DETERMINANTS OF INFORMAL SECTOR LABOUR DEMAND: AN APPLICATION OF ALTERNATIVE METHODOLOGICAL APPROACHES TO SOUTH WESTERN STATES OF NIGERIA

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Abstract

Informal sector labour demand is analysed using a matched employer-employee data set obtained from a survey of informal enterprises in South-western Nigeria. Two different methodological approaches are used: conventional Ordinary Least Squares (OLS) and Instrumental Variable (IV) estimation techniques; and a Probit model is estimated to determine the probability of employees' absorption by firms. While the former shows that informal sector's labour demand is subject to firms' optimisation behaviour, the latter indicates that labour demand decision is based on employers' preference for discrimination. The paper argues that the importance of different factors in the determination of informal sector labour demand depends on the methodological approach.

JEL Classification: J23, O17, O18

*Key Words***:** Labour Demand, Urban, Informal Sector, Waged-Labour, Efficiency Wage Model.

1. Introduction

The informal sector has attracted much attention from both policy makers and researchers alike, especially in developing countries, because of the crucial roles of the sector in these economies. The sector plays a major role in the development process of developing economies, for example, it contributes greatly to employment and income generation (Sethuraman, 1981; Vandemoortele, 1991; Magbagbeola, 1996; Fukuchi, 1998; Muller, 2003). A common feature of both policy and research on the informal sector is the often assumed notion of unrestricted entry and self-employment. This has led to not focusing on wage employment in the sector. More importantly, the process by which new workers are absorbed, especially wage-earning workers, in the sector remains largely unclear. Also, the bulk of studies on labour demand have focused on the formal sector, among such studies are Mangan and Stokes (1984), Teal (1995, 1997), Gyan-Baffour and Betsey (2001), and Chletsos (2004). Consequently, this has limited the understanding of what determines labour demand in the informal sector.

One of the basic problems with policies concerning the informal sector has to do with inappropriate definition of the sector. Several criteria have been used to define the informal sector, such as size, ease of entry, legal status, ownership and management, and technology (Cole and Fayissa, 1991). In a recent study, Schneider (2004) defines the

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informal sector as comprising "all market-based legal production of goods and services that are deliberately concealed from public authorities for the purpose of: 1) avoidance of payment of income, value added, or other taxes; 2) avoidance of payment of social security contribution; 3) avoidance of meeting certain legal labour standards, such as minimum wages, maximum working hours, safety standards, etc.; and 4) avoidance of compliance with certain administrative procedure." This definition recognises that activities in the informal sector are not illegal, but it fails to incorporate the peculiar features of informal activities in developing countries where social security contributions and some of the identified labour market standards are virtually non-existing. In this study, regulation is used as the key distinguishing factor between formal and informal production units, and the extent to which such regulation is effective[1]. Thus, the informal sector is defined to include small and medium-scale enterprises (SMEs) that are officially registered to undertake business activities. However, these enterprises only operate under limited official regulations that only cover their operations permit, business names and premises registration, but do not cover their internal relations. That is, enterprises that are operating under official regulations that do not compel rendition of official returns on their operations or production process. Furthermore, these enterprises engage mostly in the production of services, have low capital requirements and are relatively labour intensive, and they have wage employment characterised by low wages.

The above definition of the informal sector portraits a complex nature of the sector, which has often led to the widely held view that the orthodox microeconomic theory of demand and supply in a competitive market may find little relevance in the sector (e.g. see Rama, 1998). Consequently, different theories have been propounded to explain the determinants of labour demand in the services, and/ or informal sector of developing economies, among which are Harris-Todaro surplus labour demand theory and the neo-classical human capital theory. A major issue that has emanated from the literature as a result of this is appropriate methodological approach to the measurement of labour demand in the informal sector. Thus, while some studies have used conventional estimation techniques, such as Ordinary Least Squares (OLS) and Instrumental Variable (IV), others have adopted the use of qualitative choice model, such as probit estimation technique (e.g., see Steel and Webster, 1991; Maloney, 1998, Carneiro and Henley, 1998, 2002; Tannuri-Pianto and Pianto, 2003). The different methodologies have yielded different results, for example, while Steel and Webster (1991) and Carneiro and Henley (1998) show that firm's profit and wages are important in the determination of labour demand in the informal sector, Maloney (1998), Carneiro and Henley (2002) and Tannuri-Pianto and Pianto (2003) show that employee's human capital characteristics are the significant determinants.

