International Journal of Academic Research in Business and Social Sciences
Dec 2015, Vol. 5, No. 12
ISSN: 2222-6990

The Impact of Transfer Pricing on Economic Growth in Nigeria

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DOI: 10.6007/IJARBSS/v5-i12/1939 URL: http://dx.doi.org/10.6007/IJARBSS/v5-i12/1939

ABSTRACT
This research uses a co-integration with vector error correction and Granger causality techniques to investigate the impact of transfer pricing on economic growth in Nigeria. Variance decomposition and impulse response function are adopted to add rigour. Correlation matrix and diagnostic tests are conducted to ascertain whether the results are biased. The empirical evidence reveals that the normalised long run equilibrium indicates that transfer pricing with unemployment variable negatively related to economic growth. The short run dynamics support the co-integration results by being appropriately signed and statistically significant. The Granger causality result indicates that transfer pricing does not Granger cause economic growth in Nigeria. Result on variance decomposition show that the predominant source of variation in output growth is economic growth. On impulse response function, result indicates that to a large extent the response of economic growth to transfer pricing is negative. Results from the diagnostic tests suggest that the long run, Granger causality, variance decomposition and impulse response results are not spurious.
Keywords: Economic growth, transfer pricing, unemployment

1. Introduction

Transfer pricing is on the radar in both developed and developing countries and could be defined as the structuring and pricing of transactions between members of the same controlled group. Specifically, the concern is with cross-border transaction between parent companies and the subsidiaries or among different companies where income and expenses are allotted between or among tax payers in different countries. However, many countries including Nigeria also consider domestic transactions between affiliates. Transactions between parent companies and its subsidiaries cover the sale of tangible goods and the leasing or sale of intellectual property to provision of services. The abuse of transfer pricing by the foreign investors' has become a concern of Nigeria because of the significant amount of money in play. Put simply, Nigeria law on transfer pricing aims at retaining much of the profit derived from the exploitation of her resources and other business activity carried out in the country. This study is the first to investigate the impact of transfer pricing on economic growth in Nigeria using quantitative method.

Significant transfer pricing takes place in Nigeria via over-invoicing of imports and under-invoicing of exports (see Ajayi 1992, p. 6 and section 2 of this work). Over-invoicing of import is used by the multinational companies to repatriate profits from Nigeria which creates room for low company tax, while under-invoicing of export transaction is used by the foreign investors' to avoid or reduce export surcharges or to evade income tax to facilitate capital flight.

2. Trends and Magnitude of Transfer Pricing in Nigeria

To show how extreme over-invoicing of import can be, Trade Mark South Africa (2004) reveals that:

(i) In 2005, an electric hair dryer was imported into Nigeria by a foreign company at a price $3,800 when the United States world price was estimated to be $25.
(ii) In 2005 a set of golf clubs were imported into Nigeria by foreign company for $4,976 while the United States world price for the same set of clubs was only $82.
(iii) In 2005 cassette recorders were imported into Nigeria by foreign firm at a price $5,640 when the United States world price was estimated to be $56.
(iv) In the same year starter motors were also imported into Nigeria by subsidiary company for $4,363 while the United States world price was $41.

On the other hand, foreign investors in Nigeria also indulge in the use of under-invoicing of export. For instance,

(i) In 2005, coffee was exported by a foreign company in Nigeria at a price of $0.69 per unit when the United States world price was estimated to be $2.18.
(ii) In the same year gum Arabic was exported by a foreign firm in Nigeria at a price of $0.69 while the United States world price was estimated to be $3.51.
(iii) In 2005 bran was exported by a foreign investor in agricultural sector in Nigeria at a unit price of $94.99 while the United States world price for the same tonne was only $196.5 (Kapoor 2007, p 10).

