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Firm Size And Firm Growth: Testing Gibrat's Law On 17 Nigeria Manufacturing Industry (2000-2011)

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Abstract:
This study examines the relationship between firm growth and firm size using a time series dataset of 17 manufacturing industries in Nigeria from year 2000 to 2011. We tested for the validity of GIBRAT's law on firms Growth and size .Our result shows that, the relationship between firm growth and size of manufacturing industries in Nigeria exits, but very sensitive with respect to the various definition of the variables employed. The growth rate is defined in terms of firms Value of production (ie Turnover), while the firms size was defined in terms of firms wages and salaries as well as firms Return on Assets. In estimating the growth rate, we controlled for other factors which directly influence the sampled firms such as capital structure, Technological innovation, strategic planning, expectations and attitude of managers. The rate of firms' entry and exit amongst manufacturing firms in Nigeria prompted this study. The OLS regression model used emanated from the neo-classical theory.

Key words: Manufacturing Industry, Firms growth and size, Gibrat's Law.

JEL CODE: M1, M2, D2, E2

INTRODUCTION

Manufacturing activities have significant impact on the economy of a nation. They account for a substantial proportion of total economic activities. In Nigeria, the sub-sector is responsible for about 10% of total GDP annually. In terms of employment generation, manufacturing activities account for about 12 per cent of the labour force in the formal sector of the nation's economy. (NBS, 2013)

Literally, manufacturing Industries could be assumed to have a great potential for economic development due to abundant labour force. However, the absorptive capacity for labour in this sector is abnormally low. This can be attributed to the high rate of exit in the industry.

The main contribution of this paper was its ability to explore the rate of growth in relation to the size of manufacturing firms in Nigeria, in order to assert the relevance of Gibrat's law of proportionate effects on Nigeria's manufacturing firms. The relationship between firm growth and size as propounded by Gibrat's law has been a major source of theoretical and empirical Research. This law asserts that the growth and size of firms are an independent factor. (Hymer & Pashigan, 1962); (SINOM & BONINI, 1958). The law emanated when Gibrat, challenged the traditional economic theory which postulates a negative relationship between firms size and firms growth rate. Gibrat assumes that large firms operate close to the optimum level and so would grow very little and might even have to shrink. But a small firm would be far below the optimum size and would work very hard to grow faster.

But however, modern empirical studies invalidates this law (DUNNE & HUGHES, 1990); (AUDRETSCH, 1995)they claim that the "bigger the firm the better". They argued that large firms have an advantage over the smaller ones this is because larger firms have the capability to engage in various businesses than the small firms. Some have argued that this is so because large firm have easier access to capital funds than small firm (BIGGS, 1996) especially in developing

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countries. Indeed, access to external sources of finance is now widely recognized as important measure of firms' ability to survive and grow over time.

A large number of empirical studies have explored Gibrat's Law in different sector of the economy. Most research was done on the manufacturing and service industry, also various parameters for measuring firms growth rate were used, with different statistical methodologies including OLS regression, quantile regression, Tobin Q ratio etc. this has result to varied statistical outcome.

Heshmati suggests from an empirical study of a large sample of manufacturing firms, the relationship between firm size and growth exits, but very sensitive with respect to the method of estimation, functional form and definition of growth and size. He emphazied that the various indicators of firm growth and different estimating techniques accounts for varies statistical results. (HESHMATI, 2001).This study examines the relationship between firm growth and firm size using a time series dataset of 17 manufacturing industries in Nigeria from 2000 to 2011. We tested for the validity of GIBRAT's law on firm growth and firm size. The growth rate is defined in terms of firms Value of production (ie Turnover), while the firms size was defined in terms of firms wages and salaries as well as Return on Assets. In estimating the growth rate, we controlled for other factors which directly influence the sampled firms such as capital structure, Technological innovation, strategic planning, expectations and attitude of managers. The rate of firms' entry and exit amongst manufacturing firms in Nigeria prompted this study. The OLS regression model used emanated from the neo-classical theory. The next chapter reviews various determinants and motives for firms growth. The third section reviews findings on Gibrat's laws from various empirical studies while the fourth sections describes the dates used in the study and thus presents a statistical frame work for testing our assumptions. The fifth section reports the estimation and test results and the sixth section discusses the result and makes some suggestions for future research in this area.

