

## Public Electricity Fluctuation and Sustainability of Micro Enterprises in Southern Senatorial District of Cross River State, Nigeria

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**Abstract:** Boosting the micro enterprises (MEs) sector of the economy has featured consistently in the agenda of successive policy makers in Nigeria in recent times. In line with this concern, development planners have gone ahead to identify a key factor to achieving the desired results - steady supply of public electricity. This is because MEs in Nigeria depend very much on public electricity to function. Unfortunately, public electricity supply in Nigeria currently is below capacity, meeting neither the demands of the Nigerian public nor those of organizations including MEs. Using the Social Disorganization Approach of the Functionalist Theory, this study analyzes the challenge of fluctuation in public supply of electricity and examined its impact on the sustainability of MEs in the Southern Senatorial District Cross River State, Nigeria. With the help of the questionnaire, data for the study were generated from 340 operators of MEs in the study area. Using percentages, responses to questionnaires items were analyzed while the Z statistical technique was utilized to test the hypothesis of the study. Results unveiled among other issues that fluctuation in public supply of electricity has a significant negative impact on the profit margin, and consequently, the growth and sustainability of micro enterprises the Southern Senatorial District of Cross River State, Nigeria.

**Keywords:** Electricity, Fluctuation, Micro Enterprises, Sustainability, Power Supply.

### INTRODUCTION

Micro enterprises are the highest employers of labour [1]. Even some already employed individuals also own private micro enterprise to enable them generate additional income. The total output of this sector of the economy is a booster to the gross domestic product of the country. This makes the need to support their sustainability and growth crucial. Key among the factors identified as being fundamental to the sustainability and growth of micro enterprises is steady supply of electricity. Unfortunately, one of the socio-economic challenges facing the Nigerian economy is the problem of fluctuation in the supply of electricity to the public. Many operators of micro enterprises in the country depend on the National Grid, because generating electricity is capital intensive and would hinder profit maximization if they have to do so privately. In an attempt to solve the problem of power, the Federal Government through the National Integrated Power Project (NIPP) established several power plants in different locations across the country, including, Odukpani Local Government Area in the Southern Senatorial District of Cross River State. In addition, the Cross River State Government installed a power plant at the TINAPA Business Resort, Calabar with yet another one presently being installed around the Parliamentary extension area still Calabar, in the same Southern

Senatorial District of Cross River State. All these are clear indications of efforts to ensure adequate supply of electricity to both the public and private sectors of the society. Amidst these efforts, public electricity transmission and distribution infrastructure are not adequately maintained, making it difficult to convey electricity from generation sites to consumption centers. Data from the Port-Harcourt electricity distribution company (PHED), reveals that the actual available power output is not more than 2.5mw- 3.00mw which is a far cry from the expected 10,000mw, targeted by the government. Yet, out of this, only about 0.6- 0.7mw is supplied to the Southern Senatorial District Cross River State [2]. The result has been incessant power outages and general poor access to public electricity supply not just in the entire Cross River State but also in most parts of the country. For operators of micro enterprises, many of them are often forced to either stay out of business for as long as these power outages last or for those who can afford it, switch to power generating sets, a practice known to increase their overhead cost, especially with the hike in fuel prices in Nigeria. In the face of the challenge of shortage in public electricity supply, a number of micro enterprises in the Southern Senatorial District of Cross River State have been observed to be growing at snail speed, with some even winding up. This makes unavoidable the question: is there any

significant relationship between public supply of electricity and the sustainability of micro enterprises? Finding answers to this critical question is the propelling factor for this study.