The aforementioned trade faking transactions are in million quantities which causes significant capital flight from Nigeria. Over-invoicing of import and under-invoicing of export represent a substantial source of transfer pricing and capital flight in Nigeria, with an average annual outflow of capital running to the tune of $386 million and cumulative total of $13.5 billion over the 1970-2004 period (Ajilore 2010, p. 92). Furthermore, between the periods of 2005 - 2007 Nigeria lose £502 million in transfer pricing via trade misinvoicing (Christian Aid Report 2009, p. 5). Developing countries including Nigeria are vulnerable to the use of transfer pricing to avoid taxes especially by the multinational oil companies (Kapoor 2007, p. 13). In Nigeria, oil companies such as Shell International Petroleum, Halliburton and Chevron in 2003, 2002 and 1999 are estimated to have avoided US$17,857,142.86 million, US$14,285,714.20 million and US$710,506,000 in taxes respectively by using a novel design of accounting and tax transactions with domestic and foreign government (Bakre 2006, p. 16-19). Nigeria is vulnerable to this strategy of tax avoidance and related capital flight because it lacks sufficient information from the parent company to be able to challenge transfer pricing and other forms of tax avoidance.

Because a considerable share of Nigeria production in oil is under the control of multinational companies which made it more vulnerable to tax avoidance practices through transfer pricing by under-invoicing exports or over-invoicing imports.
The justification for conducting a research on transfer pricing is that it facilitates tax avoidance and the flight of capital which if not checked will affect the economic growth.

3. The Nigerian Tax Laws on Transfer Pricing

The key principle of transfer pricing is based on the arm's length rule which means that pricing term between related firms or companies in the exchange of goods and services should realise same result as if they are unrelated. Furthermore, related companies must act as if they are unrelated. The purpose of this requirement is to ensure that profit which should be liable to domestic tax does not become a gain to another country to which profit is shifted. Tax on transaction between related companies is provided in Nigerian tax laws elucidated in section 13 (2) (d) Companies Income Tax Act (CITA) laws of the federation 2004. Similarly, section 11 (2) (d) of the Nigerian Tax Law of 1990 cited in (Onyeukwu 2007, p. 1) in a nutshell explains that:

(i) The profits of a foreign company in Nigeria from any trade or business are deemed to be gotten from Nigeria.
(ii) Where transactions between the companies are deemed fictitious, the profit can be adjusted by the tax board to reflect arm's length transaction.

Section 18 of the Nigerian Tax Law of 1990 clarifies on the meaning of artificial transaction as follows:
Where the tax authority is of opinion that a transaction is fictitious or would reduce tax payable by a company, it is required that such disposition should be adjusted and liable to tax as considers appropriate without ostracising companies involved in the fictitious transaction. This suggests that the tax authority is conferred with the onus of making adjustments where the internal pricing system of the related parties does not reflect the open market prices.
In a nutshell, the implication of the aforementioned sections of the Nigeria laws is that the issue of determining transfer pricing with regards to Nigeria is a subjective judgement by the tax authority and makes adjustment to capture the arm's length treatment of intercompany transactions if it will instigate threats of tax avoidance. In Nigeria, some factors which can trigger recognition of transactions between companies as being at variance with arm's length principle and may in turn forces tax authority to subjective judgement are briefly discussed below.

3.1. The Presence of Intercompany Intangible Transactions

In Nigeria where there exist intangible transactions between companies that involves payment of huge amount of money for royalty by loss-making affiliate can trigger the suspicion of fictitious transaction for the purpose of transfer pricing by the tax authority (Oyedele et al. 2013, p. 3). This raises the concern of whether the resident company in Nigeria is actually benefiting from the licensed intangible and the probability that the payment is a subterfuge for pretty repatriation of profits.

International Journal of Academic Research in Business and Social Sciences
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ISSN: 2222-6990

3.2. Transactions with Companies in Tax Heavens

Where the resident company in Nigeria have an intercompany transaction with controlling entity in tax havens, any payment made to the oversea company would raise the suspicion that it served the purpose of shifting income to tax heaven (Onyeukwu 2007, p. 3). In computing the transaction at arm's length the transaction of the resident company in Nigeria is deemed to lack substance. Where the resident company in Nigeria have an intercompany transaction with controlling entity in tax havens, any payment made to the oversea company would raise the suspicion that it served the purpose of shifting income to tax heaven.

3.3. Subsidiary of a foreign Company

In Nigeria where there is a controlling interest by the parent company in the activities of the subsidiary company, tax authority will employ subjective judgement to declare it fictitious and make adjustment in the transfer pricing to make sure appropriate tax is paid. In Nigeria where there is a controlling interest by the parent company in the activities of the subsidiary company, tax authority will employ subjective judgement to declare it fictitious and make adjustment in the transfer pricing to make sure appropriate tax is paid.