2. THE MAJOR DETERMINANTS AND MOTIVES FOR FIRMS GROWTH.

This section reviews the main theoretical propositions of firms' growth in size and their motives. Most firms seek to become bigger – increasing sales and market share. Firms can grow either by internal expansion or external expansion ie through merger or diversification into related industries. The motives for increasing in size can include: (BAUMOL, 1967)

Profit motive: The profit motive is probably the biggest motive why firms grow in size. For most businesses, it is the incentive of profit that propels owners to take risks but however, when a firm seeks to grow, there is no guarantee that it will be more profitable. This is because, in order to increase market share, you may be required to lower prices, which reduces profitability (JELILOV, ISIK, & KALYONCU, 2015).

Motivations of managers and workers: Managers and workers if well motivated at work can work assiduously to attain organizational goal. Employers who are particular about improving the work morale of its employee get the best out of them.

Economies of scale: This is a justification for many mergers, which lead to a big increase in the size of firms. For industries with high fixed costs, growing in size may be necessary to stay competitive in a global market. Economies of scale bring about greater efficiency and lower average costs. Globalization has definitely increased the speed at which large multinational companies have grown due to their global presence. However, there could be the danger of dis-economies of scale if firms get too big.

Risk diversification: This diversification enables a firm to grow by reaching into new industries.

Some documented theories in literature that explains the growth of firm's activities and performance includes: (i) the neo-classical theory; (ii) managerial theory; (iii) models with Penrose effects; (iv) theory of optimum firm size. These theories are reviewed below.

According to the neoclassical, the firm is an abstraction, an idealized form of business, whose existence is explained solely by the purely economic motive of generating profit. The neoclassical firm is thus a profit-maximizer operating in an exogenously given environment which lies beyond its

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control. This implies that, profit as a motivation for growth is determined by external factors beyond the control of firm's capability. However, the classification of the neo-classicals rose a lot of debates in the early 30's which led to the emergence of the managerial theory of the firm.

The managerial theory emphasized the complex nature of the modern corporate firm. According to (BAUMOL, 1967) managers are hiredare for sales or revenue maximization rather than profit maximization.

Another model of firm growth is rooted in Penrose argument, of the possibility of managerial limits to firm growth. The argument is a postulation that management is a team effort in which individuals deploy specialized, functional skills as well as highly team specific skills, which enable them to collectively co-ordinate the many activities of the firm in coherent manner (JELILOV, Gylych; WAKDOK, Samuel, 2016).

One can rightly say, that the various motives and determinant of a firm growth and size it the reasons for various parameters and statistical methods used in estimating firms' growth, this depends largely on the researcher. For this study, the growth rate is defined in terms of firms Value of production (ie Turnover), while the firms size was defined in terms of firms wages and salaries as well as Return on Assets. The regression model used emanated from the neo-classical.

3. EMPIRICAL STUDIES ON GIBRAT's LAW

Several empirical investigation have sought to determine whether GIBRAT's law holds, that is whether firm growth rates are independent of firm size. These studies differ considerably based on the methods of estimation used and the parameters for measuring growth. While earlier studies tended to confirm the Law, more recent research generally rejects it .It was found that in most of the manufacturing sector, Gibrat's Law was invalid but for the service sector, Gibrat's law was valid. Additionally, only a few empirical studies have investigated Gibrat's law in developing countries; while most of the studies have been conducted in developed countries. (NASSAR, ALMISAFIRR, & Al-MAHROUQ, 2014).A study of recent research in the developed countries like US, UK and Germany indicates that Gibrat's law is *not* valid. For instance investigating the link between firm size and growth by analyzing multinational enterprises across 15 OECD countries(Austria, Belgium, Switzerland, Germany, Spain, Finland, France, United Kingdom, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Sweden). Using a summary statistics for the median average annual change in the multinational corporation's employment, and turnover between 2000 and 2004 for a data set of about 20000 firms, Falk found that firm size had a significant negative impact on firm growth. This means that Gibrat's Law cannot hold. (FALK, 2008)

Also, from a large sample of 1000 manufacturing firms in the US, Hymer asserts that, Average growth rates are not related to firm size, rather, standard deviation of growth rate inversely relates to firm size that is Gibrat's law does not hold (HYMER & PASHIGAN, 1962).

