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Entrepreneurial Responses to Austerity: The Role of the Informal Sector

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Abstract

Limited welfare systems and employment opportunities in the formal sector in many developing countries imply that individuals often seek employment opportunities in the informal sector to mitigate adverse economic circumstances. In this paper, we investigate whether entrepreneurial activity increases during such challenging economic times. We utilise a survey conducted in an emerging market economy to explore the motives for participation in, and the consequences of, the increase in informal economic activity. We find evidence of increased entrepreneurship during periods of austerity policies and posit on the potential effects on economic welfare in developing economies. We conclude by highlighting related-policy issues.

Keywords: Austerity, Entrepreneurship, Informal Economy, Nigeria

JEL Codes: E26, E65, O23

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1. Introduction

The role of entrepreneurship in economic development is well-established in the literature. For example, seminal work by Schumpeter (1934) presented the fundamental argument that entrepreneurs are the main triggers for economic development. More recently, some empirical studies posit that through entrepreneurial activities, entrepreneurs earn rents and income that enable them to move from poverty to wealth (see for example Croitoru, 2012). Therefore, entrepreneurship becomes an important driver that has a high potential to bring about poverty reduction, income redistribution, and economic development. Building on this consensus, some recent studies have considered different aspects of entrepreneurship, including the entrepreneur's motives and attributes, and the enterprise's size and age (see Cebula *et al.*, 2016; Joshi *et al.*, 2014; Croitoru, 2012; Mengistae, 2006). Motives have been found to include *profit- and opportunity-seeking* and *a-go-between periods of job-search and full-employment*. However, to the best of our knowledge, entrepreneurial activity borne through tighter economic conditions stemming from government policies (austerity policies), a reality of recent times, has not been empirically studied, and more so for developing and emerging economies.

Given the negative impacts of the Global Economic Crisis (GEC) of 2007/8 on economic activity worldwide, the negative impacts on public sector finances is worth noting, and related studies become particularly important. More interesting though, has been the policy responses to the downturns, in particular, the widespread adoption of austerity measures to try to rebalance public sector finances. Whilst there is no consensus on the merits of austerity as either a necessary or sufficient policy response to the deterioration of public finances, the immediate consequence of this policy approach has been economic difficulties for many individuals, for whom fiscal retrenchment has meant lost jobs, and lost or reduced benefits. The contagion effects from the GEC, as they have spread to developing countries, have had particular consequences on societies lacking established social welfare structures of developed countries. One consequence of this is that affected individuals have had to find alternative means of survival – of which one route, as we show below, has been a form of entrepreneurship; the pursuit of economic activities in the informal economy.

Given the lack of research exploring individuals' employment-seeking responses to austerity measures in such situations, a key aim of this study is to explore whether some positives regarding what individuals do when faced with a large negative economic shock can be

identified. Specifically, we analyse what role there is for the informal economy in providing a context for the release of entrepreneurial talent as a positive response to a negative economic shock(s). To explore this issue empirically, we analyse data from a survey conducted across several states in an emerging market economy, Nigeria, in 2012. Nigeria, Africa's largest economy and most populous country (Onuba and Abioye, 2014), also has a very large informal economy and, like many countries, has been affected by the GEC. It had also previously experienced a negative economic shock – a Structural Adjustment Programme (SAP) in 1986, recommended by the International Monetary Fund (IMF) and World Bank (WB) – that included austerity measures. Our survey enables us to analyse individuals' recent decision-making regarding participation in the informal economy, but also it enables us to explore the lasting effects of individuals' decision-making during the period of the SAP. This offers us a novel insight into the informal economy in general, and responses to austerity measures in particular.

The remainder of the paper is structured as follows. Section 2 provides background information and a literature review on austerity and the link with entrepreneurship, in general, and also the specific context of Nigeria. Section 3 describes the data collected and methods employed. Thereafter, we present results and discussion, before offering some concluding observations.

2. Literature Review

In *The Theory of Economic Development* Schumpeter (1934) argued unequivocally that economic development arises only through the activities of the entrepreneur. Reviewing the book almost a century later, Croitoru (2012, p. 5) notes, '*Schumpeter attributes the principal role in [...] development to the entrepreneur, [considering that the actions of the entrepreneur] are the main mechanism in the process of economic development and the disturbance of the economic system is impossible without them*'. In addition to this economy-wide developmental benefit, Schumpeter also observes that individuals, through their entrepreneurial activities, earn profits and incomes that enable them to move from poverty to wealth. Thus, entrepreneurship becomes the force that brings about poverty reduction, income redistribution, and economic development.

Following Schumpeter, other studies have considered different aspects of entrepreneurialism: the entrepreneur's motives (Joshi *et al.*, 2014; Wampler, 2009; Goedhuys and Sleuwaegen,

2007; Maloney, 2004; Schneider and Teske, 1992) and attributes (Croitoru, 2012; Kirzner, 1973), the enterprise's size (Cebula *et al.*, 2016; Acs, 1992) and age (Mengistae, 2006). Innovating, risk taking, uncertainty, inventing, opportunity-seeking, profit-seeking, and so forth are attributes of the entrepreneur that have been identified in the literature (see Croitoru, 2012; Kirzner, 1973). Moreover, studies have shown that both 'push' and 'pull' factors drive entrepreneurship (see Maloney, 2004; Matlay, 1963) – a point we return to later.

