PETROLEUM PROFIT TAX AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT: *The fundamental objective of this study was to investigate the relationship between Petroleum Profits tax and economic growth in Nigeria, against the backdrop of the monumental losses from tax evasion and avoidance in the petroleum upstream sector. The study spanned a period of 32 years from 1980 to 2011. Annual time series taxation and macroeconomic data were collected from the Federal Inland Revenue Service, Central Bank of Nigeria Statistical Bulletin and Federal Office of Statistics. A combination of co-integration and error correction estimation techniques were employed in the study. In addition, we ran a couple of diagnostic tests to check the adequacy of the specified model. As expected, Petroleum Profits tax was found to have a statistically significant positive relationship with real GDP growth rate having reported a positive coefficient of (4.64) and a robust t-value of (2.30). Total direct tax, with a positive coefficient of (4.19), and a t-value of (2.48), was also found to have positive impact on economic growth in Nigeria. Openness was found to have a negative and insignificant impact on economic growth having reported a negative coefficient of (-0.01), and t-value of (-0.15). Against the backdrop of the findings, we recommended that all companies in the petroleum upstream sector should be listed in the Nigeria Stock Exchange for transparency of transactions and accountability which would eventually translate rate increased revenue*

KEYWORDS: Petroleum profits tax, Openness, Total direct tax, Co-integration, Economic growth, Resource rent rate, Stationarity.

INTRODUCTION

The Nigerian oil industry is regulated by the Petroleum Profits Tax Act. The Act provides for the imposition of Petroleum profits tax on the chargeable profits of companies involved in the upstream activities of exploration, drilling, extraction and transportation of crude oil. From inception in 1959, the Act has undergone series of amendments culminating in the Petroleum Profits tax (Amendment) Act of 2007. Currently, a Bill - Petroleum Industry Bill is before the National Assembly, and if passed into law, it will replace the 2007 Act. The Petroleum Industry Bill is an attempt by the current administration to undertake a sweeping reform to improve on the general efficiency of the Nigerian oil sector.

Petroleum Profits tax is chargeable at the rate of 67.5% for the first five years of taxable operation and 85% thereafter. The Petroleum Profits tax rate was as low as 18.9% in 1970 after which it rose astronomically to 80.7% between 1971 and 1974. The rate was 82.3% from 1975 to 1989 and it peaked at 85% in 1990 till date. Nigeria appears to have the highest Petroleum Profits tax rate. The defense for this high rate is the need to capture the resource rent tax from the operations of the oil companies. Some other countries charge resource rent

tax separately thereby reducing the Petroleum Profits tax rate. For example, South Africa charge 30% Petroleum Profits tax and 40% resource rent tax. Uganda has Petroleum Profits tax rate of 30% and resource rent tax of 0-80%; Malaysia has Petroleum Profits tax rate of 38% and resource rent tax rate of 70%. South Africa, Ghana, Uganda, Tanzania and Zambia appears to be the only African oil producing nations with resource rent rate (Sunley, Baunsgaard & Simard, 2002). Resource rent tax is proposed in the current Nigerian Petroleum Industry Bill.

The empirical literature on Petroleum Profits tax and economic growth documented mixed relationship between real GDP growth rate (a proxy for economic growth) and Petroleum Profits tax and other explanatory variables. While some studies (Jibrin, Ejura & Ifurueze, 2012; Ilaboya, 2012; and Ogbonna & Ebimobowei, 2012) reported a positive and significant relationship, others (Iyoha & Oriakhi, 2010 and Omojumite & Iboma, 2012) found an insignificant relationship between Petroleum Profits tax and economic growth. This study was designed to resolve this inconsistency.

This current study was motivated by two congenial developments: First to resolve the inconsistency in the few empirical literature on Petroleum Profits tax and economic growth and secondly, the paucity of empiric on the growth implications of Petroleum Profits tax in developing oil rich nations with emphasis on Nigeria.

Our research contributed to the growing empirical literature on the relationship between Petroleum Profits tax and economic growth in Nigeria in several ways. First, we provided a comprehensive model which captured the tax variables and other explanatory variables that affects growth. Prior works have focused on the relationship between gross domestic product and Petroleum Profits tax only without recourse to explanatory variables that may affect growth (Ogbonna & Ebimobowei, 2012; Iyoha & Oriakhi, 2010). Secondly, instead of the usual GDP in levels, we utilised growth rate in real GDP and the ratio of the respective tax variables (petroleum profits tax, company income tax, personal income tax and education tax) to total direct taxes.