Mukhopadhyay & Amirkhalkhali applied the dynamic model analysis of panel data on a sample of the 500 largest industrial firms in the USA for the period of 2000 -2007. The empirical results emanating from their study was mixed, with the dominant result that in many cases, larger firms grow faster, violating Gibrat's law. (MUKHOPADHYAY & AMIRKHALKHALI, 2010). Other empirical studies however indicate an inverse growth-size relationship. (EVANS, 1987), (BOURLAKIS, 1990)etc

Others empirical studies like Mansfield and Hall found out that smaller firms have a large variance of growth than large firms and are more likely than the large ones to leave the industry. (MANSFIELD, 1962), (HALLl, 1987). Despite the numerous empirical studies invalidating the Gibrat's law, a number of other works affirms the law. Also others accepted it for the part of the period examined and rejected for the rest of the study period. Similarly, a few studies accepted the law in a given sector, while simultaneously rejecting it in others sectors (CARRIZOSA, 2007).

Using quintile regressions analysis, Gibrat's law was tested amongst 39 listed Portuguese companies, for the period of 1998-2004. Using the asset logarithm as a measure of size and the difference in logarithms as the growth measure of the companies, it was discovered that, growth of listed

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Portuguese companies was independent of their size. That is validating Gibrat's Law (LEITAO, SERRASQUEIRO, & NUNES, 2010) Also the relationship between firm size, age, and growth is tested for the U.S. property and liability (P-L) insurance industry, by using Heckman's two-stage methodology, the results of this article strongly support Gibrat's Law in the U.S. P-L insurance market for the testing periods and the results were consistent for longer time periods and for shorter sub-periods. The result also found out that young firms grow faster than old firms during the sample periods. (CHOI, 2010). For the services industry in Dutch, an empirical study was carried on a large sample of nearly 60 Dutch firms in the hospitality industries, the evidence suggests that in most cases, growth rates are independent of firm size. That is Validating *Gibrat's Law* in the sub-sectors. (AUDRETSCH, KLOMP .L, SANTARELLI .E, THURIK A.R, 2004) . Also, an empirical study comprising of 5818 domestic and international restaurants in the United State form 1995 to 2006, examined the relationship between firm's size and growth rate. The result of the research was partly in favour and against Gibrat's law. That is, the study found that Gibrat's Law did hold, for the small scaled international restaurant firm, and invariably did not hold for large scaled international restaurants (PARK & SYDNOR, 2011). Also in Turkey, using a panel data set of 103 firms from 1985 to 2004, Aslan tested Gibrat's Law by using the panel unit root method .The result of the cross sectional correlation rejected Gibrat's Law for seven industries namely; cement, plastic, pipe, textile, automobile, medical, chemical and steel iron industry but however, the result could not reject Gibrat's law in other industries including food, electrical machinery, electronics and transportation industry. (ASLAN, 2008)

Some selected empirical studies also holds that firms size and growth are unrelated but there is evidence of "persistence of chance" (SINGH & WHITTINGTON, 1975) , (CHESTER, 1979). From a comprehensive set of establishment level data from lower Saxony state in Germany, a set of 7000 manufacturing firms was tested for the validity of GIBRAT's law and the finding were

> *'That GIBRAT's law is only valid for very few groups of firms in some of the periods covered in the study. However we did not find that small firms grow faster or slower compared with large firms or vice versa. What we did find is persistence of chance, in the senses that a firm grows faster if it happens to grow faster in the past too.'* (WAGNER, 1992)

The overall impression, however is that GIBRAT's law is *not* valid. Nevertheless, comparing the results is not a very staright-forward task.

Thus, the precise form of the relationship for manufacturing firms becomes important, considering the numerous method of estimations available, and theories invalidation the Gibrat's Law. The aim of this study is to contribute to the literature on the nexus of firm size and firm growth, by using a time series dataset of 17 manufacturing industries in Nigeria. The growth rate is defined in terms of firms Value of production (ie Turnover), while the firms size was defined in terms of firms wages and salaries as well as Return on Assets.