The economic impact of firm size is debatable. Small-scale enterprises, more than their large-scale counterparts, impact more on growth, as the former, potentially, creates more jobs than the latter in total (Cebula *et al.*, 2016; Acs, 1992). Others argue that large-scale enterprises have a bigger economic impact. Notably, the existence of large-scale enterprises/multinational corporations in a country is consistent with positive and stable economic growth (Lee *et al.*, 2013). An alternative view is that 'smaller businesses are more likely to fail than larger businesses, but will also normally grow faster when they survive' (Mengistae, 2006, p. 812-813). Enterprise age follows a similar pattern to size, as 'younger establishments are less likely to survive, but, among survivors, the expected growth rate diminishes with age' (Mengistae, 2006, p. 813). The purpose of the present paper is to add to the literature by analysing the influence of austerity regimes on entrepreneurial development.

Austerity, as a concept, can be summarised as public sector fiscal retrenchment, which involves one or both of reducing public expenditures and/or raising revenues. Defining what constitutes austerity, Van Brusselen (2012) quantifies it as (relative to a projected baseline), a 10 percent reduction in hourly public sector employment, hourly gross wage rate, public sector consumption of goods and services, public sector gross investment, and a respective 2 percentage point rise in the rates of direct and indirect taxes. There is an established, but inconclusive, literature analysing whether to prioritise spending cuts over tax increases (Alesina and Giavazzi, 2012; Alesina and Ardagna, 2009; Alesina and Perotti, 1995), or to combine the two (Van Reenen, 2012). The recent GEC and widespread adoption of austerity policies has renewed this debate (Corsetti, 2012; Delong, 2012; Guajardo *et al.*, 2011; Almunia *et al.*, 2009, among many others). Divisions remain, however, over whether austerity stimulates growth (Reinhart and Rogoff, 2010; Alesina and Ardagna, 2009; Giavazzi and Pagano, 1996), or damages output (Janseen, 2012; Rendahl, 2012; Guajardo *et al.*, 2011; Michalitsch, 2011; Perotti, 2011; IMF, 2010).

Compared with this extensive literature, there has been relatively little work undertaken which explores individuals' responses to the consequences of austerity. This applies *a fortiori* to developing countries, often far removed from the origins of the GEC, but still subject to its consequences. Indeed, despite the potentially high importance to welfare and household incomes, the links between the GEC, austerity and entrepreneurship has received little attention in the extant literature, particularly for developing countries (a notable exception is Harriss-White *et al.*, 2013, and their analysis of slum households in South India). In the present paper we note that, whilst austerity measures impact directly on public sector employment, they also affect the whole economy. As a result, people made redundant (not only from the public sector) may not be able to find new employment in the formal private sector (Hart, 2012; Neuwirth, 2011). In addition, such limited welfare benefits as may be available may be further reduced or removed, as part of the austerity package, with individuals choosing, or needing, to seek employment in the informal economy, often in the form of self-employment (Becker, 2004).

The informal economy represents a significant source of employment in both developing and emerging economies. It has been estimated to represent about 89 per cent of the labour force in Ghana, over half of the total labour force in Kenya and Uganda, and 43 per cent of urban employment in South Africa and Zambia (Xaba *et al.*, 2002). Moreover, it is estimated to have provided over 93 per cent of all new jobs created in Africa in the 1990s (Verick, 2006; Chen, 2001). Despite the scale of the informal economy, however, debates remain within the extant literature over whether it can or should be seen as a positive (Neuwirth, 2011; Gundogan *et al.*, 2009; Horn, 2009; Becker, 2004; Tokman, 1992) or negative (Dell'Anno, 2008; Giles *et al.*, 2002; Kaufmann and Kaliberda, 1996; Loayza, 1996; ILO, 1972) presence in a developing country's economy.

Important for the present study, the informal economy has been found to function as a cyclical buffer for fluctuations in formal employment (Gali and Kucera, 2003). Indeed, it has been promoted as the only viable alternative to 'a decline or stagnation in the growth of formal employment' (Xaba *et al.*, 2002, p. 10). Despite its importance in terms of simple numbers, however, debates remain about the quality of the employment on offer (see, for example, ILO, 2009, 2002, 1972; Verick, 2006; Becker 2004; Tokman, 2001; Moser, 1978, for an overview). These debates notwithstanding, the number of jobs involved is significant. This raises the question of why individuals participate in the informal economy – do they

choose to, or are they forced to? Negative economic shocks and austerity measures imply ‘push’ factors: individuals are made redundant from jobs in the formal economy (especially, but not only, from the public sector) – and they need to find ways to survive.

One debate around the informal economy is whether participation represents entrepreneurialism, or merely a means of survival (see, Williams and Round, 2007; Guarigila and Kim, 2006). Our survey data allow us to draw inferences regarding not only the short term consequences of austerity but also whether entrepreneurship is manifest in such circumstances, capable of delivering economic activities that have longevity. Thus, if the informal economy is to be seen as a conduit for entrepreneurial activity, could individuals be attracted by the informal economy, ‘pulled’ by the possible business opportunities it might offer? Summing up this debate, Matlay (2005, p. 670) has argued that:

Entrepreneurs can be subjected to both “push” and “pull” influences that ultimately determine and shape their chosen entrepreneurial paths [...] Some entrepreneurs claim to have been “pushed” by positive and/or negative factors affecting their personal or professional circumstances. It appears, however, that most entrepreneurs choose to pursue an entrepreneurial career in response to pull factors, in order to fulfil their personal need for change, growth and development.