In this study, an empirical analysis of the determinants of labour demand in the south-western Nigerian urban informal sector is undertaken, focusing on wage-earning labour. Two different methodological approaches are used. The first involves the use of conventional Ordinary Least Squares (OLS) and Instrumental Variable (IV) estimation

[1] For a comprehensive discussion on the framework for demarcating between formal and informal sectors see Folawewo, (2004), Urban Informal Sector Labour Employment: A Case Study of South-Western Nigeria, Ph.D dissertation, University of Ibadan, Nigeria.

techniques. Second, a probit model is estimated to determine the probability of employees' absorption by firms. The study's analyses are carried out using a matched employee-employer data set, obtained from questionnaire administered on 1,475 urban informal enterprises (UIEs) and 2,739 employees in 28 major urban cities in the 6 south-western States of Nigeria,

The remainder of the paper is organised as follows. Section II provides the theoretical framework for the study. Section III lays out the empirical model for the study. In section IV, empirical estimation results are presented. Section V concludes the paper.

2. Theoretical Framework

The theoretical foundation for the study is rooted in the efficiency wage theory, which is used to model the predicted outcomes of the Harris-Todaro (1970) surplus labour theory. The efficiency wage models have found useful applications in the analyses of productivity, earnings and employment determination (Wadhwani and Wall, 1991; Levine 1992 among others). A major assumption of the efficiency wage theory is the endogenous determination of wages through firms' optimisation behaviour. The efficiency wage model adopted in this paper follows that of Riveros and Bouton (1991), which was built upon by Teal (1995). As a starting point, a constant returns to scale, Cobb-Douglas production function with two inputs: effective labour, $(e^a L)$ and capital, K, is specified, as:

$$Y = (e^a L)^b K^{(1-b)} f \quad (1)$$

This specification includes a firm-specific productivity factor (f) that is time invariant. Under the efficiency wage hypothesis, if the production function is expressed in labour-output terms and firm's fixed effects are allowed for by differencing, we have:

$$DInY / L = bDIn\,Rel(w) + (1-b)DInK / L + De \quad (2)$$

where *Rel (w)* is the relative wage in the firm.

The implication of this hypothesis, as shown by Levine (1992), is that the coefficient on the relative wage term should be equal to the labour share parameter. The relative wage, *Rel(w)*, could be estimated by taking the actual firm wage relative to the wage predicted by human capital characteristics of the workers in the firm. This is equivalent to assuming that firms would pay the predicted wage to employees of a given skill level in a competitive market. In so far as the actual wage is higher than the predicted wage in some firms than others, then the question becomes whether this is due to the productivity effect of higher wages or higher profits, which are a reflection of higher productivity, leading to higher wages from rent-sharing.

Nickell and Wadhwani (1990), Christofides and Oswald (1992), Blanchflower, Oswald and Sanfey (1993) have shown that wage determination can be understood as a process in which workers and firms bargain, and that one element in the game is a measure of a firm's performance. Thus, to capture the effect of rent-sharing, nominal wage is allowed to be determined by a firm's profit and inherent human capital of employees, that is:

$$lnw = b_0 + b_1 p/L + b_2 w^e + b_3 H + controls \quad (3)$$

where p/L is profit per employee; w^e is the exogenously available wage, and H is the human capital variable, which allows controls for different levels of education and skills.

Since we assume a Cobb-Douglas production function, this gives the share of labour in output as $b = wL/Y$. If profits per employee are defined as value-added less wages, then we have:

$$p/L = Y/L - w = (1 - b)\, Y/L \tag{4}$$

If we rewrite equation (4) in logs in order to make the comparison more direct, we have:

$$Inw = b_0 + b_1 Inp / L + b_2 Inw^e + b_3 H + Controls \tag{5}$$

and using the definition of profits per employee, this equation can be written, as:

$$Inw = b_0 + b_1 InY / L + b_2 Inw^e + b_3 H + Controls \tag{6}$$

In order to set up a comparison between rent sharing and efficiency theories, equation (6) is transformed so that it becomes an equation for the relative wage of the firm. We write:

$$In\ [w/(Predicted\ wage)] = b_0 + b_1\, InY/L + b_2 Inw^e + controls \tag{7}$$

where the predicted wage is estimated simply from the human capital term in the earnings equation (6).