4. Data and Descriptive Statistics

Data source: The empirical investigation looks at the gross total product of 17 manufacturing Industires in Nigeria. Data were collected from the official yearly survey of manufacturing firms. Usually, these firms are expected to fill and submit their survey forms to the office of the Bureau of Statistics. The boundary line for the number of employees is at least 20 employees; though the boundary line can be lower in some industry. The size of a firm was based on wages and salaries of workers in the industry, and also the rated Return on Assets of the firms in the various industries. The firms' growth is measured in terms of value of production/Annual turnover.

Also worthy of note is the fact that Entries and exist must not represent only new firms or firms that closed down permanently but firms whose falls below the boundary lines were excluded in the relevant year. Provided that the information given by the firms are correct, the data in the

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official report gives a true and reliable situation of all the manufacturing firms in Nigeria.

Data Collection Method

Quantitative data collection method was employed in this research. All the data used emanated from the yearly official survey report from the office of the Bureau of Statistics.

Data measurement and Analysis

Following the method developed in chesher's (1979), we therefore modified it as below and tested for the validity of Gibrat's law by specifying thus:

$$lpvalue_t = \alpha + \beta_1 lwage_t + \beta_2 ROA_t + \epsilon_t$$

……(1)

Where; *lpvalue* represents the log of value of the production of the firms studied within the period under review. *lwage* equally represents the values of wages and salary a proxy of firm size alongside the return the return on Assets *(ROA)* equally a proxy of firm size (AL-Faky; 2000). Expectedly, ϵ_t represents the usual random error fulfilling the classical assumption of the stochastic variables not captured in the specified model above.

In order to avoid bias, we controlled for other factors which directly influence the sampled firms growth and size such as capital structure, Technological innovation, strategic planning, expectations and attitude of managers.

The 17. Manufacturing Industries included in the study were,

1. Manufacture of food Products and Beverages
2. Manufacture of textiles
3. Manufacturing of wearing Apparel, Dressing of Fur.
4. Tanning and Dressing of Leather, and Manufacturers of Lauggage, Handbags, Saddlery, Harness and Footwears.
5. Manufacture of wood and of products of wood and cork, Except Furniture, Manufacture of Articles of straw and Plaiting Materials.
6. Manufacture of paper and paper products
7. Publishing, Printing and Reproduction of recorded material
8. Manufacture of Coke, Refined Petroleum products and Nuclear Fuel.
9. Manufacturing of chemicals and chemical products.
10. Manufacture of Rubber and Plastics Products
11. Manufacture of other Non-metallic Mineral
12. Manufacture of Fabricated Metal Products, Except Machinery and Equipment
13. Manufacture of electrical Machinery and Apparatus N. E. C
14. Manufacture of Radio, Television and Communication Equipment and Apparatus.
15. Manufacture of Motor Vehicle, trailers and Semi-Trailers
16. Manufacture of other transport Equipment
17. Furniture, Manufacturing N. E. C

TEST RESULTS AND ANALYSIS

Figure 1 TEST FOR NORMAL DISTRIBUTION RESULT

	LPROVALUE	LWAGE	PROVALUE	ROA	WAGE
Mean	28.91712	26.16362	4.87E+12	2.802158	3.01E+11
Median	29.43656	25.99746	6.08E+12	2.175950	1.95E+11
Maximum	29.46020	27.98791	6.23E+12	5.026100	1.43E+12
Minimum	25.67039	25.74807	1.41E+11	1.186500	1.52E+11
Std. Dev.	1.127447	0.601238	2.23E+12	1.457971	3.57E+11

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Skewness	-2.231885	2.589394	-1.269530	0.431088	2.950230
Kurtosis	6.892083	8.460228	2.809337	1.575400	9.844425
Jarque-Bera	17.53678	28.31696	3.241588	1.386416	40.83079
Probability	0.000156	0.000001	0.197742	0.499970	0.000000
Sum	347.0054	313.9634	5.84E+13	33.62590	3.61E+12
Sum Sq. Dev.	13.98250	3.976364	5.48E+25	23.38247	1.40E+24
Observations	12	12	12	12	12

The above shows that the variables used in the analysis are largely normally distributed around its zero mean and constant variance. In other words, it is easier to observe their means and variances as the sample size increases.