**LITERATURE REVIEW AND THEORETICAL FRAMEWORK**

**Micro enterprises and the Nigerian economy**

Micro enterprises have come to stay in Nigeria as alternative measure to engaging in a productive venture, especially for the unemployed. Interestingly, it is not only the unemployed that are involved; the already employed are also major investors, because the income of families and individuals are enhanced by profits made through micro enterprises. Several factors underscore the need for micro enterprises to be accorded priority place as an economic development strategy for the Nigerian economy. Oduyoye, Adebola and Binuyo [3], outlined some of them to include:

- Self-employment for older and physically challenged persons, as well as for the gainfully employed whose incomes are below their liabilities.
- Leadership training, to the extent that individual entrepreneurs benefit from management and leadership experience whether or not they retain such jobs or take on new ones in bigger businesses later on.
- Some activities are more professionally performed by micro enterprises. For example vulcanizing, laundry services and welding. Through their specialized services, they help to contribute to the success of larger business concerns.

- Micro enterprises are relatively more flexible than large ones because of their size.
- The existence of many healthy micro enterprises among larger industries constitutes a barrier against monopoly and in a competitive situation the entrepreneur is motivated to act in a socially desirable manner by the drive of individual self-interest [4].
- Provision of specialized services, in that many services such as beauty and barbing shops are local in nature, often serving a limited part of one town or city. This allows them to get to know their customers, to emphasize specialized services. For example, many women will allow only certain hairdressers to style their hair while some men have a favorite barber who knows exactly how they like their hair cut to be. Lastly, Ayozie [5], identified a major importance of micro enterprises in the area of job creation

**Public Electricity Fluctuation and Micro Enterprises in Nigeria**

According to Lorpev [6], fluctuation in electricity supply in Nigeria has become worrisome especially with regards to how it affects micro enterprises. As a developing nation, quality public supply of electricity is needed to stimulate the growth and expansion of micro enterprises. However, what is obtainable have been incessant power outages, low generating capacity and high technical and non-technical losses in the country’s power industry. Table 1 provides insight into the state of public electricity supply in the country.

**Table-1: Demand and Supply of Public Electricity in Nigeria**

YEARS	VOLTAGE GENERATED	VOLTAGE SUPPLIED	VOLTAGE DEMAND
2005	2.5 MW	1000 MW	4500 MW
2006	2.4 MW	1093 MW	11,397 MW
2007	2.5 MW	1000 MW	16,000 MW
2008	2.5 MW	1000 MW	17,000 MW
2009	2.4 MW	800 MW	15,000 MW
2010	2.3 MW	950 MW	18,000 MW
2011	3000 MW	750 MW	18,000 MW
2012	2.5MW	1,000 MW	17,000 MW
2013	3000MW	1,500 MW	17, 000MW
2014	3000MW	1934 MW	18,000MW

(Source: PHED quarterly review, 2014)

The primary objective of MEs is profit maximization, and top on the list of the hindrances to the achievement of this all important objective is public power fluctuation. In his study on small and medium scales industries which evaluated power fluctuation rate as it affects profit margin of MEs, Zanap [7], found that fluctuation in public electricity supply will give rise to low production and this will in turn result in decrease in profit margin. In line with this view, Oyeyele [8] argued that micro enterprises are at loss during fluctuation in public electricity supply, to the extent that

the use of private sources of power by MEs as alternative energy source is not cost effective.

Bassey [9], outlined the horror brought about by fluctuation in public supply of electricity to MEs in the study area and to a large extent, the socio-economic development of Nigeria as a whole to include premature closure of business and high cost of goods and services provided by these MEs. This can result in consumers turning to foreign products and a drop in the demand for the products and services of these MEs. However, if

there is regular power supply, the reverse will be the case and the country's Gross Domestic Products will experience a boost.

### Theoretical Framework

The Social Disorganization Approach of the Functionalist's Theory provides a theoretical direction for this study.

The functional theory, popularized by the French Sociologist Emile Durkheim (1858 – 1917) and developed by the American Sociologist Talcott Parsons (1902 – 1979), is a theoretical perspective that emerged in Europe in the twentieth century [10]. This theory views society as a system; which is an entity comprising of interrelated parts and subparts. Thus, under the Functional theory, like a system, society is considered as comprising of parts and subparts which function interdependently.

