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Impact of Deficit Financing on Economic Growth in Nigeria

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Keywords: *deficit finance, domestic private investment and output growth.*

GJMBR-B Classification: *JEL Code: A19*



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Ali Manir Bazza [α], Mandara Binta [σ] & Ibrahim Muhammad Alhaji [ρ]

Abstract- This study examined the impact of deficit financing on economic growth in Nigeria for the period spanning from 1981 to 2016. Secondary data was used and sourced from the Central Bank of Nigeria's statistical bulletin and was analyzed through the application of Augmented Dickey Fuller to ascertain the stationarity properties of the time series variables and ARDL Technique was employed for the regression analysis. The results from the unit root test revealed mixed degree of integration of the variables i.e. I (0) and (1) and the result from the ARDL regression estimate showed that government deficit finance over the years had significantly impacted on the output growth of Nigeria. The variables used in the study were jointly found significant in affecting the output growth of the economy as revealed by the F-statistics of the model 56.27987 (0.000000). The study therefore recommends that deficit financing should be increased effectively, and that government should ensure an efficient public expenditure process and fiscal discipline as well as maintenance of macroeconomic stability so that Nigerian economy can develop.

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I. Introduction

Deficit Financing is an important method of promoting economic growth and development. In the Keynesian analysis, it has been advocated that deficit financing could be adopted in order to tackle the problem of inflationary-unemployment in the advanced nations when there is recession or depression. In the post Keynesian analysis, it has also been advocated that deficit financing could be applied to the some of the problems of developing nations, especially the problem of unemployment. The Keynesian school of thought advocates the expansion in government expenditures even above current income, particularly during depressions. According to them, the main cause of depression is lack of spending by the public sector when the economy suffers from lack of aggregate demand such as the great depression of 1929 to 1932 and most recently, the 2008 Global Financial and Economic crisis. This will increase the demand for productive output and to reduce the level of unemployment (Anyanwu and Oaikhenan, 1995, Ogboru, 2006, Iya, 2014). A lot of economic problems are caused by deficits when it is in persistence specifically, deficit financing adversely impacts interest rate, investment and economic growth Money creation via deficit financing results in an increase in the stock of money and this is inflationary. Excessive monetary expansions produce an expansion of imports and a contraction of exports so that the external reserve tends to contract.

In Nigeria, considerable attention has been focused on the consequences of deficit financing because of the belief that the presence of these consequences in the Nigeria economy might have informed the current thinking that the government through its deficit financing has contributed greatly to the country's current economic problem. Among the problems confronting the Nigerian economy are; pressure on balance of payment, declining growth and heavy debt burden in which we (Nigeria) had $18billion about 60 percent of the $30billion owed the Paris Club written off (Debt Management Office, 2006). The concern is not deficit *perse,* this is because fiscal deficit is not a crime but when it exceeds the international bench mark of 3 percent of GDP is worrisome, especially when it cannot be said to promote economic activities (Anyanwu, 1997).

All government programmes must be financed, whether in form of expenditure on goods and services or on the assets acquisition or through lending to the private sector. The other part of the expenditure which has not been financed through income tax, individual's savings or domestic borrowing must be through fiscal deficit.

The persistent recurrence of deficit financing via the creation of high powered money may not guarantee the achievement of macroeconomic objectives, which may in turn affect the level of desired investment in an economy and thereby narrowing growth. Major determinant that is mostly affected directly by macro-economic policy is investment, (Word Bank 1993) such macroeconomic policies involved the deliberate control of policy instruments, such as monetary and fiscal policies on grounds of achieving macroeconomic objectives. Investors expectation, decision and confidence on whether to invest or not are based on macroeconomic indices. It is regarded that Macro economic variables are basic fundamentals or

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preconditions which must be achieved for investment to take place and it is against this macroeconomic background that this research work is undertaken to determine to assess the performance of deficit financing on private investment.

a) Objectives of the Study

i. Examine the impact of Deficit financing on Economic Performance of Nigeria.
ii. Examine the impact of Gross net Capital Formation (Domestic Private Investment) on Nigerian economy.