Figure 2 Correlogram results of the variables

Date: 11/01/16 Time: 22:26
Sample: 2000 2011
Included observations: 12

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
. *| . |	. *| . |	1	-0.092	-0.092	0.1292	0.719
. |* . |	. |* . |	2	0.157	0.150	0.5451	0.761
. |* . |	. |* . |	3	0.132	0.163	0.8684	0.833
. *| . |	. *| . |	4	-0.078	-0.079	0.9950	0.911
. *| . |	. *| . |	5	-0.097	-0.169	1.2211	0.943
. *| . |	. *| . |	6	-0.116	-0.149	1.6006	0.953
. *| . |	. *| . |	7	-0.136	-0.103	2.2183	0.947
. *| . |	. *| . |	8	-0.156	-0.115	3.2374	0.919
. | . |	. | . |	9	-0.035	-0.006	3.3054	0.951
. | . |	. | . |	10	-0.053	-0.008	3.5420	0.966
. | . |	. | . |	11	-0.027	-0.037	3.6606	0.979

Date: 11/01/16 Time: 22:27
Sample: 2000 2011
Included observations: 12
Correlations are asymptotically consistent approximations

LPROVALUE,LWAGE(-i)	LPROVALUE,LWAGE(+i)	i	lag	lead
********| . |	********| . |	0	-0.7880	-0.7880
. |* . |	. *| . |	1	0.1241	-0.0685
. **| . |	. |** . |	2	-0.2269	0.2279
. *| . |	. |** . |	3	-0.1456	0.2441
. | . |	. | . |	4	0.0394	0.0454
. |* . |	. |* . |	5	0.0588	0.0580
. |* . |	. |* . |	6	0.0692	0.0701
. |* . |	. |* . |	7	0.0812	0.0798
. |* . |	. |* . |	8	0.0930	0.0917
. | . |	. | . |	9	0.0208	-0.0357
. | . |	. *| . |	10	0.0317	-0.0572

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Figure 3 Aggregated Unit root test result:

Group unit root test: Summary
Series: LPROVALUE, LWAGE, PROVALUE, ROA, WAGE
Date: 11/01/16 Time: 22:28
Sample: 2000 2011
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.09688	0.0000	5	54
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.66264	0.0482	5	54
ADF - Fisher Chi-square	19.0565	0.0396	5	54
PP - Fisher Chi-square	21.4885	0.0179	5	55

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Note: for both figures 2 and 3 above, it indicated that we do not reject the null hypothesis that the variables are stationary at level. As a result, they exhibited a random walk meaning that there are highly likely asymptote estimators consistently unbiased and efficient.

Figure 4; the estimated result

Dependent Variable: LPROVALUE
Method: Least Squares
Date: 11/01/16 Time: 22:32
Sample: 2000 2011
Included observations: 12
LPROVALUE=C(1)+C(2)*LWAGE+C(3)*ROA

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	76.90369	11.28878	6.812400	0.0001
C(2)	-1.861556	0.443213	-4.200139	0.0023
C(3)	0.256402	0.182772	1.402852	0.1942

R-squared	0.688932	Mean dependent var	28.91712
Adjusted R-squared	0.619806	S.D. dependent var	1.127447
S.E. of regression	0.695182	Akaike info criterion	2.323033
Sum squared resid	4.349506	Schwarz criterion	2.444259
Log likelihood	-10.93820	Hannan-Quinn criter.	2.278150
F-statistic	9.966298	Durbin-Watson stat	0.967729
Prob(F-statistic)	0.005222		

rom the result above, it shows that the estimated model explains about 62% of variations on the regress and (dependent variable). Similarly, we found that size of a firm proxy by wage/salary does significantly impact on firms'

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growth (production values). The result shows that unit change in the naira value of the wages and salaries of the firms would bring about 1.8616 average declines on the growth of the firms. Therefore, given that from the result above, firms' growth which exhibited inverse relationship to its sizes indicates that majority of the firms studied are seemingly large. As such consistent with the Gibrat theory which states that the growth rates of firms are independent of its size. Put differently, it means that larger firms grow slowly against its size as against smaller firms that grow rapidly viz a-viz its size. However, return on assets was found statistically not significant within the period. This also implies that return on assets; though not statistically significant but have the potential of contributing to growth of the firm by 0.256 average changes holding other factors constant.