Interestingly, Matlay reflects a view seen increasingly in the literature that much of the engagement in the informal economy is a response to positive ‘pull’ factors, in particular entrepreneurial individuals who have a need or desire for autonomy. It sees the majority as informal entrepreneurs (Gurtoo, 2009) who operate on an own-account basis (ILO, 2002). With a majority of participants in the informal economy classified as self-employed, the extent of entrepreneurial activity is considerable (see Williams and Nadin, 2010; ILO, 2002; de Soto, 2001, 1989; Cross, 2000, 1977. See also Williams, 2008, 2006; Williams and Round, 2007; Renooy *et al.*, 2004; Small Business Council, 2004). This view is also important as it challenges much of the early work on the informal economy, which perceived its existence broadly in negative economic terms. Yet, to the extent that participation in the informal economy increases in times of austerity, this remains an important push factor. Somewhat muted in the literature, though, is how suited to the informal economy and to entrepreneurial activity these ‘pushed’ individuals may be. This is a welfare-related gap which this research attempts to address. It appears that even if pushed by circumstance rather than pulled by

preference, many such individuals still possess entrepreneurial ability, able to turn a negative into a positive (see also, Achua and Lussier, 2014; Maneepong and Walsh, 2013 (for different interpretations of expressions of entrepreneurialism in the informal economy, see Breman and van der Linden, 2014; Barchiesi, 2012).

Casson (2003, quoted by Matlay, 2005, p. 670), sees an ‘entrepreneur as someone who specialises in taking judgemental decisions about the coordination of scarce resources’. Entrepreneurship therefore encompasses a continuous decision making process, leading to the creation, growth and survival of an enterprise over a period of time. In the context of the informal economy, informal entrepreneurship can thus be defined as the starting of a business, or owning/managing a business, that is less than 42 months old, participating in producing and selling goods and services that are legitimate but *unregistered* (Williams and Nadin, 2010; Williams, 2007; 2006; Harding *et al.*, 2006; Reynolds *et al.*, 2002). Beyond this, entrepreneurship ‘can take a variety of forms, in new or established firms of all sizes (micro, small, medium and large businesses), as self-employment or as members of virtual teams of entrepreneurs’ (Matlay, 2005, p. 670).

Arguably, Nigeria’s informal economy provides an economic buffer through job creation and income generation, and has acted as a seedbed for entrepreneurs. Estimates suggest its share of both GDP and the total labour force to be over 50 percent, making it the largest in Sub-Saharan Africa (Meagher and Yunusa, 1996; Sethuraman, 1981). The estimates for Nigeria’s urban economy are less than this but still significant: about one-third of the urban labour force and retail trade, including the use of front shops, kiosks, stalls, and hawk-goods (Xaba *et al.*, 2002). These estimates are derived from GDP data preceding the 2014 statistical update, but they demonstrate clearly the broad magnitude of scale.

Notably, this importance has evolved over time, as Nigeria’s economic circumstances have changed. The oil boom of the early 1970s drew many people to urban centres, with many ending up working in the informal economy (Sethuraman, 1981). Although the oil boom increased the revenue base of the federal government of Nigeria, fluctuating oil prices in the 1980s reversed earlier economic gains. The immediate impact was a significant drop in government revenue, which it tried to mitigate by applying for a loan from the IMF. However, to access the IMF loan, government officials were mandated to carry out a massive restructuring of the Nigerian economy. This SAP, introduced in 1986, is the first of our periods of austerity. The SAP saw wages capped, workers made redundant in both the public

and private sectors, public enterprises deregulated, and the exchange rate depressed (Dike, 1992). Further, Birks and Sinclair (cited in Meagher and Yunusa, 1996) observed a significant fall in the real wages of formal sector employees. For example, the 1987 real wages of public sector workers fell, respectively, by 37 percent and 20 for the lowest ranks and middle class workers, relative to 1975.

The effects of the SAP period on the informal economy lasted longer than the SAP itself, with population growth, an escalating incidence of poverty, and a long-term increase in the rate of unemployment (CBN, 2009). Meagher and Yunusa (1996) identify drivers such as low incomes and/or unemployment drawing-in unemployed workers/civil servants, secondary and tertiary school graduates, females (who tend to enter the informal economy for survival reasons), and even civil servants in active employment (for more on this period and its consequences, see Ekanade, 2014). Similarly, it can be expected that the recent GEC will have impacted on Nigeria's informal economy, through multiple channels. Igbatayo (2012), Nkoro and Uko (2012), Oke and Ajayi (2012), and Ajakaiye and Fakiyesi (2009) all suggest that the crisis triggered a contraction in Nigeria's official GDP, government revenue and expenditure, with increases in the rates of inflation, underemployment, and job losses. Nkoro and Uko (2012) note that Nigeria's unemployment and average inflation rates, respectively, rose from 5.4 percent and 12.7 percent in 2007 to 12.4 percent and 14.9 percent in 2009. Given this information and past experience, we would expect the crisis to impact negatively on Nigerians, leading to their greater participation in the informal economy. It is to a formal analysis of this that we now turn, including seeking to determine whether this participation released entrepreneurial potential.

3. Data and Methods

We employ primary data in this study as it is arguably the only way to 'analyse the informal sector in Nigeria [...] since activities in this sector are hardly entered into official records' Arimah (2001, p. 119). Similarly, primary/survey data have been used extensively in the informal economy literature (Sookram *et al.* 2009; Williams and Round, 2009; Sookram and Watson, 2008; Reddy *et al.*, 2003). The survey data employed in our study were collected through a structured questionnaire, returned by 641 individuals from a stratified random sample, between May and August 2012. The study was undertaken in all but one of the six

Nigerian geopolitical zones; the North-East geopolitical zone was excluded for security reasons. It was administered to two separate groups: members of the Federation of Informal Workers Association of Nigeria (FIWON), the only organisation representing informal workers in Nigeria; and a sample of non-FIWON Nigerians (for further details, see Appendix 2). The questionnaire sought, among other things, to determine whether participants have set up a business, and whether those business owners possess entrepreneurial attributes. The data, importantly, allow us to analyse the longevity of businesses operating in the informal economy, by comparing business start-up activity in crisis and non-crisis periods, over a sufficient number of years to embrace both the SAP (1986-92) and GEC (2007-12) periods of austerity. Our study is thus able to build upon Williams and Nadin's (2010) use of the number of new business start-ups, to show the relationship between austerity policies and entrepreneurial development.

