begin their own business instead of being employed or teaming up with already existing enterprises (family or non-family members). That is more than 90 percent of informal enterprises begin from the scratch in all the countries making it a common practice in the sub region. This is in line with the observation of Levenson et al. (1998) and Osei-Boateng and Ampratwum (2011) about the informal sector in developing countries.

The next issue of interest is what these individuals were doing prior to beginning their own business. Figure depicts the activities of these ‘entrepreneurs’ prior to begin their current business.

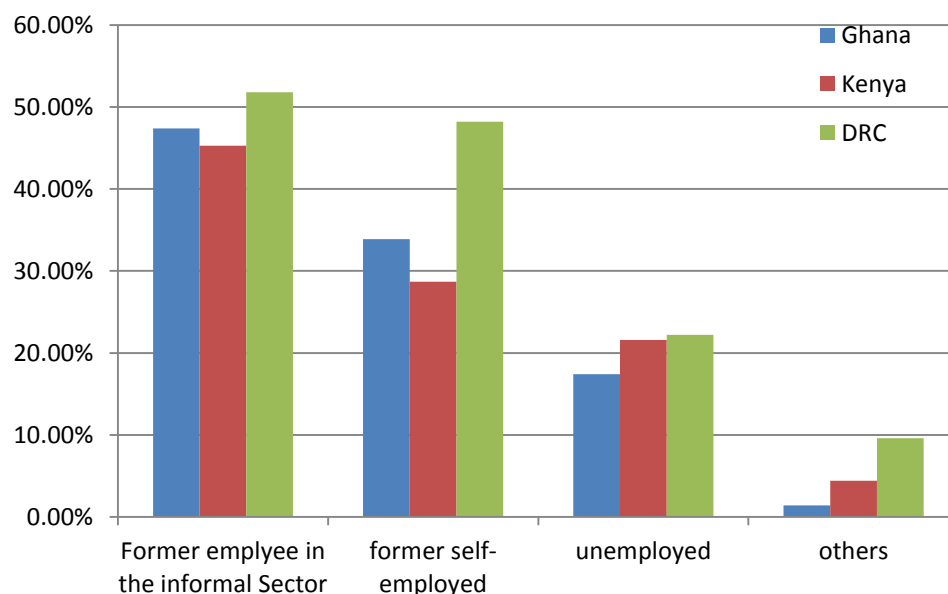


Figure 3: owner activity prior to starting current business

Source: computations from IFS data set

The results suggest that employees of the informal sector are the most likely to begin another enterprise in the industry. In all the country, it is empirical the case that people quit informal employment to begin their own enterprise indicating that the informal enterprises do

multiply itself more than it admit fresh entrants. Thus the popular notion that it is unemployment that pushes people into informal self-employment is challenge. That is, even though unemployment may push people into the informal sector, it is the inability of the informal enterprises to offer decent paid employments that further push them into self-employment. The fact that individuals do spend some time in informal paid or unpaid employment before entering self-employment is in agreement with the finding of Narita (2011) that entry into self –employment increases with age. According to Narita (2011), “entry into self-employment increases sharply with age, suggesting that individuals seem to learn with work experience about good business opportunities to undertake”.

The last issue we may want to touch on is whether being self-employed in the informal sector really offers a better survival option than being paid employee in the same sector.

Table 10: Reason for changing business activity

Responses	Ghana	Kenya	DRC
Changing activity offered a more attractive.	189 (61.2%)	109 (53.2%)	109 (60.9%)
Changing activity offered better hours	59 (19.1%)	26 (12.7%)	29 (16.2%)
Could not open a business in the same activity	31 (10.0%)	13 (6.3%)	8 (4.5%)
Others	30 (9.7%)	57 (27.8%)	39 (21.8%)
Total	309 (100%)	205 (100%)	179 (100%)