4. Data, methodology and hypotheses

This study utilized time series data on economic growth, foreign direct investment and trade mis-invoicing from Central Bank of Nigeria various issues for the period of 1970-2004 due to lack of data before and after the aforementioned period, using Johansen co-integration and Granger causality method. Co-integration test is adopted because it can be used in a higher dimensional system where two or more variables do co-integrate and it takes into account the short run dynamics that exist among the co-integrating variables. Granger causality is also used to ascertain the direction of causality relationship. Diagnostic tests are conducted to ascertain whether the results are spurious, while variance decomposition and impulse response function are included to add rigour.

Research hypotheses

1. There is a long run significant relationship between transfer pricing and economic growth in Nigeria.
2. There is Granger causality relationship between transfer pricing and economic growth in Nigeria.
3. There is impulse response relationship between transfer pricing and economic growth in Nigeria.

Estimation of Transfer Pricing and Model Specification

For the estimation of transfer pricing, our methodology with the necessary adjustment is presented below:

$$TP = FDI - CA \quad (1)$$

Where TP refers to transfer pricing, FDI refers to the net flows of foreign investment and CA represents current account balances. The right hand side of the equation shows the official or

recorded transactions reported in the balance of payment and so, transfer pricing implies the "unrecorded" capital outflows. In order to account for errors in current account data, adjustment needs to be made (Boyce and Ndikumana 2001).

The reason for the adjustment in current account data is that export and import data could be inaccurate due to the high rate of mis-invoicing of exports and imports (see Gulati 1987). In countries where transfer pricing is high, it in incontrovertible to assume that trade mis-invoicing may be used as an opium for capital flight. The FDI in the equation could be captured by the residents acquiring foreign assets by over-invoicing imports and under invoicing exports. However, government policies may change both the import over-invoicing and export under-invoicing to opposite sides. According to Ajilore (2010) such reverse results in an understatement of the current account deficit and consequently leads to an overstatement of the residually derived capital flight estimates. Due to the presence of these counteracting effects, the net effects of trade mis-invoicing upon transfer pricing estimates can go in either direction. Hence, trade mis-invoicing data (proxy for transfer pricing) used in this study captures the discrepancies in the export and import invoicing. The equation below incorporates three independent variables for the purpose of investigating the impact of transfer pricing on economic growth in Nigeria.

$$LGDP_t = \beta_0 + \beta_1 TM_t + \beta_2 UN_t + \mu_t \qquad (2)$$

Where GDP (a proxy for economic growth), is GDP at current prices divided by implicit price deflator to take care of inflationary rate. TM is trade mis-invoicing (proxy for transfer pricing) and is the difference in export and import invoicing, while UN is the unemployment rate. The a priori expectation is that the second and third explanatory variables will exert negative impacts on the explained variable.

Table 1: Summary of Dataset Used.

Variables	Description	How it is measured	Source
GDP	Gross domestic product at current prices	GDP divided by implicit price deflator	Central Bank of Nigeria (Statistical Bulletin 2009)
TM	Trade mis-invoicing	The difference in export and import invoicing	Central Bank of Nigeria (various issues)
UN	Unemployment rate	Percentage rate	National Bureau of Statistics (various issues)

5. EMPIRICAL RESULTS

Unit Root Test Analysis

The reason for conducting unit root test is to ascertain whether the variables are stationary to ensure that spurious results are not realised. From Table 2 below, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests indicated that none of the variables are stationary at level. It shows that. However, at first difference, all the variables are stationary when both Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were used. Thus, the variables qualify for the next stage of test; co-integration test.

Table 2: Unit Root Test Result

	AUGMENTED DICKEY FULLER TEST (ADF)		PHILIP PERRON TEST (PP)	
Variables	t-statistics (prob.) at level	t-statistics (prob.) at 1st diff.	t-statistics (Prob.) at level	t-statistics (Prob.) at 1st diff.
LGDP	0.406497 (0.9803)	-5.067123 (0.0002)	0.369366 (0.9786)	-5.059104 (0.0002)
TM	-2.786146 (0.0709)	-6.389651 (0.0000)	-2.456178 (0.1348)	-7.181915 (0.0000)
UN	-1.779439 (0.3839)	-5.774773 (0.0000)	-1.844826 (0.3534)	-5.839883 (0.0000)

Source: Author's calculation using E-View 8.0

Optimal VAR Lag Length

With reference to Table 3 below, the lag length selected to investigate the long run relationship between transfer pricing and economic growth in Nigeria is 6. This lag length is selected because it gives positive and significant relationship between the dependent and the independent variables.