According to Functionalists, within society like any system, there is always need for order to be constantly maintained. However, from Social Disorganization Approach of the Functionalist Theory this order, also known as equilibrium or balance can only become possible if all the parts of the society are able adjust to whatever changes that occur in any part of the society or social system [11]. For Functionalists of this school of thought, alterations or changes do take place in the society, and with other parts of the society making adjustments in line with the prevailing changes, there will be equilibrium or order. However, when other parts of society find it difficult to adjust, or rather if they have difficulty adjusting properly to alterations or changes in any part of society, chaos becomes inevitable. This chaotic condition resulting from inability of parts of society to adjust properly to changes within the society, or lack of adjustment between parts of society, following some alterations within the society, is described by Sociologists as social disorganization. Therefore, going by the Social Disorganization Approach social change is responsible for problematic conditions in society.

Fluctuation in public power supply as it affects the sustainability of micro enterprises can be understood using the Social Disorganization Approach of the Functional Theory. To gain this understanding, in line with the analysis of the Social Disorganization Approach, the public power supply agency can be viewed as consisting parts or sub parts of the larger Nigerian society. Fluctuation in public supply of electricity presents itself as the problem or imbalance in the Nigerian society that will in turn negatively impact on micro enterprises which depend very much on public power supply for sustainability. Therefore, in line with the Social Disorganization Approach, the crises in public supply of electricity manifesting as power fluctuation can be understood as emanating from the inability or failure of the public electricity supply

agency to adjust to changes in terms of increasing electricity needs of the Nigerian society. Of late both human population and micro enterprises in Nigeria have witnessed tremendous changes in terms of increase in number. Clearly, this increase has extended to their electricity needs too. However, the public electricity agencies have failed to adjust to these changes in not stepping up efforts to meet up with the increasing volume of demand for public electricity. The obvious negative effect has been the fluctuations and low supplies that have continued to characterize public electricity supply; situations which predictably would not augur well with the sustainability of MEs in the country.

### METHODOLOGY

This was carried out in the Southern Senatorial District of Cross River State, Nigeria. The area consists of seven Local Government Areas namely Akamkpa, Akpabuyo, Biase, Bakassi, Odukpani, and Calabar South Local Government Areas as well as Calabar Municipality. The total population of this area as at 2006 stands at 1,189,801 [12]. The study population consisted of operators of 2920 micro enterprises registered with the Cross River State investment promotion as at December 2013. Samples for the study comprised of 340 operators of these micro enterprises selected systematically as follows:

$$\frac{K^{\text{th}} = N}{n}$$

Where K = level of confidence – 99%  
N = confidence interval – 0.5 and  
n = sample population – 2920

Of these 340 study samples, a total of 169 (49.5%) were males while the remaining 171(50.5%) were females. To obtain data for the study, the questionnaire was utilized while in testing the hypothesis of the study using the generated data, the Z test statistical technique was adopted with formulae as follows:

$$Z = \frac{P - P_0}{\sqrt{\frac{P(1-P_0)}{N}}}$$

Where, P = sample mean  
P<sub>0</sub> = significant level  
Z = standard error and  
N = total population.

### RESULTS AND DISCUSSION

The analysis of subject's demographic variables as shown in table 2 sheds light on three striking issues. First is the sex of subjects. It emerged that 50.5% (171) of them are females, implying that MEs offers large scale employment openings for women. This goes to show that MEs can become a veritable tool for women empowerment.

Of note in Table-2 also is the age of subjects. The largest proportion of them, altogether 67.6% are 35 years and below, with the distribution as follows: below 20 years – 11.8%; 21 -25 years – 14.7%; 26 -30 years – 17.6%; 31- 35 years – 23.5%. Interestingly, individuals of this age category (15 - 35) are the social group considered as youths. The implication of the result on the age of subjects is that in this period when youth unemployment is at a record high, one sector that is open to accommodate a good number of them is the ME sector. In other words, given the enabling environment, MEs also have the capacity to take the bulk of Nigerian

youths off the streets into gainful employment and away from social vices.