Statement of Research Problem

According to the World Bank Doing Business Report (2011), Nigeria ranks 134 out of the 183 countries pooled on the ease of paying taxes index. Nigeria was below South Africa at No. 34 and Ghana at 78. This poor ranking is justified by the massive tax evasion and avoidance, perpetrated by both the Multinational oil corporations and the local oil firms in the Nigerian upstream sector. The level of evasion and avoidance is both monumental and overwhelming. Monumental, based on the amount of money involved and overwhelming due to the endemic nature of the problems to the extent that Omoigui-Okauru (2012) opined thus:

You cannot completely deal with tax evasion and avoidance; it is not a Nigerian problem alone. Tax evasion is just the same way you have crime, you can't say that no matter how good an environment is, there would be no crime. It is a natural part of what we have to address.

While the above assertion is worrisome, it calls to question the efficacy of the different regulatory agencies in the Nigerian petroleum industry. The twin problems of tax avoidance and evasion has gone unabated for a long time in the upstream sector that it has become imperative to test the effect of the revenue loss on the contribution of Petroleum Profits tax

on economic growth in Nigeria.. The loss of revenue arising from tax evasion and avoidance in the upstream sector has attracted global attention, for instance, Abiodun (2011) reported thus:

A United Nations Development Program (UNDP) report from Global Financial Integrity revealed that a huge sum of $6.5 trillion, was removed from developing countries (including Nigeria) between 2000 and 2009….the report revealed that bribery,…and tax evasion were the greatest conduit.

In the same vein, Premium Times, (2012) reported that:

In 2009, the Ogun State born businessman was indicted by Nigerian tax authorities. The Federal Inland Revenue Service sealed the Lagos offices of Conoil and Continental oil and gas…, over the non remittance of $610 million tax to government.

It was also widely reported that Halliburton Company owed up to $5 million tax in Nigeria and paid out $2.4 million to an entity owed by a Nigerian to secure favourable tax treatment.

Against the backdrop of the unending twin problems of tax evasion and avoidance in the petroleum industry in Nigeria, the fundamental question this study sought to address was: what is the relationship between Petroleum Profits tax and economic growth in Nigeria?

Research Objectives

The broad objective of this study was to investigate the relationship between Petroleum Profits tax and economic growth in Nigeria. The specific objectives of the study were to:

1. determine the relationship between company income tax and economic growth in Nigeria;

2. examine the relationship between personal income tax and economic growth in Nigeria; and

3. ascertain the relationship between real GDP growth rate and the explanatory variables of secondary school enrolment, investment income ratio and openness.

The plan of the paper was as follows: Following the introduction is section II which focused on review of empirical literature on the relationship between Petroleum Profits tax and economic growth. The estimation strategy and data set were presented in section III. Estimation results were presented and analysed in section IV. Section V addressed the summary and conclusion.

LITERATURE REVIEW

The literature on the growth implications of Petroleum Profits tax is surprisingly scarce given that petroleum accounts for the highest percentage of government revenue in oil producing countries of the world. While there is robust empirical literature on oil-led development, few researchers have addressed the relationship between Petroleum Profits tax and economic growth.

Ogbonna and Ebimobowei (2012), using macroeconomic data from 1970 to 2010 in Nigeria, investigated the effect of Petroleum Profits tax on economic growth. The study adopted the Johansen co-integration approach and the Granger causality tests to estimate the data for the study. The study found a statically significant long-run relationship between Petroleum Profits tax and economic growth in Nigeria. Specifically, the study concluded that Petroleum Profits tax was one of the most important direct taxes in Nigeria. In a similar study, Ilaboya, (2012), examined tax composition and economic growth in Nigeria within the endogenous growth framework, using time series data from 1980 to 2011. The study adopted co-integration and error correction mechanism in addressing the direction of the relationship. The study found a statistically significant relationship between Petroleum Profits tax and economic growth. Specifically, the subcomponents of Petroleum Profits tax reported a robust coefficient of (1.5495) and a positive t-value of (7.6586) at the 1% level of significance.