3.1 Descriptive statistics

In Table 1, we group the data into (mainly) five-year periods. This includes the age range of firms up to five years old, which covers the GEC. The SAP period, however, lasted seven years. The *pre*-SAP era is covered by a single time-period of 19 years (of businesses 28-46 years old), during which time participation in the informal economy was lower than subsequently. Referring back to the debate about push and pull factors driving participation in the informal economy, it is important to note that over half of all businesses operating in Nigeria's informal economy were set up during the SAP and global crisis periods of austerity. Indeed, of businesses set up by non-FIWON members, over half were set up during the most recent period. This picture of recent participants in the informal economy is consistent with austerity as a push factor. That said, are businesses established under such conditions viable? Are they able to endure? That is, is there anything to suggest that these individuals are entrepreneurs? The bottom line of Table 1 shows that the highest proportion of businesses run by FIWON members was established during the SAP era. The difference between rows two and three in Table 1 may reflect the time-lag between business start-ups and owners becoming members of a trade union. This view is supported by the top row in Table 1, combining FIWON and non-FIWON responses. Thus in answer to our first question, there is clear evidence that businesses established under austerity conditions are viable in the long run.

Table 1: Age Distribution of Business Start-ups, % Share by Age Group in Years

	1-5	6-10	11-15	16-20	21-27	>27
All participants	37.1	11.8	14.5	7.5	19.4	9.7
Non-FIWON Members	53.5	13.8	11.2	5.2	7.8	7.8
FIWON Members	9.9	8.5	19.7	11.3	38.0	12.7

To answer the second question, regarding entrepreneurship, we refer to the Appendix Tables. Starting with the 42-month rule for the age of businesses (Harding *et al.*, 2006), the data suggest many businesses are younger than this. The claim of entrepreneurship in our sample is justified by the fact that about 60 per cent of individuals in our sample are self-employed. This follows Matlay (2005, p. 670), who defines entrepreneurship in terms of ‘self-employment’ (The 60 percent figure comes from Table A1, as the sum of family/individual-own and ‘other-specify’, where the latter represents government employees who engage in the informal economy as second-job/self-employment). This also follows other studies that have found evidence of entrepreneurial qualities among self-employed participants in the informal economy (Williams and Nadin, 2010; Cross, 2000). Further, entrepreneurship involves ‘a spectrum of activities that take place during all stages of an organisation’s creation and growth’ (Gedeon, 2010, p. 24), and an entrepreneur as ‘someone who specialises in taking judgemental decisions about the coordination of scarce resources’ (Matlay 2005, p. 670), for the survival and growth of the business-enterprise (Gurtoo, 2009).

Participants in our study appear to possess these essential attributes, as over 80 percent and 70 percent, respectively, show preferences for continuing their businesses in various forms (Table A3) and making fast decisions (Table A4). While the latter impacts positively on participants’ businesses, confirmed by approximately 90 percent of participants whose businesses are profitable (Table A4), the former implies that participants are not in the informal economy for the short haul. Furthermore, we have found that entrepreneurs operating in the informal economy also engage with and operate in the formal economy. The

reverse holds as well: many established enterprises in Nigeria's formal economy carry out some of their business activities in the informal economy. This may help explain some of the findings in Table A3, notably the relatively small percentage of entrepreneurs wanting to 'formalise' their business.

In the context of austerity, an important finding shown in Table A5 is that the majority of respondents are engaged in the informal economy for survival-related reasons: unemployment, survival, need for extra income, ease of business' entrance, and little start-up cost. This appears to contradict Table A3, which shows that participants' future plans are: continuity and growth of their current businesses. Moreover, Table A5 shows that the single-highest proportion of respondents engages in work/business in the informal economy to be autonomous/own self-business. This corroborates the view that informal entrepreneurship is based on choice, 'autonomy, flexibility, and freedom' (Gerxhani, 2004, p. 6; see also Snyder, 2004; Cross, 2000).

One plausible explanation for this apparent contradiction is that the individual-informal entrepreneur may well initially be pushed into the informal economy for survival/economic reasons, but they develop their entrepreneurial skills on the job. A second is that whilst austerity may push individuals towards the informal economy, they may already possess latent entrepreneurial skills that, by moving in that direction, they can draw on and develop further. The evidence presented here supports the view that austerity can drive entrepreneurial development: even if they start out running a business for survival reasons (Table A5), they are willing *and able* to continue to run and expand these businesses in the longer term, after the period of austerity has passed (Table A3).

3.2 Model specification

Our quantitative data analysis is undertaken using the multiple-indicator, multiple-cause, (MIMIC) model (see Schneider *et al.*, 2010). This structural equations model (SEM) defines and depicts the association between the observed causes and effects of the informal economy (the unobserved variable) to compute the unobservable factors of the informal economy (see Dell'Anno, 2008; Vuletin, 2008). The informal economy, the latent (unobserved) variable, is explained *vis-à-vis* observed explanatory (causal) variables and unobserved variables using the covariance matrix of the former.