II. Theoretical Framework

a) Deficit Financing and Economic Growth Theory

The Keynesian economists are of the opinion that increase in government spending leads to an increase in domestic output and sees the possibilities of government spending crowding out private (investment) spending through interest cost credit (interest rate). They also believed that fiscal deficit could have a negative impact on external sector, reflected through trade deficit, but only if the domestic economy is unable to absorb the additional liquidity through an expansion in output. The theory holds that government borrowing only in cyclical downturn when there is a rise in a private sector savings and period of unemployment.

In a cyclical upturn, there shall be the reverse of borrowing. However, the financing of any level of fiscal deficits whether through taxation or borrowing fiscal policy involves the absorption of real resources by the public sector that otherwise would be available to the private sector, the absorption of domestic resources will be delay if foreign borrowing or unemployed resource are available. This absorption would improve overall efficiency (output growth) if the social return (benefit) from public expenditure exceeds its private opportunity cost. While public expenditure may displace private sector output (the crowding out effect), it may also improve private sector productivity (the positive externality or public good effect). Development models of public expenditure which primarily is the work of Rustow (1971) anchors on the fact the countries of the world must pass through different stages before they could develop, and that these different stages requires varied proportion of Government spending to total investment in the economy will be large since most of her activities centre on capital formation bordering on roads, housing telephone, education, health care, among others in preparation for takeoff into the middle stage.

b) Empirical Literature

Several attempts had been made to examine the effect of deficit financing on economic growth of a country. Cooray, (2009), Abdullahi, (2000), Gregornu *et al* (2007), and Erkin, (1998) in their works the impact of government expenditure on growth discovered that countries with large government expenditure tend to experience higher growth. Deficit spending by the government stimulates the economy in the short run by making households feel wealthier, thus, raising total private and public consumption expenditure. Through the resulting increase in the aggregate demand, budget deficit has a positive effect on macro-economic activities, thereby stimulating savings and capital formation Seater in (Okpanchi and Abimiku, (2007), Chakraborty and Chakraborty, (2006)Liu, *et al* (2008) examined the casual relationship between GDP and public expenditure for US data during the period 1947-2002. The causality results revealed that the total government expenditure causes growth of GDP. They concluded that judging from the causality test Keynesian hypothesis exerts more influence than the Wagner's law.

Owole *et al* (2007) investigated the relationship between government expenditure and economic growth for a group of 30 OECD countries during the period 1970-2005.Theregression results showed the existence of a long-run relationship between government expenditure and economic growth. Also, they observed a unidirectional causality from government expenditure to growth for 16out of the countries, thus supporting the Keynesian hypothesis. However, causality runs from economic growth to government expenditure in 10 out of the countries, confirming the Wagner's law. Finally, he found that the existence of feedback relationship between government expenditure and economic growth of four countries. Goher *et al* (2011) verified the impact of government fiscal deficit on investment and economic growth using time series of thirty years stretching between 1980 and 2009. They believed that fiscal profligacy has seriously undermined the growth objectives thereby adversely impacting physical and social infrastructure in the country. Huynh (2007) conducted his study while collecting data from the developing Asian countries from the period of 1990 to 2006. He concluded that there is negative impact of budget deficit on the GDP growth of the country while analyzing the trends in Vietnam.

Vamvoukas (2000) explored with the help of Keynesian preposition and Richardian Equivalence, the effect of budget deficit on interest rate and inflation rate, while using data of Greek economy from 1948-2001 by applying co-integration analysis, granger causality and impulse function. Shojai (1999) concluded that deficit spending, financed by the central bank, can also lead to inefficiencies in financial markets and cause high inflation in developing countries. At the same time, it also distorts real exchange rates, which in turn undermines the international competiveness of the economy. Akpokodje (1988) also observed that Government's monetary policy which insured credit to the private sector has a strong positive and significant impact on private investment. He found out that, in the long run, sectoral allocation of funds to the private

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sector is capable of inducing private investment. This implies that increase allocation of funds to the government to finance its expansionary fiscal policy programme at the expense of the private sector adversely affects investment in the private sector significantly.