Omojumite and Iboma, (2012) examined the productivity of the Nigerian tax system between 1970 and 2010. They formulated ten models (including a model which tested the relationship between Petroleum Profits tax and economic growth) for the study and used Ordinary Least Square method to estimate the data. To be able to capture changes in the Nigerian macroeconomic environment, the data set was disaggregated into three periods. The result of the analysis revealed that overall, the elasticity of all the tax system including the Petroleum Profits tax were less than one even though they displayed positive elasticity coefficients. In summary, the result revealed that the Nigerian tax system is less productive irrespective of the level of data aggregation.

Jibrin, Ejura and Ifurueze, (2012) analysed the impact of Petroleum Profits tax on economic development in Nigeria using time series data from 2000 to 2010. Simple regression was used to estimate the time series data. Among other results, the study found a statistically significant relationship between Petroleum Profits tax and economic growth in Nigeria.

Iyoha and Oriakhi, (2010) examined revenue generation enhancement strategies with emphasis on the government institutional development. Among others, they tested the relationship between Petroleum Profits tax and economic growth in Nigeria. The study covered the period from 1991 to 2006. The Ordinary Least Square estimation technique was employed. Surprisingly, the study found an insignificant impact of Petroleum Profits tax on Gross Domestic Product having reported a buoyancy coefficient of (1.1). According to them, the poor performance of the variable may be as a result of youth restiveness in the Niger-Delta region of Nigeria.

Oremade, (2010) examined the perception of Petroleum Profits tax compliance in Nigeria with the oil companies as a focal point. The study adopted a combination of qualitative and quantitative methods. Personal interview was adopted in the data collection. The results of the analysis revealed that there was lack of adequate data base on the Petroleum Profits tax revenue collection from the oil companies. It was also discovered that there was overwhelming influence of the oil producing companies in the administration of the Act imposing Petroleum Profits tax.

METHODOLOGY

Model Specification

Empirical literature on the growth implications of Petroleum Profits tax is relatively scanty. Few studies have considered this relationship using linear models. Ogbonna and Ebimobowei (2012) used the model:

$$\Delta GDP_t = \alpha + \beta \Delta PPT + \beta_2 U_{t-1} + \varepsilon_t \qquad \text{(i)}$$

Where GDP = Gross domestic product

      PPT = Petroleum profits tax

      α = Intercept

      ε = Error term

      β = Unknown coefficients

To study the impact of Petroleum Profits tax on economic growth and development in Nigeria, Jibrin *et al* (2012) specified a similar model as:

$$GDP = \beta_0 + \beta_1 PPT + U_t \qquad \text{(ii)}$$

Where GDP = Gross domestic product at current basic prices

      PPT = Petroleum Profits tax

      β_0 = Constants of equation i

      β_1 = Coefficient of Petroleum Profits tax.

      U_t = Error term

In addressing fiscal deficit and productivity of Nigerian taxes, Omojumite and Iboma (2012) specified their model in log form as:

$$LogPPT = d_0 + d_1 LogGDP \qquad \text{(iii)}$$

In the same vein, Iyoha and Oriakhi, (2010) examined the revenue generation enhancement strategies with emphasis on institutional development using Nigeria Federal government as a reference point. To address the responsiveness of Gross Domestic Product (GDP), they specified the model

$$Log(T_k) = \alpha_i + \beta_i Log(GDP_r) + U_t \qquad \text{(iv)}$$

With respect to the responsiveness of Petroleum Profits tax to GDP, the functional form of the model was:

$$Log(PPT) = Log_\alpha + bi \log(GDP) + \omega_t \qquad (v)$$

Where PPT = Petroleum Profits tax

bi = Coefficient of buoyancy

α = Constant term

ω_t = Stochastic disturbance term

Our study employed real GDP growth rate as a proxy for economic growth. The specified model is:

$$GDPGR = \beta_0 + \beta_1 PPT + \beta_2 CIT + \beta_3 EDT + \beta_4 PIT + \beta_5 \frac{I}{Y} + \beta_6 SEC + \varepsilon \qquad (vi)$$

Where GDPGR = Real GDP growth rate

β_0 = Intercept

PPT = Ratio of Petroleum Profits tax to total direct tax

CIT = Ratio of Company income tax to total direct tax

PIT = Ratio of Personal income tax to total direct tax

EDT = Ratio of education tax to total direct tax

I/Y = Investment income ratio (a proxy for capital stock)

SEC = Secondary school enrolment (a proxy for human capital).