Writing equation (7) as one that explains productivity, and differencing to allow for firm fixed effect, we have:

$$DInY / L = b_0 / b_1 + (1/b_1) DIn\, Rel(w) - b_2 / b_1 DInw^e \tag{8}$$

where *Rel (w)*stands for actual to predicted wage.

3. Empirical Model

Some important issues arise from equation (8), first is the measure of output and the second is the availability of relative wage. In the informal sector, productivity is hardly measurable (Maloney, 1998). Thus, to empirical analyse the determinants of labour demand in the informal sector, using the efficiency wage model, equation (8) is transformed to yield labour demand, which is conditioned on the actual wage in the firm and returns to capital.

Following Teal (1995, 1997), a labour demand function, where employment is determined by wage rate and cost of capital is specified as:

$$L^d_i = a W_i + brK_i \tag{9}$$

where L^d, W and rK are labour demand, wage rate and returns to capital respectively, and i stands for the typical firm. However, given the informal nature of the activities of firms being investigated, rK is proxied by three different factors: cost of capital/borrowing, level of investment (size of firm), and profit level. The replacement of rK by these variables can be explained in two ways. First, in the informal sector, firms do not have

access to formal credit market, where official interest rate is charged on borrowings; rather, they often resort to the informal financial market where it is usually difficult to keep formal record of charges on loans. Second, the higher the informal cost of borrowing (capital) the lower will be the opportunity to borrow/invest and this will in turn affect the level of profit. Ultimately, this will affect productivity and employment.

The estimable labour demand function can be written as:

$$L^d_i = a W_i + b_1 ck_i + b_2 I_i + b_3 p_i \quad (10)$$

where *ck* is cost of capital, *I* is investment and *p* stands for profit. Oswald (1995), Teal (1995, 1997) and Carneiro and Henley (1998) have shown that these variables affect employees' earnings and the determination of labour demand, particularly in the informal sector.

Given the cross sectional nature of the data, in order to eliminate any effect of oscillations that may result in heteroscedasticity, and ensure constant variation across the series, equation (10) is expressed in natural log form as:

$$lnL^d_i = a\ lnW_i + b_1 lnck_i + b_2 lnI_i + b_3 lnp_I + m_i \quad (11)$$

Equation *(11)*, which is estimated, shows the market clearing condition, where a single labour demand function holds. First, it relates labour demand to the expectation of the firm, through the dependence on the cost of capital, rate of profit and investment level. Also, since wage rate is influenced by the demographic and human capital variables of the informal sector workers, this yields a specification of labour demand function, which depends on price, and the estimation of the determinants of the price, which is captured by wages.

The specification of equation (11) leads to endogeneity problem, as a result of the inclusion of wages, W_i. In the L^d_i equation (11), W_i, is determined by employees' characteristics, that is:

$$InW_i = a_0 + a_1 X_{ji} \quad (12)$$

where *X* is a vector of individual employee's characteristics, in terms of productivity (measured by educational level – representing human capital), experience and sex, as well as other characteristics of the employees. Equation *(12)* can be explicitly written as:

$$InW_i = a_0 + a_1 Education + a_2 Age + a_3 Age^2 + a_4 Experience + a_5 Tenure\ a_6 Sex + U_2 \quad (13)$$

Education, Age, Experience and Tenure are included to reflect the effects of human capital on wages, which will affect the probability of being employed. Age-squared is included to pick up the possible non-linearity between age and wages. To solve the endogeneity problem, the labour demand equation *(11)* is estimated by both OLS and Instrumental Variable (IV) estimation techniques, in which case the determinants of W_i are used as instruments. All the variables are estimated at levels, given the fact that they are primary data and they are not measured over time.