Source: computations from IFS data set

The first two responses, in Table 10, were given main by individuals who were employed in different activities before becoming self-employed and the major response was that their new ventures offer a more attractive package than being an employed elsewhere. Also, they get better working hours than as employers or self-employed than being an employee. Obviously, these reasons are not far fetch but they can have dare consequences on growth and efficiency of the informal sector. As can be inferred from the analyses above, the informal enterprise is always training *lemons* as most of the experience employees leave to begin their own enterprise and in most cases become competitors in the same business and at the same location. Thus, efficiency is more likely to be low as has been established by most studies (Narita, 2011) and also intense competition may keep prices down. Thus firms may survive but may not be able to grow over time. The figure below gives a gist about the growth history of informal enterprise in the respective countries.

The outcomes are the responses to the question as to whether the numbers of employees, machinery or space of the enterprise have increase since the business started operation. The results indicate that over 60 percent of the enterprises in all the countries have not experience growth in any form in their operations since start-up. The number of years that some of these enterprises have been in existence, since the begun operation, leaves nothing to be desired in terms of growth of the enterprises. The average age of an enterprise is about 8 years, 7 years and 7years in Ghana, Kenya and DRC respectively but some firms have been in existence for 30 years.

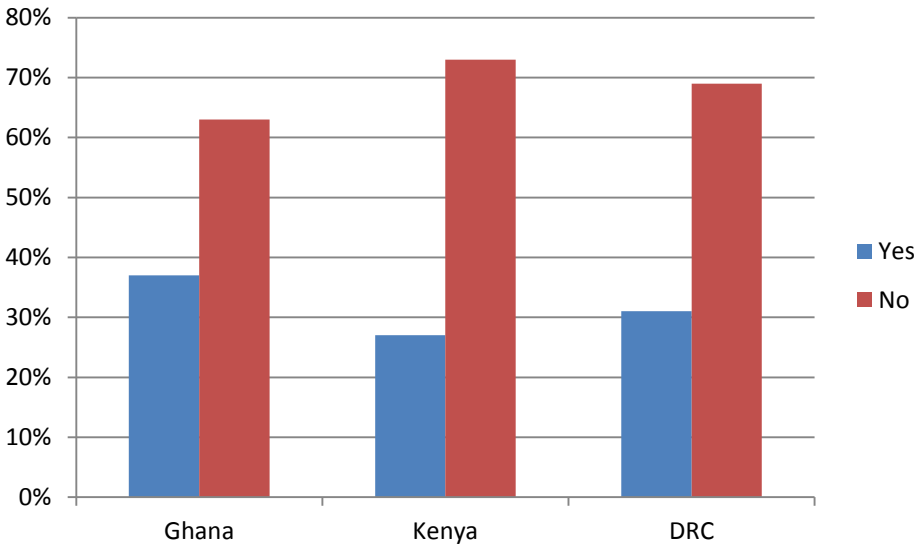


Figure 4: Enterprise expanded in any form after start up

Source: computations from IFS data set

Conclusion

The outcomes of the analyses are premise to a numbers of interesting conclusions. First informal enterprises do keep unpaid workers whether in the peak or in the off-peak sales season in all the countries involved in the study. Sales returns differ significantly between the busiest and slowest months. Thus sales returns can be said to be seasonal dependent in the informal which alternate between the slowest, regular and busiest months. For enterprise that employs only one worker, seasonal variations does not affect employment in either of the seasons for the case of Ghana and DRC but statistically significant in the case of Kenya. That is the sales returns during the off peak period is enough to sustain the self-employed workers and their one employee during the slowest months in all the three countries. This finding suggests that the informal enterprises smoothing income between the seasons to ensure survival at the expense of growth. Seasonal variations in sales returns, however, reduce employment during the off-peak season as compared to the peak season employment for firms that employ more than one worker in Ghana but still remain insignificant in DRC. This result is critical for developing countries that depend on informal sector for majority of their employments. That is, though the informal sector employs most of the labour force in most Sub-Saharan countries but the kind of employment provided is seasonal and casual with little job security.