The benefits of applying a MIMIC model to the study of the informal economy are, first, to allow us to investigate the relationships between observed and latent variables, that is, observed causes, observed indicators, and the unobserved informal economy; and, second, to test the fit of the collected primary data on the specified model. Following Schneider *et al.* (2010), we specify the Structural Model as:

$$m = d'F + E \dots\dots\dots(1)$$

where $F' = (F_1, \dots, F_k)$, a 1 by k vector, and potentially, each F_i , $i=1, \dots, k$ can cause the latent variable m . The vector of coefficients is represented by $d' = (d_1, d_2, \dots, d_k)$, a $(1 \times k)$ vector, which describes the relationship between the latent (unobserved) variable and its causes. This implies that a combination of exogenous causes determines the latent variable m . An error term E is included in the equation, because it is assumed that the explanatory factors may not explain all of the variation in the latent variable. H represents the variance of E , and L defines the $(k \times k)$ covariance matrix of the factors which determine F .

The connection between the unexplained factors and their indicators is defined by a Measurement, or Confirmatory Factor Analysis, model:

$$b = gm + U \dots\dots\dots(2)$$

Where $b' = (b_1, b_2, \dots, b_t) = (1 \times t)$ vector of the multi-indicator variables, g represents the vector of the regression coefficients, and U' , and Q_U represent, respectively, the $(1 \times t)$ vector, and the $(t \times t)$ covariance matrix, of the white noise disturbances.

Equation (3), a combination of Equations (1) and (2), is a 'reduced form [of a] multivariate regression model' (Schneider *et al.*, 2010, p. 12). Equation (3) is defined by $b_n, n=1, \dots, t$ (endogenous variables), which are the indicators of the m 's unexplained variables, and F_i , $i=1, \dots, k$ (exogenous variables) which are the causes of the m 's latent variable. This new model is specified as:

$$b = PF + V \dots\dots\dots(3)$$

Where P (which is equal to gd') and represents a unit-rank matrix, and V (equal to $gE+U$). V , the error term, is a $(t \times 1)$ vector which combines the white noise error terms of the structural model (E) and measurement model (U). In particular, $V \sim (0, N)$. N 's covariance matrix, is unit-ranked, and is defined as: $cov(V) = Z(gE+U)(gE+U)' = gg'H + L\nu$. It follows that for the model to be identified and estimated, one of the components of vector g must be normalised

to an exterior or fixed value (Schneider *et al.*, 2010; Bollen, 1989). In addition, the covariance matrix of the MIMIC model $\Sigma(L)$ defines the co-varying relationships between the observed variables, and is derivable from Equations (1) and (2). Finally, the structure of latent and observed variables in the MIMIC model emerges when the resulting matrix from Equations (1) and (2) is decomposed. Thus:

$$\Sigma(L) = \begin{pmatrix} g(d'qY + h) + L_U & gd'Q \\ QYg' & Q \end{pmatrix} \dots\dots\dots(4)$$

Where $\Sigma(L)$, the covariance matrix, depends on the parameters of g and Y , as well as the covariances contained in q , L_U , and H . Generally, the estimation of the hypothesised model generates the same results as that of the population's covariance matrix (Σ), that is, $\Sigma = \Sigma(L)$, if the parameters of the latter are known, and the former correctly specified. However, this is not the case in practice as the parameters, variances and covariances of the population are never known; only those of the samples are known. Hence, what is available for use for the estimation of the model, is the sample covariance matrix of the observed variables, which are the d (vector of indicators) and f (vector of causes), and the estimates of the unknown sample parameters. Overall one aims, as much as possible, to produce the closest possible parameter and covariance estimates to the sample covariance matrix, that is, $\Sigma^* = \Sigma(L^*)$, of the observed causes and indicators. 'The function that measures how close a given [population covariance matrix] Σ^* is to the sample covariance matrix S is called fitting function $F(S; \Sigma^*)$ ' (Schneider *et al.*, 2010, p. 13). For most SEM users, the Maximum Likelihood (ML) estimation technique is the most popular fitting function:

$$E_{ML} = \log|\Sigma(L)| + ni[S\Sigma^{-1}(L)] - \log|S| - (t + k) \dots\dots\dots(5)$$

Where $\log| |$ represents the log of each matrix's determinants, and the number of observable variables is $(t+k)$. Generally, the estimate of the fitting function is minimised through an iterative numerical procedure, as there does not exist any form of structural parameters solution, open or closed, which minimises the fitting function (E_{ML}) (see Schneider *et al.*, 2010; Bollen, 1989).

4. Results and discussion

In this section, we analyse in detail the results of the MIMIC analysis (additional information is provided in Appendix Tables A1-A7). We employ the MIMIC technique to test whether participation in Nigeria's informal economy is based on choice (autonomy), or push (survival, unemployment) factors. The choice of the variables incorporated is based on both economic theory and the foregoing descriptive analysis. A brief categorisation as either 'causal' or 'indicator' factors is provided below:

Causal factors

Unemployment (UNEMP): Unemployment is a key causal factor of the informal economy, and also a key feature of austerity. The proxy for unemployment is the participants' ranking of the reasons for engaging in the informal economy. This has been recoded into scale-data, ranging from 1 to 10, where each of 10, 9 ... 2 takes the place of 1st, 2nd... 9th ranks respectively (Table A6). A positive relationship between the informal economy and unemployment is hypothesised.

Autonomy/self-employment (AUTO): Analysis of individuals' desire to own their businesses or have working-flexibility and autonomy has emerged in the literature, as a factor leading individuals to undertake business activities in the informal economy. Austerity policies can lead to individuals pursuing self-employment in the informal economy, as they seek survival. Some evidence in support of this was discussed earlier. The data used as a proxy for autonomy are constructed in a similar way to that described for unemployment above (Table A6). A positive relationship between the informal economy and autonomy is hypothesised.