In order to be able to measure the influence of employees' characteristics on their employment, we employed a qualitative choice model, in which an employer's decision to hire a worker is based on such an employer's preference for the worker. Since an employer's preference is based on the productivity-related characteristics of employees, that is, human capital characteristics, such as education and experience, as well as gender differences, a probit model is considered, following Canagarajah and Thomas (1997) and Maloney (1998). The choice of probit model is predicated on the fact that it allows for dealing with binary dependent variables and also enables us to quantify the relationship between individual employee's characteristics and the probability of being employed. In the model, it is assumed that an individual employee's characteristics determine the probability of being hired. This probability is given as:

$$P_i = b_0 + b_1 Z_{j_i} + m \tag{14}$$

where i subscript refers to individual firm; P is the probability that firm i will employ a prospective employee; Z_j's are set of individual employee's characteristics, given as skill and educational level and other characteristics; and u represents the other unobservable variables that may influence the probability of hiring an employee.

However, since the decision to employ labour is not mainly based on the characteristics of workers, but also on the characteristics of the firms, equation (14) is modified to include the firm's characteristics. Thus, the probability that an employee will be employed by the informal firm is:

$$P_i = b_0 + b_1 X_i + b_2 Z_{ji} + m \tag{15}$$

where X_i is a vector of firms' characteristics, representing investment, profits, cost of capital, and wages. Consequently, equation (15) gives a qualitative choice model, in which hiring decision of firms is influenced by both the characteristics of employers and employees, allowing for testing the neo-classical human capital model, which assumes that employment is based on employer's discriminatory practices.

The relevant variables of the model are measured as follows: the number of employees in each firm is used as a proxy for labour demand by such a firm. Wage, W_i, is measured by average wage per employee being paid by firm i. Cost of capital, cK_i is proxied by the average prevailing lending rates of co-operative societies. This is because co-operative loans and advances are more readily available to SMEs, especially in the informal sector, than the commercial bank credit facilities. Investment, I_i, is measured as the total amount of capital invested by firm i in the business, that is, the capital concept of investment is used for variable I_i. The variable p_i is measured as average annual profit per firm. The age of firm (yestab) is measured in years, and it represents number of years in which a firm has been in business. Ownership (ownship) structure of enterprises is captured discrete number. Employee's skill, proxied by level of educational attainment, is measured in years. Gender difference and other characteristics of the workers such as experience, tenure, and age are captured by discrete values.

The data for the study are drawn from a survey of informal enterprises in south-western Nigeria conducted during the second half of 2003, where structured questionnaire were administered on the enterprises. Two sets of questionnaire were administered; the first set was administered on firms, while the second set was administered on employees.

Therefore, employment determination in the urban informal sector is examined using a matched employee-employer data.

The sample size covers 1,475 enterprises and 2,739 workers in 28 cities, in the 6 south-western States in Nigeria (Ekiti, Lagos, Ogun, Ondo, Osun, and Oyo States). A multi-stage sampling procedure was used in the selection of enterprises covered by the survey. First, the Federal Office of Statistics (F.O.S) listing of enterprises was used to identify registered SMEs in each of the six States. Thereafter, questionnaires were administered on about 260 randomly selected enterprises spread across major urban centres in each State. Similarly, questionnaires were administered on randomly selected workers in each enterprise.

4. Estimation Results

The results obtained from the estimation of the labour demand equation are presented in Table 1. The labour demand equation is estimated at aggregate data and sectoral levels, using OLS and IV. Models (1) to (4) are estimated using OLS, while models (5) to (8) give the results obtained when wage is instrumented. All the Models depict a positive relationship between labour demand and year of establishment of firm, investment, and profit. This result implies that increase in the level of investment and profit level will lead to increase in labour demand, and that the older a firm is the greater will be its ability to employ more labour. Also, investment and profits are significant in all the cases, while the year of establishment is only significant at the aggregate data level. However, ownership structure is generally insignificant in all the models.