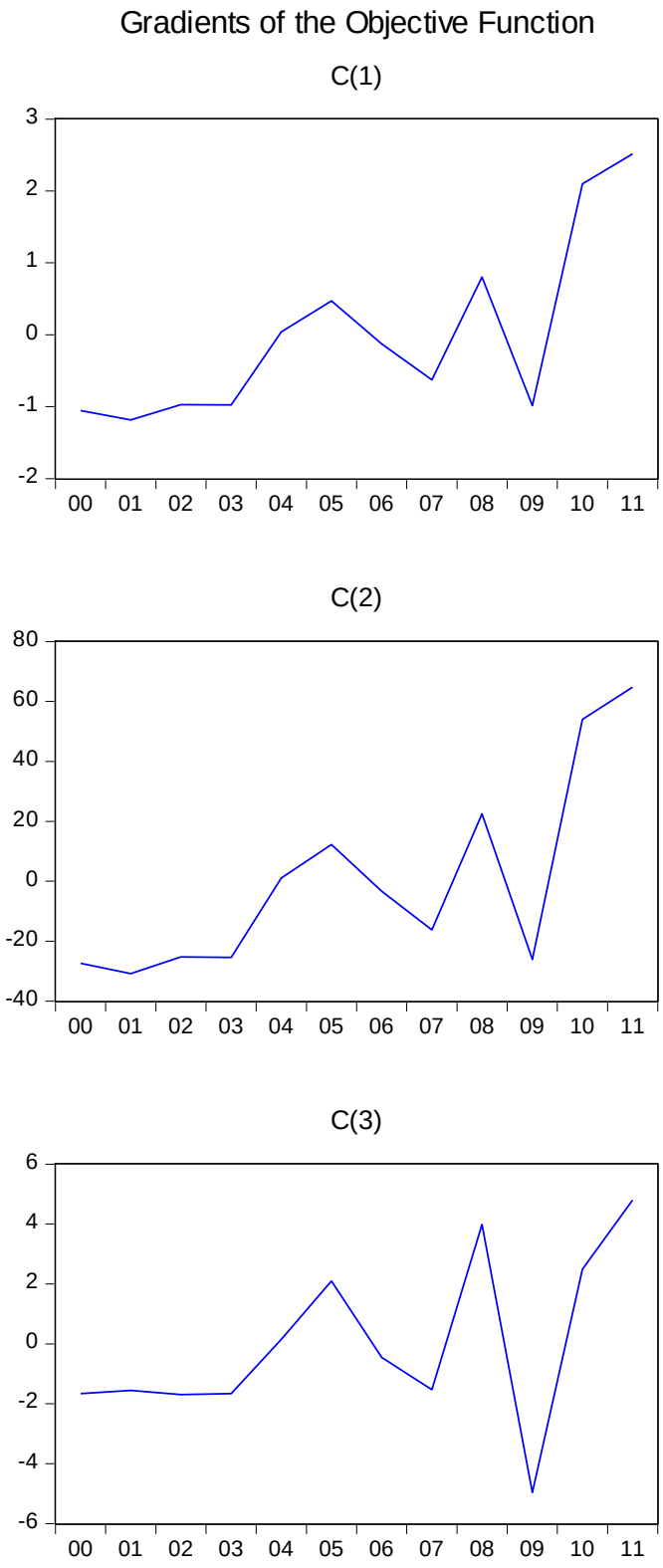

Figure 5 WALD coefficient test result:

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	9.966298	(2, 9)	0.0052
Chi-square	19.93260	2	0.0000

Null Hypothesis: C(2)=C(3)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(2)	-1.861556	0.443213
C(3)	0.256402	0.182772

Restrictions are linear in coefficients.

The WALD result shows that the variables are capable of independently impacting on the regress or put differently, their impacts are relatively distributed on the regress.