Table 3: Optimal VAR Lag Length

VAR Lag Order Selection Criteria
Endogenous variables: LGDP TM
UN
Exogenous variables: C
Date: 04/27/15 Time: 18:06
Sample: 1970 2004
Included observations: 29

Lag	LogL	LR	FPE	AIC	SC
0	-369.0613	NA	27947837	25.65940	25.80084
1	-286.2091	142.8486*	172443.0	20.56614	21.13192*
2	-280.5422	8.597969	222245.8	20.79602	21.78613
3	-269.4350	14.55431	203915.6	20.65069	22.06513
4	-257.8333	12.80190	191610.0	20.47126	22.31004
5	-243.5513	12.80454	164086.6*	20.10699*	22.37010
6	-236.8574	4.616467	275739.4	20.26603	22.95347

* indicates lag order selected by the criterion

Johansen Co-integration Result

Table 4 shows that in both the trace and maximum-eigen value tests their statistics are greater than the critical values with p-values less than 0.05, which indicates that long run equilibrium relationship exists among the (LGDP, TM and UN) co-integrating variables.

Table 4: Johansen Co-integration Results (Series: LGDP, TM and UN)

Hypothesised No. Of Co-integrating Equation (CE)	**Trace Test**		**Maximum-Eigen Value Test**	
	Trace statistics	Critical Value P < 0.05	Maxi-Eigen Statistics	Critical Value P < 0.05
None *	108.7366	29.79707	70.47141	21.13162
At most 1 *	38.26516	15.49471	38.04562	14.26460

Note * implies 2 co-integrating equations with statistics significant at p< 0.05
Source: Author's calculation using E-View 8.0

Long run equations result

$LGDP_t$ = -0.003503 TM_t + -0.808258 UN_t (3)

(0.00067) (0.18153)
[-9.2134328] [-4.4524762]

The long run equation result realised from co-integration test using E view 8.0 indicates that both TM (transfer pricing) and UN negatively relate to economic growth. The t-statistics are significant. So the first research question is accepted. It shows that transfer pricing exerts negative effect on economic growth in Nigeria.

Vector Error Correction Result

Results from the vector error correction result in Table 5 indicate that the error correction coefficient is properly signed at -0.295801 and significant. The coefficient indicates that a deviation of economic growth (LGDP) from the equilibrium in the long run caused by short run shock is corrected by 30% in each year. Thus, the short run dynamics does not contradict but rather supports the co-integration relationship that exists between the dependent (LGDP) and the independent variables (TM) and (UN). The coefficient of determination (R^2) shows that 78% of variation in economic growth is explained by the variation in trade mis-invoicing and unemployment.

Table 5: Vector Error Correction Results

Variable	Coefficient	Std. Error	t-statistics
Constant	1.382569	0.25563	5.40854
ΔTM	-306.0472	62.8276	-4.87122
ΔUN	-0.008547	0.00475	-1.79745
$\Delta LGDP\ (-1)$	0.371138	0.20643	1.79789
$\Delta TM\ (-1)$	-3.47E-05	2.5E-05	-1.38549
$\Delta UN\ (-1)$	-0.007967	0.00729	-1.09295
$ECM(1)$	-0.295801	0.15572	-1.89953

R-squared	0.783029	Mean dependent	-164.4748
Adj. R-squared	0.606740	S.D. dependent	1662.225
S.E equation	1042.388	Akaike AIC	17.04114
Sum sq. resid.	17385177	Schwarz SC	17.69503
Log likelihood	-241.6171		

Author's calculation using E-View 8.0

Granger Causality Result

Table 6: Granger Causality Test Result

Pairwise Granger Causality Tests
Date: 04/27/15 Time: 18:28
Sample: 1970 2004
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Prob.
TM does not Granger Cause LGDP	34	0.41622	0.5236
LGDP does not Granger Cause TM		2.42098	0.1299
UN does not Granger Cause LGDP	34	0.01641	0.8989
LGDP does not Granger Cause UN		2.75235	0.1072

With reference to Table 6, the causality test for the short run relationship between economic growth and trade mis-invoicing (TM) indicates that TM (transfer pricing) as well as UN does not Granger cause economic growth. Thus, the hypothesis which states that there is a Granger causality relationship between transfer pricing and economic growth is rejected. This is because the F-statistics and the p-values are not significant and not less than 0.05 respectively.