Table 1: OLS and IV Estimations of Labour Demand Equation

Variable	OLS				IV			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	Aggr.	Agric.	Manu.	Services	Aggr.	Agric.	Manu.	Services
Constant	-0.13 [-1.08]	0.03 [0.19]	-0.38 [-0.56]	0.30 [3.21]	1.95 [-1.08]	0.22 [1.21]	0.18 [2.10]	-0.55 [-0.40]
Yestab	0.07 [3.26]***	0.02 [0.79]	0.09 [0.97]	0.21 [1.89]**	0.03 [2.34]**	0.02 [1.20]	0.04 [0.36]	0.08 [1.09]
Ownship	-0.03 [-0.87]	-0.05 [-1.57]	-0.33 [-1.37]	0.25 [2.07]b	-0.01 [-0.30]	-0.04 [-1.94]	-0.23 [-1.21]	-0.01 [-0.29]
Ln (Wage)	-0.28 [-2.07]**	-0.13 [-1.19]*	0.03 [0.63]	-0.10 [-1.71]	-0.11 [-1.11]*	-0.03 [-0.09]	-0.00 [-0.14]	0.04 [0.75]
LN (Investment)	0.19 [4.68]***	0.37 [3.77]	0.30 [1.16]	0.54 [4.71]***	0.63 [6.02]***	0.66 [5.70]***	0.68 [6.56]***	0.04 [0.81]
Ln (Profit)	0.22 [5.37]***	0.23 [2.44]*	0.23 [1.30]	0.55 [5.11]***	0.15 [1.75]**	0.59 [4.40]***	0.52 [4.88]***	0.49 [2.19]**
Ln(Cost_cap)	-0.32 [5.36]***	-0.11 [-1.99]*	-0.45 [-2.81]*	-0.03 [-1.30]	-0.06 [-1.81]**	-0.01 [-0.84]	-0.31 [-2.28]**	-0.02 [-1.10]*
Adjusted R^2	0.60	0.55	0.52	0.58	0.66	0.59	0.551	0.60
Std. Error	0.81	0.96	0.98	0.91	0.34	0.82	0.98	0.80
No Observ	1472	216	104	1152	1472	216	104	1152

Note: 1) Dependent variable in all models is log of labour size.2) T-Statistic in arenthesis. 3) ***, **, * indicate 1%, 5% and 10% significance levels. Instruments: age, age^2, education, sex, experience, tenure, age*education, and gender*age.

On the other hand, labour demand has an overall negative relationship with, ownership, wages and the cost of capital. This indicates that increases in wages and cost of capital will discourage labour employment. The negative relationship between labour demand and ownership can be explained by the fact that as ownership of enterprises moves from one-man to partnership and so on, owners are likely to bring in their relatives into the business, rather than hire more labour from the labour market. When wage is instrumented, its coefficient dropped from an average of (negative) 0.14 in the OLS estimations to an average of 0.05 in the system estimations; thereby, making it to be less important in the determination of labour employment. Generally, the results show that irrespective of estimation technique, wages are not important in the determination of labour employment in the informal sector. These results are similar to the findings by Oswald (1995) and Teal (1997).

In the estimation of the probability of a worker being employed by an employer, we first conditioned this probability on both the firms' and workers' characteristics, and then conditioned the probability on worker's characteristics only. Table 2 presents the results of the Probit estimates of the labour demand model. The result from the combination of employers' and employees' characteristics shows that the probabilities that employees are employed based on the year of establishment, ownership, investment, and profit structure of the UIEs, as well as cost of capital, are very low. Apart from having low probabilities, these factors are not significant in the choice of workers, and the result also shows that investment level has a negative effect on employment decision. However, the probabilities of employment decision being based on workers' characteristics, in terms of Age, Education, Gender, and Experience are very high; this result is consistent with that of Canagarajah and Thomas (1997) and Maloney (1999). When firms' employment is estimated, using only employees' characteristics, the probabilities that the choice of employers for workers is based on Age, Education, Gender, and Tenure increased, while the probabilities of Age^2 and Experience declined. The negative effect of gender could be interpreted as meaning that as the gender dominance of workers changes from male to female, the probability of gaining employment tends to fall. This is also reflected in the sign of the interactive term between age and gender; this implies that as the gender dominance of workers changes from male to female and as workers become older the probability of their being employed in UIEs becomes slimmer.

A comparison of the results of the OLS and IV estimations of the labour demand with that of the Probit model reveals that while the former indicates that the informal sector's labour demand is subject to a firm's optimisation behaviour, given as the characteristics of the firm in terms of year of establishment, ownership, investment, and profit levels as well as its cost of capitals, the latter shows that the employment of a worker depends on such worker's characteristics. Thus, based on the probit model it can be deduced that labour employment in the informal sector is subject to employers' preference for discrimination. The latter finding is similar to that of Anker (1995, 1997), Sethuraman (1981, 1990) and Gupta (1993).