ε = Error term

$\beta_1,...\beta_6$ = Unknown coefficients of the tax and other explanatory variables.

Data and Data Source

The study utilised annual times series data sourced from the Central Bank of Nigeria Statistical Bulletin, Economic and Financial Review, Federal Inland Revenue Service and World Bank database. The study period was from 1980 to 2011. This is considered long enough to cancel the effect of cyclical fluctuation of tax and economic growth variables.

Estimation Technique

The study adopted a combination of co-integration and error correction mechanism in the data estimation. Several diagnostic tests were performed to check the adequacy of the specified model. The Durbin-Watson static was used to test the presence or otherwise of serial correlation (i.e. whether errors associated with a given period are carried forward to

other periods). Though serial correlation may not affect or bias the consistency of the Ordinary Least Square but it can vitiate the efficiency. The Augmented Dickey-Fuller (ADF) test was employed in testing the stationarity or otherwise of the time series variables. Without stationarity, when trending two variables over time, regressing one on the other may disclose a robust coefficient of determination even when the variables are unrelated. To test for normal distribution in the time series variables, we adopted the Jarque-Bera test of normality. We also carried out the regression specification error test using the Ramsey (1969) test. The Ramsey RESET test of functional mis-specification was intended to reveal evidence of non-linearity.

ESTIMATION RESULTS AND DISCUSSION

The results of the estimation of the variables of interest are presented in this section.

Diagnostic Tests

Table 1: Granger Causality

Null Hypothesis	Obs.	F-Statistic	Prob.
GDPGR does not Granger cause PPT	30	0.54744	0.5852
PPT does not Granger cause GDPGR		.34651	0.7105
GDPGR does not Granger cause CIT	30	0.74554	0.4847
CIT does not Granger cause GDPGR		0.49118	0.6177
GDPGR does not Granger cause PIT	30	1.00666	0.3798
PIT does not Granger cause GDPGR		1.04346	0.3671
SEC does not Granger cause GDPGR	30	0.08634	0.9176
GDPGR does not Granger cause SEC		0.19454	0.8244
I/Y does not Granger cause GDPGR	30	0.01567	0.9845
GDPGR does not Granger cause I/Y		0.99463	0.384
OPN does not Granger cause GDPGR	30	0.36699	0.6965
GDPGR does not Granger cause OPN		1.78886	0.1879

Source: Researchers computation 2013

Granger causality test was carried out to test the predictive value of the time series data. From Table 1, it was discovered that bi-directional relationship exists among the variables. The functional inspection test was carried out to check the problem of non-linearity. The result displayed in appendix (1) revealed F-statistic of (2.75) with a probability value of (0.14). This is significant. Therefore, the hypothesis of non-linearity was rejected meaning the model was

not mis-specified. The Breusch-Godfrey Serial Correlation LM test reported an F-statistic of (0.585) and obs* R-square value of (3.22) which revealed the absence of auto correlation (see appendix 2). This was further strengthened by a Durbin-Watson statistic of (2.23) which is not too different from (2.00) and signifies the absence of serial correlation in the model. Finally, the null hypothesis of homoskedastic error term was accepted in the white noise test having rejected the alternative of the presence of heteroskedastic error term. As presented in appendix (3), the f-statistic and obs* R-square values were (0.51) and (6.71) with probability values of (0.83) and (0.66) respectively.

Table 2: Result of ADF Unit Root Test

VARIABLES	LEVELS		FIRST DIFFERENCE		ORDER OF INTEGRATION	REMARK
	ADF Stat.	Critical values at 5% level	ADF Stat.	Critical Value at 95% level		
GDPGR	-4.24	-3.56	-10.99	-3.57	1(1)	Stationary
PPT	-3.05	-3.56	-5.58	-3.59	1(1)	Stationary
PIT	-2.55	-3.56	-6.22	-3.60	1(1)	Stationary
CIT	-3.05	-3.56	-6.52	-3.58	1(1)	Stationary
EDT	-3.38	-3.71	-8.95	-3.76	1(1)	Stationary
SEC	-2.94	-3.56	-10.23	-3.57	1(1)	Stationary
OPN	-3.91	-3.56	-5.78	-3.60	1(1)	Stationary
1/Y	-5.22	-3.56	-5.02	-3.59	1(1)	Stationary
TD/T	-3.60	-3.56	-6.53	-3.58	1(1)	Stationary