Corruption or Business Freedom (BF): Business freedom measures the kind of environment participants operate in. The responses to the statement, 'it is very difficult to operate in the informal economy without giving bribes to some law enforcement agencies' was used as a proxy for BF. Based on the plausible assumption that the Nigerian business environment is the same for businesses operating in both the informal and formal economy, BF is used to gauge the level of corruption in Nigeria. Corruption has been found to be a key determinant of the informal economy (Schneider and Enste, 2000), and is also an attribute of austerity policies, particularly privatisation (Hart, 2012). BF is derived from scale data with five points, ranging from strongly agree to strongly disagree. A positive relationship is expected between BF and the informal economy.

Tax burden (LTAX): This factor has been investigated extensively as a key determinant of the informal economy (Schneider *et al.*, 2010). Used in this section as a proxy for tax burden is ‘less tax’ (Table A6). The data computation again follows the process for computing unemployment. A positive relationship is hypothesised between LTAX and the informal economy.

Survival (SURV2): As argued above, individuals’ need to survive is another contributory factor to participation in the informal economy. Austerity policies frequently result in redundancies, with work and income often then sought in the informal economy. SURV2 is derived from the ranked reasons for engaging in the informal economy (Table A6), and the data are constructed following the process described for unemployment. A positive relationship is hypothesised between survival and the informal economy.

Time on main job (TOMJ): Time spent on their main job can also be a factor influencing people’s decisions to participate in the informal economy. It appears to be a strong factor in Nigeria’s informal economy. Data for TOMJ are obtained from responses to the question, ‘on a daily average, how many hours do you spend on main job/business?’ A negative relationship between time spent on formal work and participation in the informal economy is hypothesised in the literature (for example, Sookram and Watson, 2008; Lemieux *et al.*, 1994). We hypothesise a positive relationship between TOMJ and the informal economy: participants have been pushed into, and have their main jobs in, the informal economy. TOMJ also captures an entrepreneurial quality, as participants are willing to continue their economic activities and develop entrepreneurial skills, although initially *pushed* into the informal economy.

Indicators

Although the activities of the informal economy may not be captured directly, they manifest themselves in a number of ways. These manifestations are otherwise known as *indicators*. To untangle the relevant indicators for Nigeria’s informal economy, participants were asked to rate statements from strongly agree to strongly disagree, which were then converted into scale data. These indicators confirm whether the activities of informal entrepreneurs are seen as being good for the Nigerian economy or not. Specifically, data used as indicators include participants’ responses to the following statements:

Government should discourage the informal economy as it is harmful to the Nigerian economy (HPF): Respondents overwhelmingly refuted this statement (Table A7). This is consistent with participants' responses to questions on such variables as wealth (WTH) and growth (GROT). Respondents thus see Nigeria's informal economy as economically useful to its participants and to Nigeria, and should not be discouraged. Accordingly, HPF was constructed as an indicator factor.

People are poor because they work or do business in the informal economy as they are disadvantaged (WTH): Respondents also disagreed with this statement (Table A7). A contrasting statement is arguably therefore appropriate: people are able to build up wealth (WTH) by working or doing business in the informal economy. Thus, we construct WTH as a wealth indicator for the informal economy.

Informal sector activities are good for Nigeria's economy (GROT): This statement gained overwhelming support from participants (Table A7). If the informal economy is good for Nigeria's economy, it can be seen as providing a source of growth (GROT). We have constructed the GROT indicator to represent the positive economic effect of the informal economy on Nigeria's economy overall.

Results and Analyses

The application of the dynamics of Equations (1) to (5) leads to the computation of the coefficients of the explanatory variables, loosely termed MIMIC results. Table 2 presents the results of the MIMIC model, which also report the important diagnostic statistics for MIMIC models including *CMIN*, *NFI*, *CFI*, and the *RMSEA* (Schneider *et al.*, 2010).

Table 2: MIMIC results

Path	Model
UNEMP → INFEC	.094**
AUTO → INFEC	-.098**
BF → INFEC	.172**
LTAX → INFEC	.075**
SURV2 → INFEC	.219**
TOMJ → INFEC	.039**
INFEC → HPF	1
INFEC → WTH	.444**

INFEC → GROT	.607**
Chi-square value, CMIN)	35.99 (.092)
Normed Fit Index, NFI	.8
Incremental Index of Fit, IFI	.932
Comparative Fit Index, CFI	.922
Root Mean Square Error of Approximation, RMSEA (L-H)	.03 (.0-.052)
Akaike's Information Criterion, AIC (D; S; I)	92; 108; 191
Total responses	418

Note: () = p-value; **= significant at 5%; INFEC=informal economy; L-H=lowest-highest; DSI=dependent, saturated and independent; others are as defined.

For all of the models in Table 2, the *NFI* value of 0.8 is below the standard benchmark of 0.9. However, the *CFI* and other diagnostics are good statistically. We note that Bentler (1990), among others, recommends the *CFI* as the index of choice, because the *NFI* is influenced by a model's sample size, whereas the *CFI* and *IFI* are not sample-biased. With the exception of the *NFI*, our model meets all diagnostic criteria. In particular, the model posts 0.932 and 0.922 for *IFI* and *CFI*, respectively, which are very close to 0.95. Indeed, Byrne (2010, p. 78) suggests that a *CFI* value greater than 0.9 (Bentler, 1992) or a value close to 0.95 (Hu and Bentler, 1999) are 'considered representative of a well-fitting model'. The same is true for the *IFI*.