Table 2: Probit Estimate of informal Sector Labour Demand

Variables only	Combination of Firms' & Employees' Characteristics	Employees' Characteristics
Intercept	0.56 (58.95)	-0.18 (0.65)
Yestab	0.001 (0.02)	
Ownship	0.01 (0.10)	
Investment	-0.003 (-1.02)	
Profit	0.02 (0.15)	
Cost_cap	-0.01 (-0.21)	
Age	0.63 (3.14)*	0.66 (4.12)***
Age2	-0.23 (-1.22)	-0.09 (-1.05)
Education	0.73 (24.03)***	0.81 (31.01)***
Gender	-0.60 (-19.66)**	-0.61 (-20.10)***
Experience	0.53 (4.71)***	0.40 (3.88)**
Tenure	0.18 (2.06)**	0.23 (2.45)***
Age*education	0.22 (3.43)**	0.35 (4.69)***
Age*gender	-0.41 (-5.50)***	-0.23 (-3.12)**
Gender*education	0.44 (5.68)**	0.51 (6.70)***
No. of Observation	1,475	1,475
Log Likelihood	-128.6	-130.8
Chi Squared	9.79	12.8

Note: ***, **, * indicate 1%, 5% and 10% significance levels, respectively.

5. Conclusion

In this study, attempt has been made to empirically investigate the determinants of labour demand in the Nigerian urban informal sector, with emphasis on waged-labour. Based on the issue of appropriate methodological approach to the measurement of labour demand in the informal sector, two different estimation techniques are used. The first involves the use of conventional OLS and IV estimation techniques. Second, a probit model is estimated to determine the probability of employees' absorption by firms. The urban informal sector labour demand analysis is carried out using a matched employee-employer data set.

The conventional OLS and IV estimation results reveal that year of establishment, investment, profit levels, returns to capital, and nature of ownership of enterprises are important factors affecting the demand for labour in the informal sector. The probit analysis, on the other hand, shows that labour demand decision in the informal sector is influenced by workers' characteristics, such as age, education, gender, experience, and tenure, while firms' characteristics such as investment level, profit and cost of capital are found not to be important in making labour demand decision. Therefore, while the conventional estimations show that labour demand decision in the informal sector is based on firms' optimisation behaviour, the probit estimation reveals that the decision is subject to employers' preference for discrimination. However, the conventional OLS and IV, as well as the probit estimations show that wage is not an important determinant of labour demand.

Based on the findings of the paper, it is suggested that the significance of different factors in the determination of labour demand in the informal sector would depend, to a large extent, on the methodological approach within which the analysis is examined. Also, the study shows that irrespective of methodological approach adopted, wage is not significant in the determination of labour demand in the informal sector.

Although the paper has dwelt so much on methodology, it is important to emphasize the economic import of the paper, which shows that informal sector labour demand is subject to both economic and non-economic factors. Therefore, employment boosting programmes in the sector would only be effective if all these factors taken into consideration when such policies are been formulated.

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Appendix I: Variables Definitions

Variable Definitions

Human Capital Variable Definition:

Age	The age of the worker
Age^2	The age of the worker squared, used to capture possible non-linearity between age and wages.
Education	The education of the worker in years. This was constructed based on the answers to the question on the final stage of education completed. It is treated as a continuous variable representing average years spent to complete a particular level of education. The different level of education is defined as: Primary = 6 years Secondary = 12 years NCE/ND/Technical = 14 years HND/University = 16 years It must however be stated that years of education cannot be precisely measured, as a result of over-laps in schooling.
Experience	Previous work experience of a worker before joining current job (number of years of previous) experience
Tenure	Number of years a worker has spent in current organisation.

Demographic Variable

Gender	Gender of the worker. 0 = Male 1 = Female

Firms Characteristics

Labour	Measure of size, this is the number of full-time employees in the firm. That is, employees that are paid monthly wages.
Yestab	Year of establishment, this is taken to measure the age of the urban informal enterprises
Ownship	Ownership structure of firms: sole proprietorship = 1; partnership = 2; family = 3; and cooperative = 4.
Investment	Total amount of capital invested by the firm, measured in total stock.
Profit	Average annual profit of the firm in the past three years.
Cost_cap1	This is the measure of cost of capital and it is calculated as the prevailing average lending rate of co-operative societies as at the

time of survey multiplied by the level of investment of firms. The average lending rate used is 18.0 per cent.