Lastly, the educational qualifications of subjects show that the highest proportions (41.2% and 35.3%; altogether 76.5%) have the lowest educational attainment namely basic education and senior school certificate respectively. This means that starting or being employed in a micro enterprise does not necessarily require high educational qualification but is open to both the most educationally qualified as well as the least educated as table 2 indicates.

**Table-2: Demographic Characteristics of Subjects**

Variable	No of respondents	Percentages
<b>Sex</b>		
Male	169	49.5
Female	171	50.5
<b>Total</b>	<b>340</b>	<b>100</b>
<b>Age</b>		
below 20 years	40	11.8
21-25 years	50	14.7
26-30 years	60	17.6
31-35 years	80	23.5
36-40 years	25	7.4
41-45 years	25	7.4
46 years and above	20	5.9
<b>Total</b>	<b>340</b>	<b>100</b>
<b>Marital Status:</b>		
Single	130	38.2
Married	125	36.7
Widowed	40	11.8
Divorced	45	13.2
<b>Total</b>	<b>340</b>	<b>100</b>
<b>Educational:</b>		
FSLC	140	41.2
<b>Level</b>		
SSCE/NECO	120	35.3
NCE/ND	50	14.7
HND/B.sc	40	11.8
M.Sc/Ph.D	10	2.9
Other professional certificate	30	8.8
<b>Total</b>	<b>340</b>	<b>100</b>
<b>Religion:</b>		
Christianity	180	60
Islam	10	5
African tradition	150	35
<b>TOTAL</b>		<b>100</b>

Source: Field work, 2014

Furthermore, the analysis on the educational level of subjects reveals that their number dropped as their educational qualification increased, meaning that the ME more than any other sector is very much accommodative of those with low educational backgrounds. The fact of subjects with high educational qualification being few number, (less than 13% in total) does not come as a surprise being that most of them tend to be inclined towards seeking for employment

with government and other formal or bureaucratic institutions.

To determine the impact of Fluctuation in public supply of electricity on the sustainability of micro enterprises, it was necessary to first examine the profit margin of subjects’ businesses the analysis of which is presented in table 3.

**Table-3: Percentage Distribution of Profit Margin of Subjects’ Businesses**

Variable	No of respondent	Percentage
Profit margin		
N10,000-N50,000	250	73.5
N51,000- N100,000	50	14.7
N101,000-150,000	40`	11.8
<b>Total</b>	<b>340</b>	<b>100</b>

Source: Field work, 2014.

As the analysis in table 3 shows, the largest percentage of subjects (73.5) make less than ₦50,000 as profit per annum, while the least proportion of 11.8% earn over ₦100,000 profit per year. Thus, the higher the profit margin the fewer the number of MEs that attain this level of profit. A result such as the one displayed in table 3 suggests that micro enterprises in the Southern Senatorial District of Cross River State are operating on a profit margin that is reflective of what is shown in table 3. Sadly, for the majority of the operators of these MEs whose profit margin was found in this study to fall below ₦50,000, this amount when spread over 12 months amounts to approximately ₦4,000 per month. This is far below the current ₦18,000 per month minimum wage in Nigeria, which is even viewed as not being good enough. Even if what might be considered as expenditure of an average worker who earns this minimum wage is deducted from the amount, what will be left as 'profit' will definitely be higher than what this study found is obtainable as profit for many operators of MEs, More shocking is the fact that when this ₦50,000 is spread over the 365 days that make a year, it amounts to about ₦137 per day for the operators of these MEs. This amount is less than a dollar, implying that a significant number of operators of MEs in the Southern Senatorial District of Cross River State, like

many other Nigerians still live on less than one dollar a day.

To ascertain the link between fluctuation in public supply of electricity and the profit margin of MEs in the Southern Senatorial District of Cross River State, and subsequently establish the impact of the former on the sustainability of MEs the hypothesis of the study was tested using the Z test statistical technique.