The badness-of-fit measure, which by rule should not exceed 0.05 for a well-fitting model, is also statistically significant for our model. The RMSEA, with a maximum value of 0.03, shows a well-fitting model. Finally, the AIC criterion is met, as the value of the dependent model is lower than both the saturated and independent models. Accordingly, the model summarised in Table 2 is suitable as the basis for our analysis. Moreover, in addition to the overall fit of the model, the results show that all variables (causal and indicators) are significant at the 5 per cent levels, and are consistent with theory.

Table 2 shows that the factors which determine the origin and expansion of Nigeria's informal economy include *UNEMP* (no other job for participants), *AUTO* (desire to be autonomous or self-employed), *BF* (corruption of government officials and agencies), *LTAX* (participants' desire to pay less tax), *SURV2* (participants' need to survive), and *TOMJ* (time spend on main job/business activity).

All factors except autonomy (see below), have the expected sign. This means that an increase in the size of any of the factors except autonomy, will lead to an increase in the size of the informal economy in Nigeria. Specifically, a unit rise in unemployment, corruption, tax avoidance, survival, and time on main job triggers a respective 0.094, 0.172, 0.075, 0.219, and 0.039 percentage point expansion. The biggest influence comes from the need for survival. This is consistent with austerity being a key driver of participation in the informal economy. In magnitude, survival is closely followed by corruption. The implications of these findings are that austerity regimes trigger an expansion in the size of the informal economy, hence informal entrepreneurship in Nigeria, as argued earlier. This is confirmed further by the positive sign on *TOMJ* (time spend on main job/business activity). This is an entrepreneurial attribute which captures participants' *willingness* to continue with their economic activities and develop entrepreneurial skills, although initially *pushed* into the informal economy.

The negative sign on autonomy suggests that an increase in the need to be autonomous or self-employed leads to a decline in the size of the informal economy. This might, at first, appear counter-intuitive, contrasting as it does with the established positive relationship in the literature (Gerxhani, 2004). That said, a negative sign supports the idea that austerity results in individuals needing to prioritise *survival* over choice and *autonomy* when making initial, critical, economic decisions.

5. Conclusions

Well established in the literature is the positive role of entrepreneurship in poverty reduction and economic development. Yet, while studies have reported different motives, characteristics and attitudes of entrepreneurs, none have considered whether austere economic policies act as trigger for entrepreneurial development. Our paper has aimed to fill this gap.

The recent Global Economic Crisis and its impact on public finances, has triggered widespread adoption of austerity policies in many countries around the world. In this paper, we focus on one specific response available to individuals, in developing and emerging economies in particular, as they seek economic survival – pursuing economic opportunities in the informal economy. We give empirical focus to this research *via* a survey of the informal economy in Nigeria, Africa's most populous country and largest economy. The study

provides information enabling analysis of individuals' responses relating both to the recent economic crisis, and also to the period of austerity following the introduction of a SAP in 1986.

To summarise our findings, on the one hand, the number of business start-ups in these two periods of austerity far outnumbers business start-ups in other periods. Following standard definitions of 'informal entrepreneurship' set out earlier, our results suggest that in difficult economic circumstances, significant numbers of individuals respond through entrepreneurial activity in the informal economy. This interpretation is given further weight by noting that many of the businesses set up during the SAP era are still operating today. On the other hand, whilst descriptive statistics indicate a desire for autonomy leads individuals into the informal economy, both descriptive statistics and our MIMIC analysis show that austerity also drives individuals into the informal economy, as a means of survival. These mixed results suggest that the behaviour of informal entrepreneurs in Nigeria is best represented by push-and-pull theory (Matlay, 2005). The push factor, in this case, is the austerity policy implemented by the government: informal entrepreneurs are driven initially by the need to survive. Over time, however, they sharpen their entrepreneurial skills on the job. This enables these budding entrepreneurs to make daily decisions that lead to the growth of their business-enterprises.

From these results, we are able to posit some policy suggestions. Our findings offer strong evidence that, should a government make austerity-type policy decisions in a country with weak social institutions and structures, it could also look to facilitate economic activity undertaken in the informal economy. In particular, policy makers can create the right environment, build infrastructures and institutions, which encourage and support budding entrepreneurs (pushed by austerity to start up businesses in the informal economy) to develop their full potential. This is particularly important because most of the early research on the informal economy tended to see its existence as damaging to the country as a whole, or at the very least, indicative of market failures. Contrary to this, and acknowledging that individuals start out operating in the informal economy out of desperation, many develop skills that help themselves and the economy more widely – even in the long run. Evidence from both the 1980s and the more recent global economic downturn support the view that, when faced with difficult economic challenges, many individuals have the entrepreneurial abilities needed not only to survive, but to build businesses that are sustainable in the long run – even if these

skills only find their release initially through the informal economy, and during the most challenging of economic circumstances.