III. Research Methodology

a) Research Design

It is essentially an Ex Post Facto account of the impact of deficit financing on economic growth in Nigeria. This type of research explains how an independent variable, present prior to the study in the participant affects a dependent variable. It enables one variable hypothesized to be influencing another and does not use random assignment.

b) Sources of Data

The data for this study was obtained mainly from secondary source, which was collected from CBN statistical bulletin, economic and financial review of the CBN (various issues).

c) Method of Data Analysis

The behavioral relationship of the model was estimated by employing Auto-regressive Distributed Lagged Estimates (ARDL) technique. The choice to use the ARDL technique over other methods of analysis is based on the advantages it's possessed among others which are; it can be applied to variables irrespective of their order of integration whether they are purely I(0) and I(1) or mixed and it is efficient for limited sample data between 30 and 80 observations and large sample (Pesaran and Shin 1995).

d) Tests for Unit Root

Financial and economic time series have been observed to be non-stationary at levels. And attempt to regress a non-stationary series on another non stationary series leads to spurious regression (Yule, 1926 Granger and New bold, 1974), a situation that causes wrong inference making. Thus, since correct inference will depend on statistical properties of the data, particularly stationarity, a unit root test was conducted on the time series (RGDP, INT, EXR, GFD, DPI) using Augmented Dickey Fuller (ADF) test (with a constant and time trend) for a sample period of 1981 to 2016.

e) Model Specification (Autoregressive Distributed Lag Model)

The preference of the model Autoregressive Distributive Lag (ARDL) was motivated by its appealing statistical and economic properties which take care of both 1(1) and 1(0) variables. The autoregressive distributive lag (ARDL) model is simple and easier to interpret and above all is very reliable. The following ARDL model was estimated in order to obtain the coefficients for the explanatory variables (GDF, EXR, INT, DPI) and real output growth (RGDP) since these variables have mixed order integration of 1(1) and 1(0).

$$\Delta \ln RGDP = C_o + \beta_1 \ln RGDP_{t-1} + \beta_2 \ln GDF_{t-1} + \beta_3 \ln EXR_{t-1} + \beta_4 \ln INT_{t-1} + \beta_5 \ln DPI_{t-1} + \sum_{i=1}^{p} \lambda i \Delta \ln RGDP_{t-i}$$

$$+ \sum_{n=0}^{q} \pi s \Delta \ln GDF_{t-n} + + \sum_{n=0}^{q} \pi s \Delta \ln EXR_{t-n} + \sum_{n=0}^{q} \pi s \Delta \ln DPI_{t-n} + \sum_{z=0}^{q} pz \Delta \ln INT_{t-z} + \varepsilon_t \ldots\ldots\ldots\ldots (3.1)$$

Where,

RGDP = Real Gross Domestic Product
GDF = Government Deficit Finance
EXR = Exchange Rate
INT = Interest Rate
DPI = Domestic Private Investment (Proxy for Gross net Capital Formation)

β = Long Run Multiplier
Δ = Short Run Multiplier
C_0 = Intercept and
ε_t = White Noise Error

Table 1: Unit Root Result at Level and After First Difference

Variables	ADF Stat	Critical Value At 1%	Level	Prob*	Remarks
RGDP	-6.027385	-4.252879***	I(1)	0.0001***	Non Stationary
GDF	-4.897161	-4.252879***	I(1)	0.0020***	Non Stationary
EXR	-5.104500	-4.252879***	I(1)	0.0012***	Non Stationary
INT	-6.526587	-4.262735***	I(1)	0.0000***	Non Stationary
DPI	-4.553467	-4.252879***	I(0)	0.0048***	Stationary

*Note: *** significance at 1%*

Source: Author's Computation using E-Views (9)

Results from Table 1 contains the unit root test conducted at level and after first difference for all the variables used in the study. The table shows that the variable of domestic private investment (DPI) is a stationary time series variable as indicated by its probability value. The results of the indices of Real

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Gross Domestic Product (RGDP), Government Deficit financing (GDF), Exchange Rate (EXR) and Interest Rate (INT) indicate that the variables are non-stationary time series and the indices became stationary and well behaved after first differencing d(1) as indicated by their probability values. Also, the stationarity level of the indices are indicated by the ADF statistics which are above the critical values to the negative direction.