Source: Researchers computation 2013

To circumvent the problem of using non-stationary data, we tested each of the variables for unit root using the Augmented Dickey Fuller (ADF) test. The test result was presented in Table 2. The result shows that PPT, PIT, CIT, EDT, SEC had unit root while GDPGR, OPN, I/Y and TD/T were stationary at first difference real, GDP growth rate, openness, investment-income ratio and ratio of total direct tax to total tax revenue achieved stationarity. Having established stationarity, co-integration test was carried out to test the presence of a long-run relationship between growth rate in real GDP and the regressors of the model.

Table 3: Result of Unit Root Test of Residuals.

		t-statistic	Prob.*
Augmented Dickey Fuller Test Statistic		-4.427258	0.0035
critical values	1%	-3.886751	
	5%	-3.052169	
	10%	-2.666593	

Source: Researchers computation 2013

The Engle Granger Two-Step (EGTS) procedure was employed in testing the equilibrium of the stationary variables. The result of the test was presented in Table 3. The result shows that there is a long-run relationship between real GDP growth rate and the explanatory variables of the model as the residual was found to be stationary at the 5% level of significance. The ADF test statistic exceeded the ADF critical values of (-3.89) and (-3.05) at the 1% and 5% levels of significance respectively.

Error Correction Model Analysis

Table 4: Result of Parsimonious Error Correction Estimates.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.547114	0.784176	0.697693	0.5079
D(CIT/TD)	4.373359	2.021650	2.163262	0.0673
D(PIT/TD)	3.250214	2.382767	1.364050	0.2148
D(PPT/TD)	4.639699	2.019997	2.296884	0.0552
D(EDT/TD)	4.580378	1.879795	2.436638	0.0450
D(SEC)	-0.047620	0.179542	-0.265232	0.7985
D(I/Y)	0.370342	0.199458	1.856737	0.1057
D(OPN)	-0.010224	0.070261	-0.145522	0.8884
D(TD/T)	4.19007	0.168943	2.480169	0.0422
ECM(-1)	-0.817442	0.186317	-4.387343	0.0032

R-squared	0.832158	Mean dependent variable.	0.392941
Adjusted R-squared	0.616361	S. D. dependent variable.	4.588788
S. E. of regression	2.842229	Akaike info criterion	5.216222
Sum squared residual.	56.54788	Schwarz criterion	5.706348
Log likelihood	-34.33789	Hannan-Quinn Criterion	5.264941
F-statistic	3.856212	Durbin-Watson statistic	2.23480
Prob (F-statistic)	0.044455		

Source: Researchers computation 2013

The short-run response of real GDP growth rate to changes in the explanatory variables was captured using the error correction model. The model captured the speed of adjustment to equilibrium when the short-run position of the real GDP growth rate deviates from the long-run position. Table 4 shows the results of the error correction model. It was revealed that the error correction term was correctly signed and found to be statistically significant at the 5% level. The speed of adjustment of the error correction term shows that 82% of the deviation of the short-run from the long-run is adjusted within one year. The R^2 value of (0.83) shows that 83% of the variation in growth rate of real GDP is accounted for by the explanatory variables in the model. The F-statistic of (3.86) revealed that the null hypothesis of joint insignificance of the variables of the error correction models was rejected at the 1% significance level. The short-run result revealed that our variables of interest, the ratio of Petroleum Profits tax to total direct tax was found to have a statistically significant positive impact on real GDP growth rate in Nigeria, having reported a t-value of (2.30) and a robust coefficient of (4.64). The ratio of total direct tax to total tax revenue reported a robust coefficient of (4.19) and t-value of (2.48) respectively.