Also, the fact that the fluctuating sale can generate enough profit to sustain the self-employed alone or with one or two employees, could provide the explanation to the proliferation of small enterprises that do not evolves into large enterprises. That is, most of the new entrant firms are former employees of the informal sector either in similar activity or an informal paid employee of a different activity who sees self-employment as offering flexible work hour and a better income incentive than being an employee. Here job insecurity is seen as a push factor to informal self-employment while ease of entry is seen as the pull factor. This conclusion is premised on the fact that enterprises remain relatively static over years after start-up which suggests that the ultimate aim is to escape being an informal employee by being self-employed. It was further

observed that diversification could be a possible panacea to seasonal variation in sales to ensuring stable informal sector employment in developing countries.

Recommendations

Formalization is most likely to delay in view of current trends of informality where the ultimate aim of the informal enterprise is to cut down cost by fair or foul means (evade tax and cut number of workers without paying benefits) due to income insecurity. It is therefore recommended that policy makers must consider the immediate option of providing some form of regulation and enforce the already existing regulations that cover the informal sector. That is, when properly organized the second phase of providing some form of capacity building to the informal enterprise would then be possible for them to break new grounds and be prepared to deal with cost formalising rather than running away from it.

Also, policy that are geared towards creating the so called decent jobs must target the income security of the informal enterprises by providing the necessary technical and financial support to the informal enterprises, especially those that employment more than two workers. There should be more education on the need for effective diversification and intensification of business activity within and across localities where the informal enterprises operates.

Final, we recommend (or should we say we appeal) to stakeholders to include more questions in their future surveys that would make it possible to estimate profit in the respective seasons and allow for the estimations of length of the slowest, regular and busiest months period to be determine.

Limitations and Directions for future studies

The major limitation of the study is our inability to assess income insecurity in terms of profitability instead of sales returns. That was due to the composition of the data set we employed which does not allow for the estimation of profit for the slowest and busiest months. We advocate for the further test of the framework and its content when a richer data set is accessed. The analyses of income smoothing, when the lengths of the regular and busiest months are known to allow for the estimation of probabilities to estimate the expected profit, can be another source for future studies. Other dimensions of job quality such as wage sustainability and underemployment also require attention in the informal sector of most developing countries.

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APPENDIX A

Table 9: Percentage variations in Sales Returns

country	Excess of busiest months sales over slowest month	Excess of busiest months sales over Sales of main product	Excess sales of main product over slowest month
Ghana	36 %	26%	16%
Kenya	36%	22%	15%
DRC	35%	16%	22%

Source: Computations from IFS data set on Ghana and DRC

Table 10: Does the enterprises have more than one business activity in this locality?

Response	Ghana		Kenya		DRC	
	Yes	No	Yes	No	Yes	No
Number	170(25%)	509(75%)	76(18%)	341(82%)	198(43%)	265(57%)
Total	599 (100%)		417(100%)		463(100%)	

Source: Computations from IFS data set on all the three countries

Table 12: owner activity prior to starting current business

Responses	Ghana	Kenya	DRC
Employed in the same business as current	176 (24.3%)	122 (23.4%)	156 (32.7%)
Employed in different type of activity	167 (23.1%)	114 (21.9%)	91(19.1%)
Self-employed in a different type of activity	150 (20.8%)	76 (14.6%)	48(10.1%)
Self-employed in a same type of activity	95 (13.1%)	73 (14.1%)	27 (5.7%)
unemployed	125 (17.3%)	113 (21.6%)	106 (22.2%)
Others	10 (1.4%)	23 (4.4%)	46 (9.6%)
Total	723 (100%)	521 (100%)	477 (100%)

Table 11: Have the enterprise expanded in any form after start up?

Response	Ghana		Kenya		DRC	
	Yes	No	Yes	No	Yes	No
Number	269(37%)	455(63%)	143(27%)	385(73%)	148(31%)	332(69%)
Total	724 (100%)		528(100%)		480(100%)	