Table 2: Summary of Regression Result and Diagnostic Results for ARDL Model

Regressors	Coefficient	Standard Errors	T-Stat	Prob*
RGDP(-1)	-0.940954	0.300864	-3.127508	0.0000***
GDF	-0.001491	0.000447	-3.336975	0.0087***
EXR	-0.644191	0.410550	-1.569093	0.1511*
INT	0.441814	0.691191	0.639208	0.5386*
DPI	-1.152747	0.549311	-2.098533	0.0653*
C	-1.908651	2.547439	-0.749243	0.4728*
Trend	0.791149	0.264834	2.987342	0.0153**
R-squared	0.992784			
Adjusted R-squared	0.975143			
D W statistic	2.983742			
F-statistic	56.27987 (0.000000)			

Source: Author's Computation using E-view 9

Table 2 contains multiple regression results for the impact of deficit financing on economic growth in Nigeria. The selected model was (2, 3, 4, 4) based on Akaike information criterion (AIC) with maximum dependent lag of 3. The lag coefficient of Real Gross Domestic Product (RGDP) and government deficit financing (GDF) were found statistically significant at 1 percent in determining the trend of real output growth as indicated by their probability values of 0.0122 and 0.0087 respectively; while the coefficients of exchange rate (EXR), interest rate (INT), Gross net capital formation proxied as domestic private investment (DPI) and constant inclusive were found statistically insignificant at 10 per cent level in determining the trend of real output growth as indicated by their probability values of 0.1511, 0.5386, 0.0653 and 0.4728 respectively. The study found negative and significant impact between government deficit financing (GDF) and real output growth (RGDP). This study negates the findings of Iya *et al* (2014) on the effects of fiscal deficit on economic growth in Nigeria. Their study found positive and insignificant impact to have existed between fiscal deficit and economic growth. Furthermore, negative and insignificant impact was found to have existed between exchange rate and real output growth and between gross net capital formation proxied by domestic private investment (DPI) and real output growth (RGDP). The study also contradicts the findings conducted by Iya *et al* (2014) on their study on domestic private investment on economic growth. Their findings revealed positive and significant impact between domestic private investment and economic growth. The coefficient of interest rate (INT) was found to have positive and insignificant impact on real output growth (RGDP). Precisely, the coefficients of Government Deficit Financing (GDF), Exchange Rate (EXR) and Gross Net Capital Formation proxied as Domestic Private Investment (DPI) were obtained as –0.001491, -0.644191 and -1.152747 respectively. The coefficient of interest rate was obtained as 0.441814, this result therefore implied that 1 per cent change in Interest rate will increase the real output growth by 0.441814 percent. The F-statistics 56.27987, which measured the joint significance of the parameter estimates, was found statistically significant at 1 per cent level as indicated by the corresponding probability value of 0.000000. This implied that all the variables of the model were jointly and statistically significant in affecting the RGDP of the Nigerian economy. The R^2 value of 0.992784 (99 per cent) implied that 99 per cent total variation in RGDP was explained by GDF, EXR, INT and DPI in Nigeria. Coincidently, the model was found fit after taking into account the loss in the degree of freedom as indicated by the adjusted R^2 (R^2 = 0.975143 or 97 per cent). The Durbin-Watson statistic 2.983742 was observed to be higher than the R^2 0.983028, which indicates that the model is non-spurious (meaningful).

IV. Summary and Conclusion

This study attempted to examine the impact of deficit financing on economic growth in Nigeria through the application of Augmented Dickey Fuller in testing the stationarity of time series and ARDL technique for testing the regression estimate. The unit root results revealed that the variables used in the study have mixed degree of integration. The results for unit root test revealed that interest rate, exchange rate, real gross domestic output, government deficit financing became stationary and well behaved after first difference d (1), while domestic private investment became stationary at level I(0). The regression estimate of the model has revealed that the lagged coefficient of real output growth and the coefficient of government domestic deficit were found to be statistically significant on economic growth,

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while the coefficients of exchange rate, interest rate and domestic private investment were found to be statistically insignificant. The model result indicates that government domestic deficit, exchange rate and domestic private investment had negative association with economic growth, while interest rate had a positive association with economic growth. The model was found to be fit as evidenced by its R-squared (0.975143), and the variables in the estimated model were found to be simultaneously statistically significant as shown by the high value of F-statistic (56.27987). In conclusion, it could be said that management of deficit financing has been effective. Some of the major features identified to include public investment involving domestic deficit financing have been self-liquidating, good inter-agency coordination, good record keeping, good quality human resources, financing of long term projects with long term loans, short term project with short term loans. Thus, the federal government became a revenue follower to the extent that its expenditure pattern had little relationship with movement in receipt.