Cost_cap Interest rate charged by commercial banks

appendix table a1: summary statistics of urban informal enterprises

Variable	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	Total
Yr. Of Estab.							
Minimum	2.00	2.50	3.00	2.00	1.50	3.00	2.00
Maximum	24.00	20.00	21.00	14.00	20.00	19.00	24.00
Mean	9.00	7.00	13.00	12.00	9.00	8.00	9.50
Std. Deviation	1.05	1.00	1.65	0.96	1.11	1.11	1.07
Labor Size							
Minimum	1.00	3.00	2.00	2.00	1.00	2.00	1.00
Maximum	10.00	18.00	14.00	16.00	12.00	17.00	18.00
Mean	5.00	9.00	7.00	8.00	6.00	7.00	8.00
Std. Deviation	0.71	1.14	0.90	1.09	0.89	1.12	1.01
Capital (₦'million)							
Minimum	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Maximum	4.00	4.00	4.00	4.00	4.00	5.00	5.00
Mean	1.58	1.66	1.88	2.01	1.7	1.88	1.80
Std. Deviation	0.82	0.89	0.88	1.05	0.89	1.00	0.94
Profit (₦'million)							
Minimum	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Mean	1.59	1.95	1.86	1.80	1.73	1.88	1.81
Std. Deviation	0.85	1.06	0.87	0.84	0.85	1.01	0.91
Average Wage (₦' 000)							
Minimum	1.60	3.50	3.00	2.00	1.50	2.00	1.50
Maximum	15.00	35.00	22.50	20.00	18.00	20.00	35.00
Mean	2.50	5.00	3.50	3.20	2.60	3.00	3.30
Std. Deviation	0.74	1.42	1.40	1.14	0.94	1.14	1.22
No. of Observation	217	249	240	252	250	267	1475

appendix table a2: summary statistics of uies workers

Variable	Ekiti	Lagos	Ogun	Ondo	Osun	Oyo	Total
Age							
Minimum	19.00	18.00	19.00	20.0	18.00	19.00	18.00
Maximum	42.00	46.00	52.00	44.00	51.00	50.00	52.00
Mean	28.00	27.00	31.00	24.50	30.00	32.00	29.00
Std. Deviation	0.66	0.68	0.58	0.68	0.63	0.68	0.75
Education (in yrs)							
Minimum	6.00	6.00	6.00	6.00	6.00	6.00	6.00
Maximum	16.00	16.00	16.00	16.00	16.00	16.00	16.00
Mean	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Std. Deviation	1.53	1.95	2.05	1.45	1.98	2.19	2.00
Experience (yrs)							
Minimum	0.00	1.00	0.00	0.00	0.00	1.00	1.00
Maximum	4.00	6.00	4.00	5.00	4.00	4.00	6.00
Mean	1.25	1.25	1.50	1.75	1.75	1.00	1.50
Std. Deviation	1.19	1.10	1.19	1.19	1.17	1.15	1.50
Tenure (yrs.)							
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	6.00	9.00	5.00	7.00	9.00	10.00	10.00
Mean	2.25	3.00	2.50	2.00	2.25	3.75	2.75
Std. Deviation	1.24	1.29	1.23	1.27	1.29	1.46	1.25
Unemployment Period (yrs.)							
Minimum	0.50	0.50	1.00	1.00	0.75	0.75	0.50
Maximum	2.00	1.75	5.00	2.00	5.00	3.75	5.00
Mean	0.75	0.50	1.25	0.75	1.25	0.75	0.85
Std. Deviation	1.07	1.09	1.04	1.01	1.46	1.07	1.06
Wage (₦'000)							
Minimum	1.50	5.00	2.50	2.00	2.00	1.20	1.50
Maximum	22.00	35.00	26.00	24.00	20.00	26.00	35.00
Mean	5.20	3.80	2.90	5.00	5.10	4.50	5.00
Std. Deviation	1.51	1.49	1.30	1.36	1.46	1.62	1.47
No. of Observation	405	416	452	411	531	524	2739