**Test of Hypothesis**

- **H<sub>1</sub>:** Fluctuation in public supply of electricity has a significant negative impact on the profit margin of micro enterprises the Southern Senatorial District of Cross River State.
- **H<sub>0</sub>:** Fluctuation in public supply of electricity has no significant negative impact on the profit margin of micro enterprises the Southern Senatorial District of Cross River State.

**Questionnaire item for test of hypothesis**

To what extent does fluctuation in public supply of electricity negatively affect the profit margin of your business? Table 4 presents the analysis of responses to this questionnaire item.

**Table-4: Distribution of Subjects' Perception on Fluctuation in Public Supply of Electricity and Extent of Negative Effect on Profit Margin of MEs**

RESPONSES	NUMBER OF RESPONDENTS	PERCENTAGE
To a very large extent	300	88.2
To a large extent	13	3.8
To an extent	20	5.9
Undecided	7	2.1
Total	340	100%

**Computation of Z:**

$$Z = \frac{P - P_0}{\frac{P(1 - P_0)}{\sqrt{N}}}$$

Based on Table-4 above

P = 100 ÷ 340 x 300 = 88.2 or 0.882

P<sub>0</sub> = 0.5

N = 340

Therefore:

$$Z = \frac{0.882 - 0.5}{0.5(1 - 0.5)} = \frac{0.382}{0.25} \times \sqrt{340}$$

$$= \frac{0.382 \times 18.439}{0.25}$$

Z = 28

The Z test computation shows that the calculated Z value of 28 is greater than the critical value which is 1.96, thus allowing for the adoption of the alternate hypothesis and the rejection of the null. This leaves the conclusion that fluctuation in public supply of electricity has a significant negative impact on the profit margin of micro enterprises the Southern Senatorial District of Cross River State. Besides the Z test result, as many as 88.2% of subjects responded that this negative impact is to a very large. This implies that subjects consider fluctuation in public electricity supply as the major cause of the observed low profit margin of less than ₦50,000 per annum. One simple conclusion is derivable from a finding of this nature. If the prevailing business conditions in terms of power and profit margin persist, then the task of sustaining MEs in the Southern Senatorial District of Cross River State will be daunting. The main objective of every business including MEs is profit maximization. The continuous maximization of profit will both keep the business afloat and guarantee its expansion. However, where the flow of profit is obstructed by whatever conditions, then the contrary should be expected. In the case of MEs in the Southern Senatorial District of Cross River State,

there is definitely the potential for growth, expansion and sustainability, especially with the State being a major tourism hub in Nigeria presently. Nonetheless, given the prevailing public power supply condition and its observed effect on profit margin of MEs, the question of growth, expansion and sustainability for these MEs will remain a mirage.

## CONCLUSION

Nigeria is currently undergoing one of the worst recessions since its independence. Amidst this, are increasing levels of youth unemployment and high inflation rate. In the face of these challenges, economic analysts have identified micro enterprises as one of the sectors with the potential of providing the needed boost to the Nigerian economy in this time of recession. The benefits of MEs to a developing and presently ailing economy like Nigeria cannot be overemphasized. A number of micro enterprises do not often require huge capital to kick off. Consequently, in this time of recession in Nigeria when cash flow is minimal and cost of goods are at a record high, MEs constitute one business sector that individuals can easily venture into with whatever limited cash at their disposal. Moreover, as the study found, MEs are very accommodative of women and youths, thereby making the sector a veritable tool for the country to record notable progress in the area of youth employment and women empowerment. In view this strategic relevance of MEs, it becomes pertinent that the enabling environment be provided to enable them thrive. Such enabling environment can be by way of steady and reliable power supply. This study found that fluctuation in public supply of electricity has a negative effect on the profit margin of MEs. It therefore means that if public electricity supply improves, their profit margin would experience a boost, and their viability and sustainability will be guaranteed. This will in turn make the sector attractive to more people including women and youths. The overall result will be that more people will be gainfully employed, with more money in their pockets, and ultimately an improved economy.

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