a) Policy Recommendation

1. The study found that deficit financing has negative significant impact on economic growth in Nigeria. It is therefore recommended that deficit financing should be increased effectively, and that government should ensure an efficient public expenditure process and fiscal discipline as well as maintenance of macroeconomic stability so that Nigerian economy can develop.
2. The study found a negative significant association between domestic private investment and economic growth. It is therefore recommended that government should provide enabling environment for the domestic investors and be given loans in order to boost their business to promote economic growth.

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Appendices

Appendix 1: ARDL Regression

Dependent Variable: RGDP
Method: ARDL
Date: 03/27/18 Time: 09:02
Sample (adjusted): 1985 2016
Included observations: 32 after adjustments
Maximum dependent lags: 3 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (4 lags, automatic): GFD EXR INTR DPI
Fixed regressors: C @TREND
Number of models evalulated: 1875
Selected Model: ARDL (2, 3, 4, 4, 4)

Variable	Coefficient	Std. Error	T-Statistic	Prob.*
RGDP(-1)	-0.940954	0.300864	-3.127508	0.0122
RGDP(-2)	0.460384	0.247647	1.859037	0.0960
GFD	-0.001491	0.000447	-3.336975	0.0087
GFD(-1)	-0.003587	0.000604	-5.937042	0.0002
GFD(-2)	-0.002807	0.001154	-2.431924	0.0379
GFD(-3)	0.005058	0.001367	3.699561	0.0049
EXR	-0.644191	0.410550	-1.569093	0.1511
EXR(-1)	-0.580493	0.573746	-1.011759	0.3381
EXR(-2)	1.443887	0.497283	2.903553	0.0175
EXR(-3)	0.049709	0.566190	0.087795	0.9320
EXR(-4)	-2.069067	0.485866	-4.258517	0.0021
INTR	0.441814	0.691191	0.639208	0.5386
INTR(-1)	0.678206	0.531389	1.276289	0.2338
INTR(-2)	-0.149885	0.596349	-0.251338	0.8072
INTR(-3)	2.147483	0.705913	3.042134	0.0140
INTR(-4)	0.951572	0.533191	1.784674	0.1080
DPI	-1.152747	0.549311	-2.098533	0.0653
DPI(-1)	-1.051907	0.433401	-2.427101	0.0382
DPI(-2)	-0.274155	0.737638	-0.371665	0.7187
DPI(-3)	-0.543849	0.702335	-0.774345	0.4586
DPI(-4)	1.407652	0.589381	2.388356	0.0407
C	-1.908651	2.547439	-0.749243	0.4728
@TREND	0.791149	0.264834	2.987342	0.0153
R-squared	0.992784	Mean dependent var		7.113257
Adjusted R-squared	0.975143	S.D. dependent var		2.187149
S.E. of regression	0.344825	Akaike info criterion		0.877429
Sum squared resid	1.070138	Schwarz criterion		1.930926
Log likelihood	8.961142	Hannan-Quinn criter.		1.226633
F-statistic	56.27987	Durbin-Watson stat		2.983742
Prob(F-statistic)	0.000000			

**Note: p-values and any subsequent tests do not account for model Selection*

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Appendix 2: Logged Data Used for the Study