DISCUSSION OF FINDINGS

The ratio of Petroleum Profits tax to total direct tax was found to have a positive and significant impact on economic growth in Nigeria. While the result conformed to our *apriori* expectation, it also corroborated the findings of Ogbonna and Ebimobowei, 2012; Ilaboya, 2012; Jibrin *et al*, 2012 who found a statistically significant positive relationship between Petroleum Profits tax and economic growth in Nigeria. The result however deviated from that of Iyoha and Oriakhi (2010) who established an insignificant (though positive) relationship between Petroleum Profits tax and economic growth in Nigeria.

In addition to our variable of interest, the ratio of company income tax and education tax to total direct tax reported a significant and positive impact on economic growth while the explanatory variables of openness and secondary school enrolment revealed an insignificant impact on economic growth having reported negative coefficients of(-0.048) and (-0.010224) respectively.

SUMMARY OF RESEARCH FINDINGS AND CONCLUSION

Summary of Findings

The major findings of this research were:

1. As expected, the ratio of Petroleum Profits tax to total direct tax reported a robust coefficient of (4.64) a positive and significant t-value of (2.30).

2. The explanatory variables of secondary school enrolment and openness presented a negative impact on economic growth with t-values of (-0.265) and (-0.146) respectively.

3. The investment-income ratio and the ratio of personal income tax to total direct tax reported positive but insignificant impact on economic growth. They both presented t-values of (1.857) and (1.364) respectively.

4. The explanatory variables of company income tax and the ratio of education tax to total direct tax reported positive and significant relationship between real GDP growth rate.

CONCLUSION

The broad objective of this study was to investigate the growth implications of Petroleum Profits tax in Nigeria against the backdrop of the consensus that oil revenue accounts for about 90% of total government revenue. The study was motivated by the diverse theoretic and conflicting evidence on the relationship between Petroleum Profits tax and economic growth in Nigeria. Some explanatory variables of company income tax, education tax, investment – income ratio and personal income tax reported a positive relationship. The variable of interest – Petroleum Profits tax was found to have a positive and statistically significant impact on economic growth in Nigeria.

In addition to presenting a more robust model, the study has helped to resolve the inconsistencies on the growth implications of Petroleum Profits tax in Nigeria.

RECOMMENDATIONS

The upstream sector of the Nigeria Petroleum industry is grossly under-taxed. An all inclusive tax administration in this sector will no doubt help to increase the revenue from Petroleum Profits tax in Nigeria. As a way out of this problem, we are recommending a complete listing of all companies (indigenous and multinationals) involved with petroleum exploration in Nigeria. This will not only enhance accountability, it will also allow the public and other stakeholders monitor the activities of these companies. Presently, the activities of there companies are not published for public consumption hence it has become very easy for the companies to avoid and evade tax.

In addition, the entire regulatory system requires a complete overhaul and re-engineering, not only of the processes and practices but also of the mind-set of the human capital in the upstream sector of the petroleum industry. The fraud and corruption in the industry is hardly quantifiable. The recent fuel subsidy drama may just be a tip of the iceberg. Above all, there

is urgent need to diversify the economy of Nigeria from its mono-product status. If all the sectors of the economy are as vibrant as the petroleum sector, there maybe less attention on the oil proceeds and this may confer even distribution of growth without too much emphasis on the sector.

Overall, the Federal Inland Revenue Service needs a complete overhaul. There seems to be dearth of professionals in accounting and tax matters as well as information technology. The paper work still going on in the parastatals is anti-development. We recommend human capacity development and injection of new professionals who can contend effectively with the demands of this time. Information technology experts, tax professionals, accounting professionals and legal professionals should be used to strengthen FBIR.

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APPENDICES

Appendix 1: Ramsey Reset

	Value	Df	Probability
t-statistic	1.659155	6	0.1482
f-statistic	2.752797	(1,6)	0.1482
Likelihood ratio	6.419435	1	0.0113

Source: Researchers computation 2013

Appendix 2: Breusch-Godfrey Serial Correlation LM Test

f-statistic	0.585672 Prob. F(2,5)	0.5908
Obs*R-square	3.226664 Prob. Chi-Squared (2)	0.1992

Source: Researchers computation 2013

Appendix 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey

f-statistic	0.507240 Prob. F(9,7)	0.8308
Obs*R-square	6.710477 Prob. Chi-Squared (9)	0.6672
Scaled explained SS	2.298760 Prob. Chi-Squared (9)	0.9858

Source: Researchers computation 2013