Figure 6 ACF of the residual of the estimated result:

Date: 11/01/16 Time: 22:37
Sample: 2000 2011
Included observations: 12

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob

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. |** . |	. |** . |	1	0.302	0.302	1.3962	0.237
. | . |	. | . |	2	0.063	-0.031	1.4635	0.481
. |* . |	. |* . |	3	0.106	0.105	1.6719	0.643
. *| . |	. **| . |	4	-0.123	-0.205	1.9902	0.738
. | . |	. |* . |	5	0.006	0.124	1.9911	0.850
. |* . |	. |* . |	6	0.134	0.093	2.4937	0.869
. *| . |	. *| . |	7	-0.074	-0.130	2.6766	0.913
. **| . |	. **| . |	8	-0.240	-0.255	5.0933	0.748
. **| . |	. *| . |	9	-0.224	-0.110	7.8956	0.545
. **| . |	. *| . |	10	-0.299	-0.162	15.381	0.119
. *| . |	. | . |	11	-0.152	-0.001	19.281	0.056

Figure 7 SUMMARIES OF DATA USED FOR THE ANALYSIS OF THE STUDY:

obs	LPROVALUE	LWAGE	PROVALUE	ROA	WAGE
2000	29.43776	25.99820	6.09E+12	1.577000	1.95E+11
2001	29.43816	25.99672	6.09E+12	1.310100	1.95E+11
2002	29.43736	25.99969	6.09E+12	1.746300	1.96E+11
2003	29.43896	25.99374	6.10E+12	1.698500	1.95E+11
2004	29.43576	26.00559	6.08E+12	3.756000	1.97E+11
2005	29.44215	25.98175	6.12E+12	4.448900	1.92E+11
2006	29.42933	26.02888	6.04E+12	3.572200	2.01E+11
2007	29.46020	25.99073	6.23E+12	2.444000	1.94E+11
2008	25.67039	27.98791	1.41E+11	4.952400	1.43E+12
2009	29.40585	26.47250	5.90E+12	5.026100	3.14E+11
2010	28.20596	25.75964	1.78E+12	1.186500	1.54E+11
2011	28.20356	25.74807	1.77E+12	1.907900	1.52E+11

FIGURE 8 PAIRWISE GRANGER CAUSALITY TESTS

	LPROVALUE	LWAGE	ROA
LPROVALUE	1.165208	-0.489631	-0.424048
LWAGE	-0.489631	0.331364	0.496175
ROA	-0.424048	0.496175	1.948539

Pairwise Granger Causality Tests
Date: 15/01/16 Time: 15:02
Sample: 2000 2011
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LWAGE does not Granger Cause LPROVALUE	10	22667.4	1.E-10
LPROVALUE does not Granger Cause LWAGE		1481.37	1.E-07
ROA does not Granger Cause LPROVALUE	10	0.66894	0.5528
LPROVALUE does not Granger Cause ROA		1.81057	0.2562
ROA does not Granger Cause LWAGE	10	0.11193	0.8963
LWAGE does not Granger Cause ROA		1.79412	0.2586

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6. SUMMARY AND CONCLUSION.

From the analysis of the study above, we can conclude that there exist a relationship between the size of a firm and its growth, however, this relationship depends largely on the variables been studied. Wages and salaries a proxy for firm size, is a key determinant of the firm growth in Nigeria's Manufacturing Industries. This is evidenced by the results in figure 4 above, which shows that there is a significant but inverse relationship. That is a percentage change in wages/salary would result in 1.86 percent decline in growth of the firm holding other variables constant. Also, figure 8 shows the pairwise granger Casuality Test, establishing an independent relationship between the dependent variable proxy by Production value and the Independent Variable proxy by wages and salaries. This implies that Gibrat's law does hold for this analysis.

On the other hand, Using Return on Asset, as proxy for firm size, we found a positive but insignificant relation among the variables. Therefore we concluded that though not statistically significant but have the potential of contributing to growth of the firm by 0.256 average changes holding other factors constant. Also, figure 8 shows the pairwise granger Casuality Test, establishing a dependent relationship between the dependent variable proxy by Production value and the Independent Variable proxy by Return on Asset. This implies that Gibrat's law does not hold for this analysis.

In summary, the study has shown that, the relationship between firm size and growth exits, but very sensitive with respect to the various definition of the variables employed .

However, further and extensive research could be carried out using other relevant variables as proxy for firms growth and firm size. Also this research could be extended to other sectors in Nigeria such as Agricultural sector, Real estate sector, Hospitality Sector and so on.

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