YEAR	RGDP	EXR	DPI	INTR	GFD
1981	5.525652	-0.4943	2.90252	2.054124	-3.9
1982	5.508295	-0.39601	2.841998	2.332144	-6.1
1983	5.441682	-0.32296	2.590767	2.302585	-3.36
1984	5.426051	-0.26788	2.213754	2.525729	-2.66
1985	5.533429	-0.11205	2.174752	1.987874	-3.04
1986	5.552107	0.703098	2.429218	2.351375	-8.25
1987	5.545177	1.391531	2.723267	2.862201	-5.89
1988	5.618261	1.512927	2.865624	2.80336	-12.16
1989	5.68728	2.000128	3.289521	3.034953	-15.13
1990	5.794872	2.000128	3.691875	3.242592	-22.12
1991	5.794963	2.084553	3.810876	3.00072	-35.76
1992	5.820943	2.293544	4.26	3.246491	-39.53
1993	5.836388	2.850707	4.573886	3.490429	-65.16
1994	5.844211	3.105931	4.659469	3.010621	-70.27
1995	5.865476	4.394696	4.955264	3.010621	1
1996	5.905961	4.397531	5.318365	3.210844	32.05
1997	5.934444	4.402319	5.49265	2.867899	-5
1998	5.962216	4.428433	5.490012	2.906901	-133.39
1999	5.974089	4.525477	5.445271	3.058707	-285.1
2000	6.021824	4.60617	5.8023	2.890372	-103.78
2001	6.067916	4.714025	5.91927	3.258097	-221.05
2002	6.113217	4.793308	6.213968	3.025291	-301.4
2003	6.204578	4.861362	6.763746	2.97553	-202.72
2004	6.268301	4.890349	6.760496	2.939162	-172.6
2005	6.329721	4.87596	6.690097	2.879198	-161.41
2006	6.389955	4.852811	7.343769	2.850707	-101.4
2007	6.452443	4.828314	7.568875	2.833213	-117.24
2008	6.510556	4.768139	7.627062	2.72261	-47.38
2009	6.577834	4.991792	8.023087	2.923162	-810.01
2010	10.90801	4.998563	8.297274	2.867331	-1105.4
2011	10.95973	5.022696	8.270853	2.773838	-1158.52
2012	11.00093	5.046324	8.118922	2.820783	-975.68
2013	11.05436	5.045037	7.572914	2.816606	-1153.49
2014	11.11473	5.052928	7.935158	2.806386	-835.68
2015	11.45259	5.273	9.554793	2.766319	-1557.79
2016	11.52771	5.535333	9.505963	3.001217	-2208.22

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Appendix 3: Raw Data

YEAR	RGDP	EXR	DPI	INTR	GFD
1981	251.05	0.61	18.22	7.8	-3.9
1982	246.73	0.673	17.15	10.3	-6.1
1983	230.83	0.724	13.34	10	-3.36
1984	227.25	0.765	9.15	12.5	-2.66
1985	253.01	0.894	8.8	7.3	-3.04
1986	257.78	2.02	11.35	10.5	-8.25
1987	256	4.021	15.23	17.5	-5.89
1988	275.41	4.54	17.56	16.5	-12.16
1989	295.09	7.39	26.83	20.8	-15.13
1990	328.61	7.39	40.12	25.6	-22.12
1991	328.64	8.041	45.19	20.1	-35.76
1992	337.29	9.91	70.81	25.7	-39.53
1993	342.54	17.3	96.92	32.8	-65.16
1994	345.23	22.33	105.58	20.3	-70.27
1995	352.65	81.02	141.92	20.3	1
1996	367.22	81.25	204.05	24.8	32.05
1997	377.83	81.64	242.9	17.6	-5
1998	388.47	83.8	242.26	18.3	-133.39
1999	393.11	92.34	231.66	21.3	-285.1
2000	412.33	100.1	331.06	18	-103.78
2001	431.78	111.5	372.14	26	-221.05
2002	451.79	120.7	499.68	20.6	-301.4
2003	495.01	129.2	865.88	19.6	-202.72
2004	527.58	133	863.07	18.9	-172.6
2005	561	131.1	804.4	17.8	-161.41
2006	595.83	128.1	1546.53	17.3	-101.4
2007	634.25	125	1936.96	17	-117.24
2008	672.2	117.7	2053.01	15.22	-47.38
2009	718.98	147.2	3050.58	18.6	-810.01
2010	54612.3	148.2	4012.92	17.59	-1105.4
2011	57511	151.82	3908.28	16.02	-1158.52
2012	59929.9	155.45	3357.4	16.79	-975.68
2013	63218.7	155.25	1944.8	16.72	-1153.49
2014	67152.8	156.48	2793.8	16.55	-835.68
2015	94145	195	14112.2	15.9	-1557.79
2016	101489	253.492	13439.6	20.11	-2208.22

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