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Appendix:

APPENDIX 1: Appendix Tables

Table A1: Participants' main business/ work

Category	All%	FIWON%	Non-FIWON%
Family/individual-owned	34.5	49.4	31.1
Cooperative	12.0	12.6	11.8
Partnership	5.9	14.9	3.9
Company	13.5	11.4	13.9
other specify	34.2	11.5	39.3

Table A2: Participants decision making skills

How do you rate your ability to think fast, solve cost or other business problems quickly? (%)	
Very fast	37.3
Fast	43.2
Neither	17.7
Slow	1.4
very slow	.5

Table A3: Participants' future plans for their business

	(%)	
	FIWON	NON-FIWON
Continuation	12	11.0
Close business/get a good job	5.3	13.2
Invest more/expansion	61.3	57.4
Start better business	4.0	6.6
Formalise	17.3	11.8

Table A4: Respondents' business condition

Do you think your business enterprise is profitable?	Yes (%)		
	ALL	FIWON	Non-FIWON
	92.8	89.6	94.6

Table A5: Participants' reasons for working or operating businesses in the informal economy

	FIWON (%)	Non-FIWON (%)
No other job	19.0	21.8
Want own business, autonomy	35.4	21.4
Difficult to register business	3.8	3.0
Survival	24.1	21.8
Don't like paying tax	2.5	1.5
Not costly: start/operate	3.8	4.8
Less regulations	2.5	.4
Easy entrance	1.3	3.3
High profit		2.2
Extra income	1.3	14.4
Meet identified needs	6.3	4.1

Table A6: Rank of participants' perception of why others engage in the informal economy

	Ranks of respondents perception of why people engage in the informal sector (%)										
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	Fre.	No.1
A	53.9	15.6	7.1	5.0	2.1	3.5	2.8	2.1	7.8	141	24.7
B	27.9	13.6	17.7	11.6	8.2	7.5	4.8	5.4	3.4	147	13.9
C	5.5	8.3	3.7	4.6	7.3	21.1	19.3	15.6	14.7	109	2.7
D	4.7	5.7	8.5	10.4	6.6	11.3	14.2	17.9	20.8	106	1.7
E	59.1	20.2	7.7	2.9	2.9	2.9	2.4	1.9		208	42.4
F	9.2	13.4	16.0	12.6	18.5	10.9	8.4	8.4	2.5	119	3.7
G	4.8	6.7	5.8	9.6	21.2	18.3	14.4	11.5	7.7	104	1.7
H	13.3	12.5	23.4	19.5	10.9	4.7	4.7	4.7	6.3	128	5.8
I	7.8	6.9	7.8	15.5	11.2	5.2	12.1	16.4	17.2	116	3.4
Total	100	100	100	100	100	100	100	100	100		100

Note: A - No other job; B - Want own business, autonomy; C - Difficult to register business; D - Less tax; E - Survival; F - Not costly to start/operate; G - Less regulations; H - Easy entrance; I - More profitable.

Table A7: Respondents' perceptions on various indicators

	Valid percentages (%)		
	A	B	C
Strongly Agreed	10.2	29.3	5.0
Agreed	19.4	43.7	6.9
Neither	15.7	12.2	8.9
Disagreed	31.2	9.1	27.5
Strongly Disagreed	23.6	5.7	51.8
Total	100	100	100
Total responses	581	583	597

Notes: A - People are poor because they work or do business in the informal sector as participants are disadvantaged; B - Informal sector activities are good for Nigeria's economy; C - Government should discourage the informal sector as it is harmful to the Nigerian economy.

Table A8: Rankings of why respondent work/run business in the informal sector (%)

	1 st	2 nd	3 rd
No other job	28.8	1.0	1.3
Want own biz, autonomy	25.4	19.4	2.7
Difficult to register biz	0.8	1.9	2.7
Survival	16.9	27.2	14.7
Don't like paying tax	0.8	2.9	
Not costly: start/operate	5.1	12.6	14.7
Less regulations	0.8	4.9	6.7
Easy entrance	1.7	3.9	16.0
High profit	1.7	4.9	1.3
Extra income	12.7	13.9	8.0
Meet identified needs	2.5	7.8	30.7
Raise funds for business	0.8		
Skills acquisition	0.8		1.3
Seasonality	0.8		
Total	100	100	100
Number of responses	118	103	75

Appendix 2: Information about the survey

Surveys are a vital way of collecting information on the informal economy (Becker, 2004). Motivated by Williams and Round (2009), the intention was to sample 30 FIWON members from each of the 36 states of Nigeria, taking every alternate name, with members' names arranged alphabetically, to generate a stratified random sample. This would generate 1080 names. The North-East region had to be omitted because of ongoing security concerns. In addition, there was a low initial response rate from FIWON members. .

We thus expanded our target group to the general public (ie non-FIWON members). This involved selecting every alternate adult that was willing to complete the questionnaire (this is akin to the spatial random sampling of Williams and Round, 2009, and the 'street-by-street survey' of Reddy *et al.*, (2003, p. 137). Locations included churches, business premises, markets, higher education institutions, and public motor parks/garages. This may itself introduce location and non-representative sampling bias, but we chose not to correct for this, lest we introduce further biases (see Gelman, 2007; Kish, 1990; Lohr, 1999). Responses from non-FIWON members were compared and contrasted with those from FIWON members, to ensure consistency and reliability, using literature-led defined criteria. We are thus confident that the revised sample has not affected significantly the veracity of the results, analyses and output of the research.

The revised sample offered new analytical opportunities, allowing for a comparison between FIWON and non-FIWON members. This eliminated bias from surveying only participants in the informal economy (Arimah, 2001). Moreover, it helped us address another potential problem. As Arimah notes, participants in the informal economy do not always provide an accurate account of events which affect them. Indeed, evidence suggests that the perceptions of others may be more reliable (see Fisher, 1993). Thus, in our analysis above, we utilise the information presented in Table A6, rather than A8. We have no reason to doubt the veracity of information provided regarding the age of informal businesses, presented in Table 1. Thus the main focus of our analysis is exploring the evidence regarding the age distribution of firms, the links between intensity of new business creation and general economic conditions, and the links between peaks in new business creation and entrepreneurial-relevant motives for participation in the informal economy.

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