Variance Decomposition Analysis

The forecast error variance decomposition could be used to make inferences about the proportion of movements in time series due to its own shocks versus shocks to other variables in the system.

Table 7: Variance Decomposition Result

LGDP: Period	S.E.	LGDP	TM	UN
1	0.078890	100.0000	0.000000	0.000000
2	0.134047	95.99801	3.522176	0.479816
3	0.175431	94.75961	4.946803	0.293586
4	0.215120	95.50212	3.444749	1.053130
5	0.255976	94.18743	4.412066	1.400504
6	0.291326	93.52012	4.789175	1.690707
7	0.320779	92.11732	5.427153	2.455527
8	0.347362	91.25365	5.400121	3.346232
9	0.371591	90.77196	4.779952	4.448089
10	0.393674	90.50609	4.329928	5.163977

Table 7 is the variance decomposition result and it shows that the variance of economic growth (LGDP) rates is caused by 100 percent by itself in the first year. In the second year the economic growth rates variance is decomposed into its own variance (96%). The own shocks of economic growth constitute a significant source of variation in growth forecast error in the time horizon,

ranging from 100 percent to 91 percent. Seven years after, variation in economic growth is accounted by trade mis-invoicing (TM, 5.43%) and unemployment (UN, 2.46%). In a nutshell, the changes in economic growth are mainly caused by its own variation. The salient feature of Table 7 above is that besides economic growth, the predominant source of variation in economic growth is trade mis-invoicing (transfer pricing) followed by unemployment.

Impulse Response Analysis

Impulse response analysis shows the responsiveness of a dependent variable in a VAR to shocks from each of the variables.

Table 1: Impulse Response Result

Figure 1 is the impulse response result. It shows the response of economic growth to shocks in trade mis-invoicing (transfer pricing). Figure 1 shows that the response of economic growth to transfer pricing is favourable only in second, fourth and fifth period. So the third hypothesis is accepted. However, it is negative in all other period. This shows that to a greater extent transfer pricing exerts negative effect on economic growth in Nigeria. The impulse response confirms the Granger causality result.

Correlation Matrix and Diagnostic Tests Analyses

The correlation matrix result in Table 8 in the next page shows that the explanatory variables are negatively related to economic growth. It further reveals that the values in the correlation matrix results for correlation are low which indicate that the long run, Granger causality, variance decomposition and the impulse response results in this study are not spurious. The variables also pass through other necessary diagnostic tests regarding heteroscedasticity, normal distribution and serial correlation. In all the results the p-values are greater than 0.05 which shows that the null hypothesis of no heteroscedasticity and no serial correlation is

accepted while the alternative is rejected, while the null hypothesis of no normality of error term is rejected and the alternative accepted.

Table 8: Correlation Matrix and Diagnostic Tests

	LGDP	**TM**	**UN**	
LGDP	1	-0.293206	-0.577345	
TM	-0.293206	1	-0.251106	
UN	-0.577345	-0.251106	1	
Test	**Null Hypothesis**		**T-Statistics**	**Probability**
White (Chi-sq.)	No conditional heteroscedasticity		84	0.7143
Jarque-Bera	There is no normal distribution		113.2302	0.6000
Langrage Multiplier	There is no serial correlation		13.17935	0.1547

Source: Author's computation using E-View 8.0

6. Conclusion and Policy Option

In this study we have presented an analysis of the long run and short run using co-integration and Granger causality respectively as well as variance decomposition and impulse response function to ascertain the impact of transfer pricing (using trade mis-invoicing as proxy) with one other variable (unemployment) on economic growth. All the econometric results indicate that transfer pricing exerts negative effect on economic growth in Nigeria. Thus, there is need for policy makers to shift policy in this direction. Government should try to go beyond arm's length method of checking transfer pricing and adopt other methods such as reduction in: ad valorem tariff, capital gain tax, petroleum profit tax and company tax to curtail foreign direct investment engagement in transfer pricing. This in effect will act as an incentive to investment and increase economic growth in Nigeria.

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